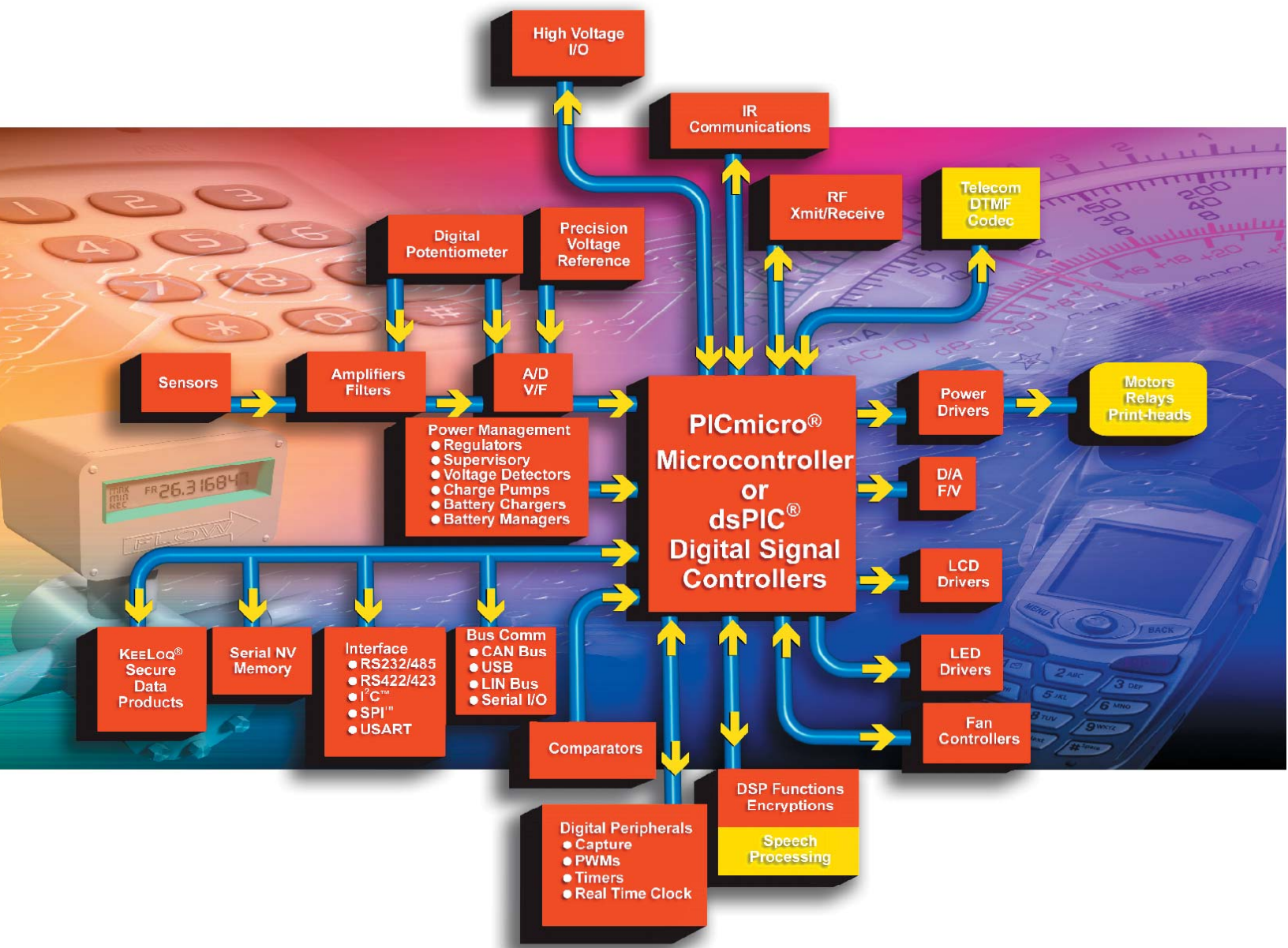




2005 Product Selector Guide



Product Profile

8-bit PICmicro® Microcontrollers

Microchip's PICmicro® family of microcontrollers combine high performance, low cost and small package size to offer the best price/performance ratio in the industry. Based on a powerful RISC core, these 8-bit PIC® microcontrollers fall into three product architecture categories, providing a variety of options for any application requirement:

- **Baseline 8-bit architecture:** 12-bit instruction set, 6-44 pin count, 384-3.5K bytes program memory, up to 5 MIPS
- **Mid-Range 8-bit architecture:** 14-bit instruction set, 8-68 pin count, 896-14K bytes program memory, up to 5 MIPS
- **High Performance (PIC18) 8-bit architecture:** 16-bit instruction set, 18-100 pin count, 8K-128K bytes program memory, up to 16 MIPS

The common architecture provides users with an easy migration path from 6 to 100 pins among all families with little or no code change required. Advanced features available are:

- Sophisticated timing peripherals
- Embedded analog peripherals including A/D and D/A converters, comparators, PBOR, PLVD, DAC, V_{REF}, Op Amps and PSMC
- Communications peripherals (I²C™/SPI™/USB/CAN and USARTs)
- Low-power, single-chip RF solutions targeting RF connectivity for high-volume embedded control applications
- Battery management solutions
- Flexible programming options including In-Circuit Serial Programming™ (ICSP™) technology, self-programming (Enhanced Flash), One-Time-Programmable (OTP), QTP, SQTP and ROM

16-bit PICmicro® Microcontrollers

The PIC24 microcontrollers build upon the high performance, wide selection of peripherals, Flash memory sizes and packaging choices found in the 8-bit PIC18 family. The PIC24 architecture, paired with the optimized MPLAB C30 C Compiler, provides the high throughput and C code density needed to achieve system performance goals and product launch schedules.

- Leadership 16-bit microcontroller performance and C code efficiency
- Extension of the 8-bit PIC18 microcontroller performance, memory and peripherals
- Easy migration path to dsPIC® digital signal controllers with over 40 MIPS and DSP capability, MPLAB® compatibility

16-bit dsPIC® Digital Signal Controllers

Microchip's 16-bit High Performance Digital Signal Controllers (DSC) combine the best features of microcontrollers with the best features of DSPs in a single core. These dsPIC DSC devices reach speeds of up to 30 MIPS.

- C compiler efficiency programming, Flash, data EEPROM, and powerful peripherals
- Extensive software libraries for effortless design
- Familiar microcontroller architecture and design environment

Stand-Alone Analog & Interface Products

Microchip offers a broad portfolio of analog and related products:

- **Linear and Mixed-Signal.** ADCs/DACs, digital potentiometers, op amps and comparators.
- **Power Management.** LDO and switching regulators, charge pumps, voltage references, CPU/system supervisors and voltage detectors, battery chargers and power MOSFET drivers.
- **Thermal Management.** Temperature sensors (logic output, voltage output, and serial output), brushless DC fan controllers, and fan fault detectors.
- **Interface.** Peripheral products supporting industry-standard networking protocols like CAN, LIN and infrared (including IrDA® Standard infrared), as well as products that provide embedded system input/output expansion capability.

Secure Data Products

Microchip's KEELoq® code hopping algorithm combines high security, a small package outline and a very low cost to make this an ideal solution for unidirectional RKE systems. The KEELoq code hopping technology creates a high degree of security using a long code word length together with encryption and synchronization techniques.

Memory Products

Microchip offers one of the broadest selections of serial EEPROMs in densities from 128 bits to 512 Kbits, with operating voltages down to 1.8V, in all popular bus protocols (I²C™, Microwire and SPI™ compatible). They are available in all standard temperature ranges from -40°C to +125°C and packaged in the world's smallest standard packaging; up to 16 Kbits in 5-lead SOT-23 and up to 256 Kbits in 8-lead MSOP.

Development Systems

Microchip offers a full range of microcontroller development systems, including the MPLAB® ICE 2000 and ICE 9000 in-circuit emulators; MPLAB Integrated Development Environment; MPLAB C18 and C30 Compiler; the MPLAB ICD In-Circuit Debugger, MPLAB PM3 full-featured device programmer; PICSTART® low-cost development system; the PICKit™ 1 Flash Starter Kit, SEEVAL® Serial EEPROM Evaluation Kit and various demonstration boards. Microchip has shipped more than 300,000+ development systems worldwide.

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CURRENT dsPIC® DIGITAL SIGNAL CONTROLLER FAMILY PRODUCTS

| dsPIC® Digital Signal Controller (DSC) Family | | | | | | | | | | | | | | | | | | |
|---|------------------------|-----------------------|----------|------------|-----------------|------------------------|---------------------|----------------------|--------------|-----------|---------------------|-------------------|-----------|------|------|-------------------|-----|------------------------|
| Product | Program (Flash) KBytes | Memory (Flash) KWords | EE Bytes | SRAM Bytes | I/O Pins (max.) | Packages | A/D 12-bit 200 ksps | A/D 10-bit 1000 ksps | Timer 16-bit | Input Cap | Output Comp/Std PWM | Motor Control PWM | Quad Enc. | UART | SPI™ | I ² C™ | CAN | Codec Interface |
| dsPIC30F Motor Control and Power Conversion Family | | | | | | | | | | | | | | | | | | |
| | 12 | 4 | 1024 | 512 | 20 | 28SO, 28SP, 28MM (6x6) | — | 6 ch | 3 | 4 | 2 | 6 | ✓ | 1 | 1 | 1 | — | — |
| | 24 | 8 | 1024 | 1024 | 20 | 28SO, 28SP, 44ML (8x8) | — | 6 ch | 5 | 4 | 2 | 6 | ✓ | 1 | 1 | 1 | — | — |
| | 48 | 16 | 1024 | 2048 | 20 | 28SO, 28SP, 44ML (8x8) | — | 6 ch | 5 | 4 | 2 | 6 | ✓ | 1 | 1 | 1 | 1 | — |
| | 24 | 8 | 1024 | 1024 | 30 | 40P, 44PT, 44ML (8x8) | — | 9 ch | 5 | 4 | 4 | 6 | ✓ | 2 | 1 | 1 | — | — |
| | 48 | 16 | 1024 | 2048 | 30 | 40P, 44PT, 44ML (8x8) | — | 9 ch | 5 | 4 | 4 | 6 | ✓ | 2 | 1 | 1 | 1 | — |
| NEW | 66 | 22 | 1024 | 2048 | 52 | 64PT | — | 16 ch | 5 | 4 | 4 | 8 | ✓ | 1 | 2 | 1 | 1 | — |
| NEW | 144 | 48 | 4096 | 8192 | 52 | 64PT | — | 16 ch | 5 | 8 | 8 | 8 | ✓ | 2 | 2 | 1 | 2 | — |
| NEW | 66 | 22 | 1024 | 2048 | 68 | 80PT | — | 16 ch | 5 | 4 | 4 | 8 | ✓ | 1 | 2 | 1 | 1 | — |
| | 144 | 48 | 4096 | 8192 | 68 | 80PF | — | 16 ch | 5 | 8 | 8 | 8 | ✓ | 2 | 2 | 1 | 2 | — |
| NEW | 144 | 48 | 4096 | 8192 | 68 | 80PF, 80PT | — | 16 ch | 5 | 8 | 8 | 8 | ✓ | 2 | 2 | 1 | 2 | — |
| dsPIC30F General Purpose Family | | | | | | | | | | | | | | | | | | |
| | 24 | 8 | 1024 | 2048 | 30 | 40P, 44PT, 44ML (8x8) | 13 ch | — | 3 | 2 | 2 | — | — | 2 | 1 | 1 | — | — |
| | 48 | 16 | 1024 | 2048 | 30 | 40P, 44PT, 44ML (8x8) | 13 ch | — | 5 | 4 | 4 | — | — | 2 | 1 | 1 | 1 | AC97, I ² S |
| | 66 | 22 | 1024 | 4096 | 52 | 64PT | 16 ch | — | 5 | 8 | 8 | — | — | 2 | 2 | 1 | 2 | AC97, I ² S |
| | 132 | 44 | 2048 | 6144 | 52 | 64PF | 16 ch | — | 5 | 8 | 8 | — | — | 2 | 2 | 1 | 2 | — |
| NEW | 132 | 44 | 2048 | 6144 | 52 | 64PF, 64PT | 16 ch | — | 5 | 8 | 8 | — | — | 2 | 2 | 1 | 2 | — |
| | 144 | 48 | 4096 | 8192 | 52 | 64PF | 16 ch | — | 5 | 8 | 8 | — | — | 2 | 2 | 1 | 2 | AC97, I ² S |
| NEW | 144 | 48 | 4096 | 8192 | 52 | 64PF, 64PT | 16 ch | — | 5 | 8 | 8 | — | — | 2 | 2 | 1 | 2 | AC97, I ² S |
| | 66 | 22 | 1024 | 4096 | 68 | 80PT | 16 ch | — | 5 | 8 | 8 | — | — | 2 | 2 | 1 | 2 | AC97, I ² S |
| | 132 | 44 | 2048 | 6144 | 68 | 80PF | 16 ch | — | 5 | 8 | 8 | — | — | 2 | 2 | 1 | 2 | — |
| NEW | 132 | 44 | 2048 | 6144 | 68 | 80PF, 80PT | 16 ch | — | 5 | 8 | 8 | — | — | 2 | 2 | 1 | 2 | — |

Abbreviations are found on the last page of the Selector Guide.

| dsPIC® Digital Signal Controller (DSC) Family (continued) | | | | | | | | | | | | | | | | | | |
|--|------------------------|-----------------------|----------|------------|-----------------|------------------------|---------------------|----------------------|--------------|-----------|---------------------|-------------------|-----------|------|------|-------------------|-----|------------------------|
| Product | Program (Flash) KBytes | Memory (Flash) KWords | EE Bytes | SRAM Bytes | I/O Pins (max.) | Packages | A/D 12-bit 200 ksps | A/D 10-bit 1000 ksps | Timer 16-bit | Input Cap | Output Comp/Std PWM | Motor Control PWM | Quad Enc. | UART | SPI™ | I ² C™ | CAN | Codec Interface |
| dsPIC30F General Purpose Family (continued) | | | | | | | | | | | | | | | | | | |
| dsPIC30F6014 | 144 | 48 | 4096 | 8192 | 68 | 80PF | 16 ch | — | 5 | 8 | 8 | — | — | 2 | 2 | 1 | 2 | AC97, I ² S |
| NEW dsPIC30F6014A | 144 | 48 | 4096 | 8192 | 68 | 80PF, 80PT | 16 ch | — | 5 | 8 | 8 | — | — | 2 | 2 | 1 | 2 | AC97, I ² S |
| dsPIC30F Sensor Family | | | | | | | | | | | | | | | | | | |
| dsPIC30F2011 | 12 | 4 | 0 | 1024 | 12 | 18SO, 18P, 28ML (6x6) | 8 ch | — | 3 | 2 | 2 | — | — | 1 | 1 | 1 | — | — |
| dsPIC30F3012 | 24 | 8 | 1024 | 2048 | 12 | 18SO, 18P, 28ML (6x6) | 8 ch | — | 3 | 2 | 2 | — | — | 1 | 1 | 1 | — | — |
| dsPIC30F2012 | 12 | 4 | 0 | 1024 | 20 | 28SO, 28SP, 28ML (6x6) | 10 ch | — | 3 | 2 | 2 | — | — | 1 | 1 | 1 | — | — |
| dsPIC30F3013 | 24 | 8 | 1024 | 2048 | 20 | 28SO, 28SP, 28ML (6x6) | 10 ch | — | 3 | 2 | 2 | — | — | 2 | 1 | 1 | — | — |

Abbreviations are found on the last page of the Selector Guide.

FUTURE dsPIC® DIGITAL SIGNAL CONTROLLER FAMILY PRODUCTS

| dsPIC® Digital Signal Controller (DSC) Family | | | | | | | | | | | | | | | | | |
|---|------------------------|-------------|------|-----------------|------------------|--------------------|----------------------|--------------|-----------|----------------------|-------------------|---------------------|------|------|-------------------|-----|-----------------|
| Product | Program (Flash) Kbytes | SRAM KBytes | DMA | I/O Pins (max.) | Packages | A/D 12-bit 500ksps | A/D 10-bit 1,000ksps | Timer 16-bit | Input Cap | Output Comp/ Std PWM | Motor Control PWM | Quad Enc. Interface | UART | SPI™ | I ² C™ | CAN | Codec Interface |
| dsPIC30F Motor Control and Power Conversion Family | | | | | | | | | | | | | | | | | |
| dsPIC30F2005 | 8 | 300 | — | 20 | 28SO, 28SP, 28MM | — | 1 A/D, 6 ch 4 S/H | 3 | 3 | 1 | 6 | ✓ | 1 | 0 | 0 | 0 | — |
| dsPIC30F2015 | 12 | 500 | — | 20 | 28SO, 28SP, 28MM | — | 1 A/D, 6 ch 4 S/H | 3 | 4 | 2 | 6 | ✓ | 1 | 1 | 1 | 0 | — |
| dsPIC33F Motor Control and Power Conversion Family | | | | | | | | | | | | | | | | | |
| dsPIC33FJ64MC506 | 64 | 8 | 6 ch | 53 | 64PT | — | 1 A/D, 16 ch 4 S/H | 9 | 8 | 8 | 8 | ✓ | 2 | 2 | 2 | 1 | — |
| dsPIC33FJ64MC508 | 64 | 8 | 6 ch | 69 | 80PT | — | 1 A/D, 18 ch 4 S/H | 9 | 8 | 8 | 8 | ✓ | 2 | 2 | 2 | 1 | — |
| dsPIC33FJ64MC510 | 64 | 8 | 6 ch | 85 | 100PT | — | 1 A/D, 24 ch 4 S/H | 9 | 8 | 8 | 8 | ✓ | 2 | 2 | 2 | 1 | — |
| dsPIC33FJ64MC706 | 64 | 16 | 6 ch | 53 | 64PT | — | 2 A/D, 16 ch 8 S/H | 9 | 8 | 8 | 8 | ✓ | 2 | 2 | 2 | 1 | — |
| dsPIC33FJ64MC710 | 64 | 16 | 6 ch | 85 | 100PT | — | 2 A/D, 24 ch 8 S/H | 9 | 8 | 8 | 8 | ✓ | 2 | 2 | 2 | 2 | — |
| dsPIC33FJ128MC506 | 128 | 8 | 6 ch | 53 | 64PT | — | 1 A/D, 16 ch 4 S/H | 9 | 8 | 8 | 8 | ✓ | 2 | 2 | 2 | 1 | — |
| dsPIC33FJ128MC510 | 128 | 8 | 6 ch | 85 | 100PT | — | 1 A/D, 24 ch 4 S/H | 9 | 8 | 8 | 8 | ✓ | 2 | 2 | 2 | 1 | — |
| dsPIC33FJ128MC706 | 128 | 16 | 6 ch | 53 | 64PT | — | 2 A/D, 16 ch 8 S/H | 9 | 8 | 8 | 8 | ✓ | 2 | 2 | 2 | 1 | — |
| dsPIC33FJ128MC708 | 128 | 16 | 6 ch | 69 | 80PT | — | 2 A/D, 18 ch 8 S/H | 9 | 8 | 8 | 8 | ✓ | 2 | 2 | 2 | 2 | — |
| dsPIC33FJ128MC710 | 128 | 16 | 6 ch | 85 | 100PT | — | 2 A/D, 24 ch 8 S/H | 9 | 8 | 8 | 8 | ✓ | 2 | 2 | 2 | 2 | — |
| dsPIC33FJ256MC510 | 256 | 16 | 6 ch | 85 | 100PT | — | 1 A/D, 16 ch 4 S/H | 9 | 8 | 8 | 8 | ✓ | 2 | 2 | 2 | 1 | — |
| dsPIC33FJ256MC710 | 256 | 30 | 6 ch | 85 | 100PT | — | 2 A/D, 24 ch 8 S/H | 9 | 8 | 8 | 8 | ✓ | 2 | 2 | 2 | 2 | — |

| dsPIC® Digital Signal Controller (DSC) Family (continued) | | | | | | | | | | | | | | | | | |
|--|------------------------|-------------|------|-----------------|----------|-----------------------|----------------------|--------------|-----------|---------------------|-------------------|---------------------|------|------|-------------------|-----|-----------------|
| Product | Program (Flash) Kbytes | SRAM KBytes | DMA | I/O Pins (max.) | Packages | A/D 12-bit 500ksps | A/D 10-bit 1,000ksps | Timer 16-bit | Input Cap | Output Comp/Std PWM | Motor Control PWM | Quad Enc. Interface | UART | SPI™ | I ² C™ | CAN | Codec Interface |
| dsPIC33F General Purpose Family | | | | | | | | | | | | | | | | | |
| dsPIC33FJ64GP206 | 64 | 8 | 6 ch | 53 | 64PT | 1 ADC, 18 ch | — | 9 | 8 | 8 | — | — | 2 | 2 | 1 | 0 | 1 |
| dsPIC33FJ64GP306 | 64 | 16 | 6 ch | 53 | 64PT | 1 ADC, 18 ch | — | 9 | 8 | 8 | — | — | 2 | 2 | 2 | 0 | 1 |
| dsPIC33FJ64GP310 | 64 | 16 | 6 ch | 85 | 100PT | 1 ADC, 32 ch | — | 9 | 8 | 8 | — | — | 2 | 2 | 2 | 0 | 1 |
| dsPIC33FJ64GP706 | 64 | 16 | 6 ch | 53 | 64PT | 2 ADC, 18 ch 2 S/H | — | 9 | 8 | 8 | — | — | 2 | 2 | 2 | 2 | 1 |
| dsPIC33FJ64GP708 | 64 | 16 | 6 ch | 69 | 80PT | 2 ADC, 24 ch 2 S/H | — | 9 | 8 | 8 | — | — | 2 | 2 | 2 | 2 | 1 |
| dsPIC33FJ64GP710 | 64 | 16 | 6 ch | 85 | 100PT | 2 ADC, 32 ch 2 S/H | — | 9 | 8 | 8 | — | — | 2 | 2 | 2 | 2 | 1 |
| dsPIC33FJ128GP206 | 128 | 8 | 6 ch | 53 | 64PT | 1 ADC, 18 ch | — | 9 | 8 | 8 | — | — | 2 | 2 | 1 | 0 | 1 |
| dsPIC33FJ128GP306 | 128 | 16 | 6 ch | 53 | 64PT | 1 ADC, 18 ch | — | 9 | 8 | 8 | — | — | 2 | 2 | 2 | 0 | 1 |
| dsPIC33FJ128GP310 | 128 | 16 | 6 ch | 85 | 100PT | 1 ADC, 32 ch | — | 9 | 8 | 8 | — | — | 2 | 2 | 2 | 0 | 1 |
| dsPIC33FJ128GP706 | 128 | 16 | 6 ch | 53 | 64PT | 2 ADC, 18 ch 2 S/H | — | 9 | 8 | 8 | — | — | 2 | 2 | 2 | 2 | 1 |
| dsPIC33FJ128GP708 | 128 | 16 | 6 ch | 69 | 80PT | 2 ADC, 24 ch 2 S/H | — | 9 | 8 | 8 | — | — | 2 | 2 | 2 | 2 | 1 |
| dsPIC33FJ128GP710 | 128 | 16 | 6 ch | 85 | 100PT | 2 ADC, 32 ch 2 S/H | — | 9 | 8 | 8 | — | — | 2 | 2 | 2 | 2 | 1 |
| dsPIC33FJ256GP506 | 256 | 16 | 6 ch | 53 | 64PT | 1 ADC, 18 ch | — | 9 | 8 | 8 | — | — | 2 | 2 | 2 | 1 | 1 |
| dsPIC33FJ256GP510 | 256 | 16 | 6 ch | 85 | 100PT | 1 ADC, 32 ch | — | 9 | 8 | 8 | — | — | 2 | 2 | 2 | 1 | 1 |
| dsPIC33FJ256GP710 | 256 | 30 | 6 ch | 85 | 100PT | 2 ADC, 32 ch 2 S/H | — | 9 | 8 | 8 | — | — | 2 | 2 | 2 | 2 | 1 |

Abbreviations are found on the last page of the Selector Guide.

CURRENT ANALOG/INTERFACE PRODUCTS

Lead-free versions of many devices are currently offered. Check Microchip's web site for availability.

| THERMAL MANAGEMENT PRODUCTS – Temperature Sensors | | | | | | | |
|---|-----------------------|------------------------------|--------------------------------|---------------|-----------------------------|---|--------------------------------------|
| Part # | Typical Accuracy (°C) | Maximum Accuracy @ 25°C (°C) | Maximum Temperature Range (°C) | Vcc Range (V) | Maximum Supply Current (μA) | Features | Packages |
| Logic Output Temperature Sensors | | | | | | | |
| TC6501 | ±0.5 | ±3 | -55 to +125 | +2.7 to +5.5 | 40 | Cross to MAX6501, Open-drain | 5-Pin SOT-23A |
| TC6502 | ±0.5 | ±3 | -55 to +125 | +2.7 to +5.5 | 40 | Cross to MAX6502, Push-pull | 5-Pin SOT-23A |
| TC6503 | ±0.5 | ±3 | -55 to +125 | +2.7 to +5.5 | 40 | Cross to MAX6503, Open-drain | 5-Pin SOT-23A |
| TC6504 | ±0.5 | ±3 | -55 to +125 | +2.7 to +5.5 | 40 | Cross to MAX6504, Push-pull | 5-Pin SOT-23A |
| TC620 | ±1 | ±3 | -40 to +125 | +4.5 to +18 | 400 | Two resistor-programmable trip points | 8-Pin PDIP, 8-Pin SOIC |
| TC621 | Note 1 | Note 1 | -40 to +85 | +4.5 to +18 | 400 | Requires external thermistor, resistor-programmable trip points | 8-Pin PDIP, 8-Pin SOIC |
| TC622 | ±1 | ±5 | -40 to +125 | +4.5 to +18 | 600 | Dual output, TO-220 for heat sink mounting, resistor-programmable trip points | 8-Pin PDIP, 8-Pin SOIC, 5-Pin TO-220 |
| TC623 | ±1 | ±3 | -40 to +125 | +2.7 to +4.5 | 250 | Two resistor-programmable trip points | 8-Pin PDIP, 8-Pin SOIC |
| TC624 | ±1 | ±5 | -40 to +125 | +2.7 to +4.5 | 300 | Dual output, resistor-programmable trip points | 8-Pin PDIP, 8-Pin SOIC |
| Voltage Output Temperature Sensors | | | | | | | |
| MCP9700 | ±1 | ±4 | -40 to +125 | +2.3 to +5.5 | 12 | Linear Active Thermistor™ IC, Temperature slope: 10 mV/°C | 5-pin SC-70 |
| MCP9701 | ±1 | ±4 | -10 to +125 | +3.1 to +5.5 | 12 | Linear Active Thermistor™ IC, Temperature slope: 19.53 mV/°C, cross to MAX6612 | 5-pin SC-70 |
| TC1046 | ±0.5 | ±2 | -40 to +125 | +2.7 to +4.4 | 60 | High precision temperature-to-voltage converter, 6.25 mV/°C | 3-Pin SOT-23B |
| TC1047 | ±0.5 | ±2 | -40 to +125 | +2.7 to +4.4 | 60 | High precision temperature-to-voltage converter, 10 mV/°C | 3-Pin SOT-23B |
| TC1047A | ±0.5 | ±2 | -40 to +125 | +2.5 to +5.5 | 60 | High precision temperature-to-voltage converter, 10 mV/°C | 3-Pin SOT-23B |
| Serial Output Temperature Sensors | | | | | | | |
| MCP9800 | ±0.5 | ±1 | -55 to +125 | +2.7 to +5.5 | 400 | SMBus/I ² C™ compatible interface, 0.0625°C to 0.5°C adj. resolution, power-saving one-shot temperature measurement | 5-Pin SOT-23 |
| MCP9801 | ±0.5 | ±1 | -55 to +125 | +2.7 to +5.5 | 400 | SMBus/I ² C™ compatible interface, 0.0625°C to 0.5°C adj. resolution, power-saving one-shot temperature measurement, multi-drop capability | 8-Pin MSOP, 8-pin SOIC |
| MCP9802 | ±0.5 | ±1 | -55 to +125 | +2.7 to +5.5 | 400 | SMBus/I ² C™ compatible interface with time out, 0.0625°C to 0.5°C adj. resolution, power-saving one-shot temperature measurement | 5-Pin SOT-23 |

NOTE 1: These devices use an external temperature sensor. Accuracy of the total solution is a function of the accuracy of the external sensor.
NOTE 2: TCN75 idle current is 250 μA. This device also has a Software Shutdown mode that reduces supply current to <1 μA.
NOTE 3: MCP9805 max. accuracy measured at 85°C.

THERMAL MANAGEMENT PRODUCTS – Temperature Sensors (continued)

| Part # | Typical Accuracy (°C) | Maximum Accuracy @ 25°C (°C) | Maximum Temperature Range (°C) | Vcc Range (V) | Maximum Supply Current (µA) | Features | Packages |
|--|-----------------------|------------------------------|--------------------------------|---------------|-----------------------------|---|-----------------------------|
| Serial Output Temperature Sensors (continued) | | | | | | | |
| MCP9803 | ±0.5 | ±1 | -55 to +125 | +2.7 to +5.5 | 400 | SMBus/I ² C™ compatible interface with time out, 0.0625°C to 0.5°C adj. resolution, power-saving one-shot temperature measurement, multi-drop capability | 8-Pin MSOP, 8-Pin SOIC |
| MCP9805 | ±0.5 | ±1 ⁽³⁾ | -20 to +125 | +3.0 to +3.6 | 400 | JEDEC compatible register set, SMBus/I ² C™ compatible interface, programmable, shut-down modes and EVENT output | 8-Pin TSSOP, 8-Pin 2x3 DFN |
| TC77 | ±0.5 | ±1 | -55 to +125 | +2.7 to +5.5 | 400 | SPI™ compatible interface, 0.0625°C temperature resolution | 5-Pin SOT-23A, 8-Pin SOIC |
| TC72 | ±0.5 | ±1 | -55 to +125 | +2.65 to +5.5 | 400 | SPI™ compatible interface, power saving one-shot temperature measurement, 0.25°C temperature resolution | 8-Pin MSOP, 8-Pin 3x3 DFN |
| TC74 | ±0.5 | ±2 | -40 to +125 | +2.7 to +5.5 | 350 | SMBus/I ² C™ compatible interface, 1°C temperature resolution | 5-Pin SOT-23A, 5-Pin TO-220 |
| TCN75A | ±0.5 | ±2 | -40 to +125 | +2.7 to +5.5 | 500 | SMBus/I ² C™ compatible interface, power-saving one-shot temperature measurement, multi-drop capability, 0.0625°C to 0.5°C adjustable temperature resolution | 8-Pin SOIC, 8-Pin MSOP |
| TCN75 | ±0.5 | ±2 | -55 to +125 | +2.7 to +5.5 | 1,000 ⁽²⁾ | SMBus/I ² C™ compatible interface, multi-drop capability, interrupt output, 0.5°C temperature resolution | 8-Pin MSOP, 8-Pin SOIC |

- NOTE 1:** These devices use an external temperature sensor. Accuracy of the total solution is a function of the accuracy of the external sensor.
NOTE 2: TCN75 idle current is 250 µA. This device also has a Software Shutdown mode that reduces supply current to <1 µA.
NOTE 3: MCP9805 max. accuracy measured at 85°C.

THERMAL MANAGEMENT PRODUCTS – Brushless DC Fan Controllers and Fan Fault Detectors

| Part # | Description | Typical Accuracy (°C) | Maximum Accuracy @ 25°C (°C) | Maximum Temperature Range (°C) | Vcc Range (V) | Maximum Supply Current (µA) | Features | Packages |
|--------|-------------|-----------------------|------------------------------|--------------------------------|---------------|-----------------------------|--|------------------------------------|
| TC642 | Fan Manager | Note 1 | Note 1 | -40 to +85 | +3.0 to +5.5 | 1,000 | FanSense™ Fan Monitor, minimum fan speed control | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| TC642B | Fan Manager | Note 1 | Note 1 | -40 to +85 | +3.0 to +5.5 | 400 | FanSense™ Fan Monitor, minimum fan speed control, fan auto-restart | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| TC646 | Fan Manager | Note 1 | Note 1 | -40 to +85 | +3.0 to +5.5 | 1,000 | FanSense™ Fan Monitor, auto-shutdown | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| TC646B | Fan Manager | Note 1 | Note 1 | -40 to +85 | +3.0 to +5.5 | 400 | FanSense™ Fan Monitor, auto-shutdown, fan auto-restart | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| TC647 | Fan Manager | Note 1 | Note 1 | -40 to +85 | +3.0 to +5.5 | 1,000 | FanSense™ Fan Monitor, minimum fan speed control | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| TC647B | Fan Manager | Note 1 | Note 1 | -40 to +85 | +3.0 to +5.5 | 400 | FanSense™ Fan Monitor, minimum fan speed control, fan auto-restart | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |

- NOTE 1:** These devices use an external temperature sensor. Accuracy of the total solution is a function of the accuracy of the external sensor.

THERMAL MANAGEMENT PRODUCTS – Brushless DC Fan Controllers and Fan Fault Detectors (continued)

| Part # | Description | Typical Accuracy (°C) | Maximum Accuracy @ 25°C (°C) | Maximum Temperature Range (°C) | Vcc Range (V) | Maximum Supply Current (µA) | Features | Packages |
|--------|-------------------------------|-----------------------|------------------------------|--------------------------------|---------------|-----------------------------|--|------------------------------------|
| TC648 | Fan Manager | Note 1 | Note 1 | -40 to +85 | +3.0 to +5.5 | 1,000 | Over-temperature alert, auto-shutdown | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| TC648B | Fan Manager | Note 1 | Note 1 | -40 to +85 | +3.0 to +5.5 | 400 | Over-temperature alert, auto-shutdown, fan auto-restart | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| TC649 | Fan Manager | Note 1 | Note 1 | -40 to +85 | +3.0 to +5.5 | 1,000 | FanSense™ Fan Monitor, auto-shutdown | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| TC649B | Fan Manager | Note 1 | Note 1 | -40 to +85 | +3.0 to +5.5 | 400 | FanSense™ Fan Monitor, auto-shutdown, fan auto-restart | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| TC650 | Fan Manager | ±1 | ±3 | -40 to +125 | +2.8 to +5.5 | 90 | Over-temperature alert | 8-Pin MSOP |
| TC651 | Fan Manager | ±1 | ±3 | -40 to +125 | +2.8 to +5.5 | 90 | Over-temperature alert, auto-shutdown | 8-Pin MSOP |
| TC652 | Fan Manager | ±1 | ±3 | -40 to +125 | +2.8 to +5.5 | 90 | FanSense™ Fan Monitor, over-temperature alert | 8-Pin MSOP |
| TC653 | Fan Manager | ±1 | ±3 | -40 to +125 | +2.8 to +5.5 | 90 | FanSense™ Fan Monitor, over-temperature alert, auto-shutdown | 8-Pin MSOP |
| TC654 | Dual SMBus Fan Manager | Note 1 | Note 1 | -40 to +85 | +3.0 to +5.5 | 320 | FanSense™ Fan Monitor, RPM data | 10-Pin MSOP |
| TC655 | Dual SMBus Fan Manager | Note 1 | Note 1 | -40 to +85 | +3.0 to +5.5 | 320 | FanSense™ Fan Monitor, RPM data, over-temperature alert | 10-Pin MSOP |
| TC664 | Single SMBus Fan Manager | Note 1 | Note 1 | -40 to +85 | +3.0 to +5.5 | 320 | FanSense™ Fan Monitor, RPM data | 10-Pin MSOP |
| TC665 | Single SMBus Fan Manager | Note 1 | Note 1 | -40 to +85 | +3.0 to +5.5 | 320 | FanSense™ Fan Monitor, RPM data, over-temperature alert | 10-Pin MSOP |
| TC670 | Predictive Fan Fault Detector | N/A | N/A | -40 to +85 | +3.0 to +5.5 | 150 | FanSense™ Fan Monitor, programmable threshold | 6-Pin SOT-23 |

NOTE 1: These devices use an external temperature sensor. Accuracy of the total solution is a function of the accuracy of the external sensor.

POWER MANAGEMENT – Voltage References

| Part # | Vcc Range (V) | Output Voltage (V) | Max. Load Current (mA) | Initial Accuracy (max.%) | Temperature Coefficient (ppm/°C) | Max. Supply Current (µA @ 25°C) | Packages |
|---------|---------------|--------------------|------------------------|--------------------------|----------------------------------|---------------------------------|----------------------------|
| MCP1525 | 2.7 to 5.5 | 2.5 | ±2 | ±1 | 50 | 100 | 3-Pin TO-92, 3-Pin SOT-23B |
| MCP1541 | 4.3 to 5.5 | 4.096 | ±2 | ±1 | 50 | 100 | 3-Pin TO-92, 3-Pin SOT-23B |

POWER MANAGEMENT – Linear Regulators

| Part # | Max. Input Voltage (V) | Output Voltage (V) | Output Current (mA) | Junction Temperature Range (°C) | Typical Active Current (μA) | Typical Dropout Voltage @ Max. I _{OUT} (mV) | Typical Output Voltage Accuracy (%) | Features | Packages |
|--|------------------------|---|---------------------|---------------------------------|-----------------------------|--|-------------------------------------|---|--|
| 50 mA to 250 mA Low Dropout Linear Regulators | | | | | | | | | |
| TC2014 | 6.0 | 1.8, 2.7, 2.8, 3.0, 3.3 | 50 | -40 to +125 | 55 | 45 | ±0.4 | Shutdown, Reference bypass input | 5-Pin SOT-23A |
| TC1014 | 6.0 | 1.8, 2.5, 2.7, 2.8, 2.85, 3.0, 3.3, 3.6, 4.0, 5.0 | 50 | -40 to +125 | 50 | 85 | ±0.5 | Shutdown, Reference bypass input | 5-Pin SOT-23A |
| TC2054 | 6.0 | 1.8, 2.7, 2.8, 3.0, 3.3 | 50 | -40 to +125 | 55 | 45 | ±0.4 | Shutdown, Error output | 5-Pin SOT-23A |
| TC1054 | 6.0 | 1.8, 2.5, 2.7, 2.8, 2.85, 3.0, 3.3, 3.6, 4.0, 5.0 | 50 | -40 to +125 | 50 | 85 | ±0.5 | Shutdown, Error output | 5-Pin SOT-23A |
| TC1070 | 6.0 | 1.23 → V _{IN} | 50 | -40 to +125 | 50 | 85 | — | Shutdown, Adjustable | 5-Pin SOT-23A |
| TC1072 | 6.0 | 2.5, 2.7, 2.8, 2.85, 3.0, 3.3, 3.6, 4.0, 5.0 | 50 | -40 to +125 | 50 | 85 | ±0.5 | Shutdown, Reference bypass input, Error output | 6-Pin SOT-23A |
| TC1223 | 6.0 | 2.5, 2.7, 2.8, 3.0, 3.3, 3.6, 4.0, 5.0 | 50 | -40 to +125 | 50 | 85 | ±0.5 | Shutdown | 5-Pin SOT-23A |
| TC1016 | 6.0 | 1.8, 2.7, 2.8, 3.0 | 80 | -40 to +125 | 50 | 150 | ±0.5 | Shutdown | 5-Pin SC-70 |
| TC2015 | 6.0 | 1.8, 2.7, 2.8, 3.0, 3.3 | 100 | -40 to +125 | 55 | 90 | ±0.4 | Shutdown, Reference bypass input | 5-Pin SOT-23A |
| TC1015 | 6.0 | 1.8, 2.5, 2.7, 2.8, 2.85, 3.0, 3.3, 3.6, 4.0, 5.0 | 100 | -40 to +125 | 50 | 180 | ±0.5 | Shutdown, Reference bypass input | 5-Pin SOT-23A |
| TC2055 | 6.0 | 1.8, 2.7, 2.8, 3.0, 3.3 | 100 | -40 to +125 | 55 | 90 | ±0.4 | Shutdown, Error output | 5-Pin SOT-23A |
| TC1055 | 6.0 | 1.8, 2.5, 2.7, 2.8, 2.85, 3.0, 3.3, 3.6, 4.0, 5.0 | 100 | -40 to +125 | 50 | 180 | ±0.5 | Shutdown, Error output | 5-Pin SOT-23A |
| TC1071 | 6.0 | 1.23 → V _{IN} | 100 | -40 to +125 | 50 | 180 | — | Shutdown, Adjustable | 5-Pin SOT-23A |
| TC1073 | 6.0 | 2.5, 2.7, 2.8, 2.85, 3.0, 3.3, 3.6, 4.0, 5.0 | 100 | -40 to +125 | 50 | 180 | ±0.5 | Shutdown, Reference bypass input, Error output | 6-Pin SOT-23A |
| TC1224 | 6.0 | 2.5, 2.7, 2.8, 3.0, 3.3, 3.6, 4.0, 5.0 | 100 | -40 to +125 | 50 | 180 | ±0.5 | Shutdown | 5-Pin SOT-23A |
| TC1188 | 6.0 | 1.8, 2.8, 2.84, 3.15 | 120 | -40 to +125 | 50 | 130 | ±0.5 | Shutdown | 5-Pin SOT-23A |
| TC1189 | 6.0 | 1.8, 2.8, 2.84, 3.15 | 120 | -40 to +125 | 50 | 130 | ±0.5 | Shutdown | 5-Pin SOT-23A |
| TC2185 | 6.0 | 1.8, 2.7, 2.8, 3.0, 3.3 | 150 | -40 to +125 | 55 | 140 | ±0.4 | Shutdown, Reference bypass input | 5-Pin SOT-23A |
| TC1185 | 6.0 | 1.8, 2.5, 2.7, 2.8, 2.85, 3.0, 3.3, 3.6, 4.0, 5.0 | 150 | -40 to +125 | 50 | 270 | ±0.5 | Shutdown, Reference bypass input | 5-Pin SOT-23A |
| TC2186 | 6.0 | 1.8, 2.7, 2.8, 3.0, 3.3 | 150 | -40 to +125 | 55 | 140 | ±0.4 | Shutdown, Error output | 5-Pin SOT-23A |
| TC1186 | 6.0 | 1.8, 2.5, 2.7, 2.8, 2.85, 3.0, 3.3, 3.6, 4.0, 5.0 | 150 | -40 to +125 | 50 | 270 | ±0.5 | Shutdown, Error output | 5-Pin SOT-23A |
| TC1187 | 6.0 | 1.23 → V _{IN} | 150 | -40 to +125 | 50 | 270 | — | Shutdown, Adjustable | 5-Pin SOT-23A |
| TC1017 | 6.0 | 1.8, 2.6, 2.7, 2.8, 2.85, 2.9, 3.3, 3.4 | 150 | -40 to +125 | 53 | 285 | ±0.5 | Shutdown | 5-Pin SOT-23A, 5-Pin SC-70 |
| MCP1700 | 6.0 | 1.2, 1.8, 2.5, 3.0, 3.3, 5.0 | 250 | -40 to +125 | 1.0 | 300 | ±0.4 | 1.0 μF ceramic cap stable, Short-circuit protection | 3-Pin TO-92, 3-Pin SOT-23A, 3-Pin SOT-89 |
| MCP1701 | 10 | 1.8, 2.5, 3.0, 3.3, 5.0 | 250 | -40 to +85 | 1.1 | 380 | ±0.5 | 10V max. input voltage | 3-Pin SOT-23A, 3-Pin SOT-89, 3-Pin TO-92 |

- NOTE** 1: Depending on external transistor configuration.
2: Each channel (for Dual and Quad LDOs).
3: LDOs with shutdown (except Power-Management Combination Products as indicated) have typical shutdown currents of 0.05 μA.

POWER MANAGEMENT – Linear Regulators (continued)

| Part # | Max. Input Voltage (V) | Output Voltage (V) | Output Current (mA) | Junction Temperature Range (°C) | Typical Active Current (µA) | Typical Dropout Voltage @ Max. I _{OUT} (mV) | Typical Output Voltage Accuracy (%) | Features | Packages |
|---|------------------------|--|------------------------|---------------------------------|-----------------------------|--|-------------------------------------|--|--|
| 300 mA Low Dropout Linear Regulators | | | | | | | | | |
| TC1107 | 6.0 | 2.5, 2.7, 2.8, 3.0, 3.3, 5.0 | 300 | -40 to +125 | 50 | 240 | ±0.5 | Shutdown, Reference bypass input | 8-Pin MSOP, 8-Pin SOIC |
| TC1108 | 6.0 | 2.5, 2.7, 2.8, 3.0, 3.3, 5.0 | 300 | -40 to +125 | 50 | 240 | ±0.5 | | 3-Pin SOT-223 |
| TC1173 | 6.0 | 2.5, 2.7, 2.8, 3.0, 3.3, 5.0 | 300 | -40 to +125 | 50 | 240 | ±0.5 | Shutdown, Reference bypass input, Error output | 8-Pin MSOP, 8-Pin SOIC |
| TC1174 | 6.0 | 1.23 → V _{IN} | 300 | -40 to +125 | 50 | 240 | — | Shutdown, Reference bypass input, Adjustable | 8-Pin MSOP, 8-Pin SOIC |
| TC1269 | 6.0 | 2.5, 2.8, 3.0, 3.3, 5.0 | 300 | -40 to +125 | 50 | 240 | ±0.5 | Shutdown, Reference bypass input | 8-Pin MSOP |
| 500 mA to 800 mA Low Dropout Linear Regulators | | | | | | | | | |
| TC1262 | 6.0 | 2.5, 2.8, 3.0, 3.3, 5.0 | 500 | -40 to +125 | 80 | 350 | ±0.5 | | 3-Pin TO-220, 3-Pin DDPAK, 3-Pin SOT-223 |
| TC1263 | 6.0 | 2.5, 2.8, 3.0, 3.3, 5.0 | 500 | -40 to +125 | 80 | 350 | ±0.5 | Shutdown, Reference bypass input, Error output | 8-Pin SOIC, 5-Pin TO-220, 5-Pin DDPAK |
| TC1268 | 6.0 | 2.5 | 500 | -40 to +125 | 80 | 350 | ±0.5 | Shutdown, Reference bypass input, Error output | 8-Pin SOIC |
| TC1264 | 6.0 | 1.8, 2.5, 3.0, 3.3 | 800 | -40 to +125 | 80 | 450 | ±0.5 | | 3-Pin TO-220, 3-Pin DDPAK, 3-Pin SOT-223 |
| TC1265 | 6.0 | 1.8, 2.5, 3.0, 3.3 | 800 | -40 to +125 | 80 | 450 | ±0.5 | Shutdown, Reference bypass input, Error output | 8-Pin SOIC, 5-Pin TO-220, 5-Pin DDPAK |
| TC2117 | 6.0 | 1.8, 2.5, 3.0, 3.3 | 800 | -40 to +125 | 80 | 600 | ±0.5 | | 3-Pin SOT-223, 3-Pin DDPAK |
| 1A and Above Low Dropout Linear Regulators | | | | | | | | | |
| MCP1726 | 6.0 | Fixed: 5, 3.3, 3, 2.5, 1.8, 1.2, 0.8 Adjustable: 0.8 to 5.0 | 1000 | -40 to +125 | 140 | 300 | ±0.4 | Ceramic output capacitor stable, Shutdown, C _{delay} , Power-Good | 8-Pin 3x3 DFN, 8-Pin SOIC |
| Application Specific Low Dropout Linear Regulators | | | | | | | | | |
| TC1266 | 6.0 | 3.3 | 200 | -5 to +70 | 230 | 200 | ±1.0 | PCI compliant | 8-Pin SOIC, 8-Pin MSOP |
| TC1267 | 6.0 | 3.3 | 400 | -5 to +70 | 230 | 300 | ±1.0 | PCI compliant | 5-Pin DDPAK |
| TC57 | 8 | 2.5, 3.0, 3.3 | 4,000 ⁽¹⁾ | -40 to +85 | 50 | 100 ⁽¹⁾ | ±2.0 | Shutdown, External transistor | 5-Pin SOT-23A |
| TC59 | -10 | -3.0, -5.0 | 100 | -40 to +85 | 3 | 380 | ±0.5 | Negative LDO | 3-Pin SOT-23A |
| Power Management Combination Products | | | | | | | | | |
| TC1300 ⁽³⁾ | 6.0 | 2.5, 2.7, 2.8, 2.85, 3.0, 3.3 | 300 | -40 to +125 | 80 | 210 | ±0.5 | Shutdown, Reference bypass input, LDO plus Reset output | 8-Pin MSOP |
| TC1301A ⁽³⁾ | 6.0 | LDO1: 1.5-3.3 LDO2: 1.5-3.3 | LDO1: 300 LDO2: 150 | -40 to +125 | 103 | LDO1: 104 LDO2: 150 | ±0.5 | Dual LDO plus Reset output, Shutdown, Reference bypass, Voltage detect | 8-Pin MSOP, 8-Pin 3x3 DFN |
| TC1301B ⁽³⁾ | 6.0 | LDO1: 1.5-3.3 LDO2: 1.5-3.3 | LDO1: 300 LDO2: 150 | -40 to +125 | 114 | LDO1: 104 LDO2: 150 | ±0.5 | Dual LDO plus Reset, per channel output shutdown, Reference bypass | 8-Pin MSOP, 8-Pin 3x3 DFN |
| TC1302A ⁽³⁾ | 6.0 | LDO1: 1.5-3.3 LDO2: 1.5-3.3 | LDO1: 300 LDO2: 150 | -40 to +125 | 103 | LDO1: 104 LDO2: 150 | ±0.5 | Dual LDO, Output shutdown reference bypass, Voltage detect | 8-Pin MSOP, 8-Pin 3x3 DFN |

NOTE 1: Depending on external transistor configuration.

NOTE 2: Each channel (for Dual and Quad LDOs).

NOTE 3: LDOs with shutdown (except Power-Management Combination Products as indicated) have typical shutdown currents of 0.05 µA.

POWER MANAGEMENT – Linear Regulators (continued)

| Part # | Max. Input Voltage (V) | Output Voltage (V) | Output Current (mA) | Junction Temperature Range (°C) | Typical Active Current (µA) | Typical Dropout Voltage @ Max. Iout (mV) | Typical Output Voltage Accuracy (%) | Features | Packages |
|--|------------------------|--------------------------------|------------------------|---------------------------------|-----------------------------|--|-------------------------------------|---|---------------------------|
| Power-Management Combination Products (continued) | | | | | | | | | |
| TC1302B ⁽³⁾ | 6.0 | LDO1: 1.5-3.3 LDO2: 1.5-3.3 | LDO1: 300 LDO2: 150 | -40 to +125 | 114 | LDO1: 104 LDO2: 150 | ±0.5 | Dual LDO, per channel output shutdown, Reference bypass | 8-Pin MSOP, 8-Pin 3x3 DFN |
| TC1305 | 6.0 | 2.5, 2.8, 3.0 | 150 ⁽²⁾ | -40 to +125 | 120 | 240 | ±0.5 | Dual LDO plus Reset output, Reference bypass input, Shutdown, Select Mode™ selectable output voltages | 10-Pin MSOP |
| TC1306 | 6.0 | 1.8, 2.8, 3.0 | 150 ⁽²⁾ | -40 to +125 | 120 | 240 | ±0.5 | Dual LDO plus Reset output, Shutdown, Select Mode™ selectable output voltages | 8-Pin MSOP |
| TC1307 ⁽³⁾ | 6.0 | 1.8, 2.5, 2.8, 3.0 | 150 ⁽²⁾ | -40 to +125 | 220 | 200 | ±0.5 | Quad LDO plus Reset output, Shutdown, Select Mode™ selectable output voltage | 16-Pin QSOP |

- NOTE** 1: Depending on external transistor configuration.
 2: Each channel (for Dual and Quad LDOs).
 3: LDOs with shutdown (except Power-Management Combination Products as indicated) have typical shutdown currents of 0.05 µA.

POWER MANAGEMENT – Switching Regulators

| Part # | Description | Input Voltage Range (V) | Output Voltage (V) | Operating Temperature Range (°C) | Control Scheme | Switching Frequency (kHz) | Typical Active Current (µA) | Output Current (mA) | Features | Packages |
|---------|--|-------------------------|--------------------------------------|----------------------------------|--------------------------------|---------------------------|-----------------------------|------------------------------|---|-------------------------------|
| MCP1601 | Synchronous Buck Regulator | 2.7 to 5.5 | 0.9V to VIN | -40 to +85 | PFM/PWM/LDO | 750 | 825 (PWM) 125 (PFM) | 500 | UVLO, Auto-switching, LDO | 8-Pin MSOP |
| MCP1612 | Synchronous Buck DC/DC Regulator | 2.7 to VIN | 0.8 to 5.5 | -40 to +85 | Constant frequency PWM | 1400 | 10,000 | 1000 | Overall efficiency >94% soft start, over-temperature and over-current protection | 8-Pin MSOP, 8-Pin 3x3 DFN |
| MCP1650 | Step-up DC/DC Controller | 2.7 to 5.5 | 2.5 to ext. tx limited | -40 to +125 | Constant frequency, 2 fixed DC | 750 | 120 | 560/440 | 2 duty cycles for min. and max. loads, shutdown control, UVLO, soft start | 8-Pin MSOP |
| MCP1651 | Step-up DC/DC Controller | 2.7 to 5.5 | 2.5 to ext. tx limited | -40 to +125 | Constant frequency, 2 fixed DC | 750 | 120 | 560/440 | 2 duty cycles for min. and max. loads, shutdown control, low battery detect, UVLO, soft start | 8-Pin MSOP |
| MCP1652 | Step-up DC/DC Controller | 2.7 to 5.5 | 2.5 to ext. tx limited | -40 to +125 | Constant frequency, 2 fixed DC | 750 | 120 | 560/440 | 2 duty cycles for min. and max. loads, shutdown control, power-good indicator, UVLO, soft start | 8-Pin MSOP |
| MCP1653 | Step-up DC/DC Controller | 2.7 to 5.5 | 2.5 to ext. tx limited | -40 to +125 | Constant frequency, 2 fixed DC | 750 | 120 | 560/440 | 2 duty cycles for min. and max. loads, shutdown control, low battery detect, power-good indicator, UVLO, soft start | 10-Pin MSOP |
| TC105 | Step-down DC/DC Controller | 2.2 to 10 | 3.0, 3.3, 5.0 | -40 to +85 | PFM/PWM | 300 | 57 | 1,000 | Low-Power Shutdown mode | 5-Pin SOT-23A |
| TC120 | Step-down Regulator/ Controller Combination | 1.8 to 10 | 3.0, 3.3, 5.0 | -40 to +85 | PFM/PWM | 300 | 52 | 2,000 | Soft-start, Low-Power Shutdown mode | 8-Pin SOP |
| TC125 | Step-up DC/DC Regulator | 0.9 to 10 | 3.0, 3.3, 5.0 | -40 to +85 | PFM | 100 | 20 | 80 | Low-Power Shutdown mode | 5-Pin SOT-23A |
| TC126 | Step-up DC/DC Regulator | 0.9 to 10 | 3.0, 3.3, 5.0 | -40 to +85 | PFM | 100 | 20 | 80 | Feedback voltage sensing | 5-Pin SOT-23A |
| TC115 | Step-up DC/DC Regulator | 0.9 to 10 | 3.0, 3.3, 5.0 | -40 to +85 | PFM/PWM | 100 | 80 | 140 | Feedback voltage sensing, Low-Power Shutdown mode | 5-Pin SOT-89 |
| TC110 | Step-up DC/DC Controller | 2.0 to 10 | 3.0, 3.3, 5.0 | -40 to +85 | PFM/PWM | 100/300 | 50/120 | 300 | Soft-start, Low-Power Shutdown mode | 5-Pin SOT-23A |
| TC1303 | Synchronous Buck Regulator, LDO w/Power Good | 2.7 to 5.5 | DC/DC: 0.8 to 4.5 LDO: 1.5 to 3.3 | -40 to +85 | PFM/PWM | 2000 | 65/600 | DC/DC: 500 mA LDO: 300 mA | PFM/PWM auto-switching, Power Good output | 10-Pin MSOP 10-Pin 3x3 DFN |

POWER MANAGEMENT – Switching Regulators (continued)

| Part # | Description | Input Voltage Range (V) | Output Voltage (V) | Operating Temperature Range (°C) | Control Scheme | Switching Frequency (kHz) | Typical Active Current (μA) | Output Current (mA) | Features | Packages |
|--------|---------------------------------|-------------------------|--------------------------------------|----------------------------------|----------------|---------------------------|-----------------------------|------------------------------|--|-------------------------------|
| TC1304 | Synchronous Buck Regulator, LDO | 2.7 to 5.5 | DC/DC: 0.8 to 4.5 LDO: 1.5 to 3.3 | -40 to +85 | PFM/PWM | 2000 | 65/600 | DC/DC: 500 mA LDO: 300 mA | PFM/PWM auto-switching, Power sequencing | 10-Pin MSOP 10-Pin 3x3 DFN |
| TC1313 | Synchronous Buck Regulator, LDO | 2.7 to 5.5 | DC/DC: 0.8 to 4.5 LDO: 1.5 to 3.3 | -40 to +85 | PFM/PWM | 2000 | 65/600 | DC/DC: 500 mA LDO: 300 mA | PFM/PWM auto-switching | 10-Pin MSOP 10-Pin 3x3 DFN |

POWER MANAGEMENT – PWM Controllers

| Part # | Description | Input Voltage Range (V) | Output Voltage (V) | Operating Temperature Range (°C) | Control Scheme | Switching Frequency (kHz) | Typical Active Supply (μA) | Output Current (mA) | Features | Packages |
|----------|--------------------------------------|-------------------------|--|----------------------------------|---------------------------|---------------------------|----------------------------|---------------------|---|------------|
| MCP1630 | High-speed PWM to use with PIC® MCUs | 2.7 to 5.5 | V _{SS} + 0.2V to V _{DD} - 0.2V | -40 to +125 | Cycle-by-Cycle DC control | 1000 | 2.5 | ±10 | UVLO, current sense to V _{EXT} , response <25 ns | 8-Pin MSOP |
| MCP1630V | High-speed PWM to use with PIC® MCUs | 2.7 to 5.5 | V _{SS} + 0.2V to V _{DD} - 0.2V | -40 to +125 | Cycle-by-Cycle DC control | 1000 | 2.5 | ±10 | Voltage mode and Average Current mode | 8-Pin MSOP |

POWER MANAGEMENT – Charge Pump DC-to-DC Converters

| Part # | Input Voltage Range (V) | Output Voltage (V) | Operating Temperature Range (°C) | Maximum Input Current ⁽¹⁾ (μA) | Typical Active Output Current (mA) | Features | Packages |
|---|-------------------------|---|----------------------------------|---|------------------------------------|--|------------------------------------|
| Inverting or Doubling Charge Pumps | | | | | | | |
| TC1044S | 1.5 to 12 | V _{OUT} = -V _{IN} or V _{OUT} = 2 V _{IN} | -40 to +85 | 160 | 20 | 85 kHz oscillator, Boost mode | 8-Pin PDIP, 8-Pin SOIC |
| TC7660 | 1.5 to 10 | V _{OUT} = -V _{IN} or V _{OUT} = 2 V _{IN} | -40 to +85 | 180 | 20 | 10 kHz oscillator | 8-Pin PDIP, 8-Pin SOIC |
| TC7660H | 1.5 to 10 | V _{OUT} = -V _{IN} or V _{OUT} = 2 V _{IN} | -40 to +85 | 1,000 | 20 | 120 kHz oscillator | 8-Pin PDIP, 8-Pin SOIC |
| TC7660S | 1.5 to 12 | V _{OUT} = -V _{IN} or V _{OUT} = 2 V _{IN} | -40 to +85 | 160 | 20 | 45 kHz oscillator, Boost mode | 8-Pin PDIP, 8-Pin SOIC |
| TC7662B | 1.5 to 15 | V _{OUT} = -V _{IN} or V _{OUT} = 2 V _{IN} | -40 to +85 | 180 | 20 | 35 kHz oscillator, Boost mode | 8-Pin PDIP, 8-Pin SOIC |
| TC1219 | 1.5 to 5.5 | V _{OUT} = -V _{IN} or V _{OUT} = 2 V _{IN} | -40 to +85 | 115 | 25 | 12 kHz oscillator, Low-Power Shutdown mode | 6-Pin SOT-23A |
| TC1220 | 1.5 to 5.5 | V _{OUT} = -V _{IN} or V _{OUT} = 2 V _{IN} | -40 to +85 | 325 | 25 | 35 kHz oscillator, Low-Power Shutdown mode | 6-Pin SOT-23A |
| TC1221 | 1.8 to 5.5 | V _{OUT} = -V _{IN} or V _{OUT} = 2 V _{IN} | -40 to +85 | 600 | 25 | Shutdown, 125 kHz oscillator | 6-Pin SOT-23A |
| TC1222 | 1.8 to 5.5 | V _{OUT} = -V _{IN} or V _{OUT} = 2 V _{IN} | -40 to +85 | 2,800 | 25 | Shutdown, 750 kHz oscillator | 6-Pin SOT-23A |
| TCM828 | 1.5 to 5.5 | V _{OUT} = -V _{IN} or V _{OUT} = 2 V _{IN} | -40 to +85 | 90 | 25 | 12 kHz oscillator | 5-Pin SOT-23A |
| TCM829 | 1.5 to 5.5 | V _{OUT} = -V _{IN} or V _{OUT} = 2 V _{IN} | -40 to +85 | 260 | 25 | 35 kHz oscillator | 5-Pin SOT-23A |
| TC1240 | 2.5 to 4.0 | V _{OUT} = 2 V _{IN} | -40 to +85 | 900 | 40 | Shutdown, 160 kHz oscillator | 6-Pin SOT-23A |
| TC1240A | 2.5 to 5.5 | V _{OUT} = 2 V _{IN} | -40 to +85 | 900 | 40 | Shutdown, 160 kHz oscillator | 6-Pin SOT-23A |
| TC7662A | 3 to 18 | V _{OUT} = -V _{IN} or V _{OUT} = 2 V _{IN} | -40 to +85 | 200 | 40 | 12 kHz oscillator | 8-Pin PDIP |
| TC962 | 3 to 18 | V _{OUT} = -V _{IN} or V _{OUT} = 2 V _{IN} | -40 to +85 | 200 | 80 | | 8-Pin PDIP, 16-Pin SOIC |
| TC1121 | 2.4 to 5.5 | V _{OUT} = -V _{IN} or V _{OUT} = 2 V _{IN} | -40 to +85 | 100 | 100 | Low-Power Shutdown mode | 8-Pin MSOP, 8-Pin PDIP, 8-Pin SOIC |

NOTE 1: Measured at V_{DD} = 5.0V at 25°C and no load.

POWER MANAGEMENT – Charge Pump DC-to-DC Converters (continued)

| Part # | Input Voltage Range (V) | Output Voltage (V) | Operating Temperature Range (°C) | Maximum Input Current ⁽¹⁾ (μA) | Typical Active Output Current (mA) | Features | Packages |
|--|------------------------------|--|----------------------------------|---|------------------------------------|---|------------------------|
| Multi-Function Charge Pumps | | | | | | | |
| TCM680 | 2.0 to 5.5 | V _{OUT} = ±2 V _{IN} | -40 to +85 | 1,000 | ±10 | Generates ±6V from +3V or ±10V from +5V | 8-Pin PDIP, 8-Pin SOIC |
| Inverting and Doubling Charge Pumps | | | | | | | |
| TC682 | 2.4 to 5.5 | V _{OUT} = -2 V _{IN} | -40 to +85 | 400 | 10 | 12 kHz oscillator | 8-Pin PDIP, 8-Pin SOIC |
| Regulated Charge Pumps | | | | | | | |
| MCP1252 | 2.1/2.7 to 5.5 2.0 to 5.5 | Selectable 3.3V or 5.0V or Adjustable 1.5V to 5.5V | -40 to +85 | 120 | 120 mA for V _{IN} >3.0V | Power-Good output, 650 kHz oscillator | 8-Pin MSOP |
| MCP1253 | 2.1/2.7 to 5.5 2.0 to 5.5 | Selectable 3.3V or 5.0V or Adjustable 1.5V to 5.5V | -40 to +85 | 120 | 120 mA for V _{IN} >3.0V | Power-Good output, 1 MHz oscillator | 8-Pin MSOP |

NOTE 1: Measured at V_{DD} = 5.0V at 25°C and no load.

POWER MANAGEMENT – CPU/System Supervisors

| Part # | V _{CC} Range (V) | Operating Temperature Range (°C) | Nominal Reset Voltage (V) | Reset Type | Output | Typical Reset Pulse Width (ms) | Typical Supply Current (μA) | Additional Features | Packages | Bond Options |
|--------|---------------------------|----------------------------------|---|-------------|----------------|--------------------------------|-----------------------------|---------------------|---|--------------|
| MCP102 | 1.0 to 5.5 | -40 to +125 | 4.63, 4.38, 3.08, 2.93, 2.63, 2.32, 1.9 | Active Low | CMOS Push-Pull | 120 | 1 | | 3-Pin SOT-23B, 3-Pin SC-70, 3-Pin TO-92 | N/A |
| MCP103 | 1.0 to 5.5 | -40 to +125 | 4.63, 4.38, 3.08, 2.93, 2.63, 2.32, 1.9 | Active Low | CMOS Push-Pull | 120 | 1 | Max. 809 Pinout | 3-Pin SOT-23B, 3-Pin SC-70, 3-Pin TO-92 | N/A |
| TC1272 | 1.2 to 5.5 | -40 to +85 | 4.62, 4.37, 4.12 | Active Low | CMOS Push-Pull | 200 | 17 | | 3-Pin SOT-23B | N/A |
| TC1275 | 1.2 to 5.5 | -40 to +85 | 3.06, 2.88, 2.55 | Active Low | CMOS Push-Pull | 200 | 20 | | 3-Pin SOT-23B | N/A |
| TCM809 | 1.2 to 5.5 | -40 to +85 | 4.63, 4.38, 4.00, 3.08, 2.93, 2.63, 2.32 | Active Low | CMOS Push-Pull | 240 | 12 | | 3-Pin SOT-23B, 3-Pin SC-70 | N/A |
| TC1270 | 1.2 to 5.5 | -40 to +85 | 4.63, 4.38, 3.08, 2.93, 2.63, 1.75 | Active Low | CMOS Push-Pull | 280 | 7 | Manual Reset | 4-Pin SOT-143 | N/A |
| TCM811 | 1.0 to 5.5 | -40 to +85 | 4.63, 4.38, 3.08, 2.93, 2.63, 1.75 | Active Low | CMOS Push-Pull | 280 | 6 | Manual Reset | 4-Pin SOT-143 | N/A |
| MCP100 | 1.0 to 5.5 | -40 to +85 | 4.72, 4.62, 4.47, 4.37, 3.075, 2.92, 2.62 | Active Low | CMOS Push-Pull | 350 | 45 | | 3-Pin TO-92, 3-Pin SOT-23B | D, H |
| MCP809 | 1.0 to 5.5 | -40 to +85 | 4.72, 4.62, 4.47, 4.37, 3.075, 2.92, 2.62 | Active Low | CMOS Push-Pull | 350 | 45 | | 3-Pin SOT-23B | N/A |
| TC1274 | 1.8 to 5.5 | -40 to +85 | 4.62, 4.37, 4.13 | Active High | CMOS Push-Pull | 200 | 17 | | 3-Pin SOT-23B | N/A |
| TC1277 | 1.8 to 5.5 | -40 to +85 | 3.06, 2.88, 2.55 | Active High | CMOS Push-Pull | 200 | 20 | | 3-Pin SOT-23B | N/A |
| TCM810 | 1.2 to 5.5 | -40 to +85 | 4.63, 4.38, 3.08, 2.93, 2.63, 2.32 | Active High | CMOS Push-Pull | 240 | 12 | | 3-Pin SOT-23B, 3-Pin SC-70 | N/A |
| TC1271 | 1.2 to 5.5 | -40 to +85 | 4.63, 4.38, 3.08, 2.93, 2.63, 1.75 | Active High | CMOS Push-Pull | 280 | 7 | Manual Reset | 4-Pin SOT-143 | N/A |
| TCM812 | 1.1 to 5.5 | -40 to +85 | 4.63, 4.38, 3.08, 2.93, 2.63, 1.75 | Active High | CMOS Push-Pull | 280 | 6 | Manual Reset | 4-Pin SOT-143 | N/A |
| MCP101 | 1.0 to 5.5 | -40 to +85 | 4.72, 4.62, 4.47, 4.37, 3.075, 2.92, 2.62 | Active High | CMOS Push-Pull | 350 | 45 | | 3-Pin TO-92, 3-Pin SOT-23B | D, H |
| MCP810 | 1.0 to 5.5 | -40 to +85 | 4.72, 4.62, 4.47, 4.37, 3.075, 2.92, 2.62 | Active High | CMOS Push-Pull | 350 | 45 | | 3-Pin SOT-23B | N/A |
| MCP121 | 1.0 to 5.5 | -40 to +125 | 1.9, 2.32, 2, 63, 2.93, 3.08, 4.38, 4.63 | Active Low | Open-drain | 120 | 1 | | 3-Pin SOT-23B, 3-Pin SC-70, 3-Pin TO-92 | N/A |
| TC1273 | 1.2 to 5.5 | -40 to +85 | 4.62, 4.37, 4.12 | Active Low | Open-drain | 200 | 17 | | 3-Pin SOT-23B | N/A |
| TC1276 | 1.2 to 5.5 | -40 to +85 | 3.06, 2.88, 2.55 | Active Low | Open-drain | 200 | 20 | | 3-Pin SOT-23B | N/A |

POWER MANAGEMENT – CPU/System Supervisors (continued)

| Part # | Vcc Range (V) | Operating Temperature Range (°C) | Nominal Reset Voltage (V) | Reset Type | Output | Typical Reset Pulse Width (ms) | Typical Supply Current (µA) | Additional Features | Packages | Bond Options |
|--------|---------------|----------------------------------|---|-----------------|----------------------------|--------------------------------|-----------------------------|---------------------------------|---|--------------|
| MCP120 | 1.0 to 5.5 | -40 to +85 | 4.72, 4.62, 4.47, 4.37, 3.075, 2.92, 2.62 | Active Low | Open-drain | 350 | 45 | | 3-Pin TO-92, 3-Pin SOT-23, 8-Pin SOIC | D, G, H |
| TC1279 | 1.2 to 5.5 | -40 to +85 | 4.62, 4.37, 4.125 | Active Low | Open-drain | 350 | 900 | | 3-Pin SOT-23B | N/A |
| MCP131 | 1.0 to 5.5 | -40 to +125 | 1.9, 2.32, 2.63, 2.93, 3.08, 4.38, 4.63 | Active Low | Open-drain | 120 | 1 | 100kΩ Internal Pull-up Resistor | 3-Pin SOT-23B, 3-Pin SC-70, 3-Pin TO-92 | N/A |
| MCP130 | 1.0 to 5.5 | -40 to +85 | 4.72, 4.62, 4.47, 4.37, 3.075, 2.92, 2.62 | Active Low | Open-drain w/ 5 kΩ Pull-up | 350 | 45 | | 3-Pin TO-92, 3-Pin SOT-23, 8-Pin SOIC | D, F, H |
| TC1278 | 1.2 to 5.5 | -40 to +85 | 4.62, 4.37, 4.125 | Active High | Open-drain | 350 | 900 | | 3-Pin SOT-23B | N/A |
| TC1232 | 4.5 to 5.5 | -40 to +85 | 4.62, 4.37 | Active Low/High | Open-drain | 610 | 50 | Watchdog Timer | 8-Pin PDIP, 8-Pin SOIC, 16-Pin SOIC | N/A |
| TC32M | 4.5 to 5.5 | -40 to +85 | 4.5 | Active Low | Open-drain | 700 | 50 | Watchdog Timer | 3-Pin TO-92, 3-Pin SOT-223 | N/A |

POWER MANAGEMENT – Voltage Detectors

| Part # | Vcc Range (V) | Operating Temperature Range (°C) | Nominal Reset Voltage (V) | Reset Type | Output | Minimum Reset Pulse Width (ms) | Typical Supply Current (µA) | Features | Packages |
|--------|---------------|----------------------------------|--|------------|------------------------------|--------------------------------|-----------------------------|--------------|---|
| MCP111 | 1.0 to 5.5 | -40 to +125 | 4.63, 4.38, 3.08, 2.93, 2.63, 2.32, 1.90 | Active Low | Open-drain | — | 1 | | 3-Pin SOT-23B, 3-Pin TO-92, 3-Pin SC-70, 3-Pin SOT-89 |
| MCP112 | 1.0 to 5.5 | -40 to +125 | 4.63, 4.38, 3.08, 2.93, 2.63, 2.32, 1.90 | Active Low | CMOS Push-Pull | — | 1 | | 3-Pin SOT-23B, 3-Pin TO-92, 3-Pin SC-70, 3-Pin SOT-89 |
| TC51 | 0.7 to 10 | -40 to +85 | 3.0, 2.7, 2.2 | Active Low | Open-drain | 50 | 1 | Reset delay | 3-Pin SOT-23A |
| TC52 | 1.5 to 10 | -40 to +85 | 4.5/2.7, 3.0/2.7 | Active Low | Open-drain | — | 2 | Dual channel | 5-Pin SOT-23A |
| TC53 | 1.5 to 10 | -40 to +85 | 2.9, 2.7, 2.2 | Active Low | CMOS Push-Pull or Open-drain | — | 1 | | 5-Pin SOT-23A |
| TC54 | 0.7 to 10 | -40 to +85 | 7.7, 4.3, 4.2, 3.0, 2.9, 2.7, 2.1, 1.4 | Active Low | CMOS Push-Pull or Open-drain | — | 1 | | 3-Pin SOT-23A, 3-Pin SOT-89, 3-Pin TO-92 |

POWER MANAGEMENT – Power MOSFET Drivers

| Part # | Configuration | Operating Temperature Range (°C) | Peak Output Current (A) | Output Resistance (R _H /R _L) (Max. Ω @ 25°C) | Max. Supply Voltage (V) | Input/Output Delay (td1, td2) ⁽¹⁾ (ns) | Packages |
|---|-----------------------|----------------------------------|-------------------------|---|-------------------------|---|------------------------------------|
| Low-Side Drivers, 0.5A to 1.2A Peak Output Current | | | | | | | |
| TC1410 | Single, Inverting | -40 to +85 | 0.5 | 22/22 | 16 | 30/30 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| TC1410N | Single, Non-inverting | -40 to +85 | 0.5 | 22/22 | 16 | 30/30 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| TC1411 | Single, Inverting | -40 to +85 | 1 | 11/11 | 16 | 30/30 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| TC1411N | Single, Non-inverting | -40 to +85 | 1 | 11/11 | 16 | 30/30 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| TC1426 | Dual, Inverting | 0 to +70 | 1.2 | 18/18 | 16 | 75/75 | 8-Pin PDIP, 8-Pin SOIC |

NOTE 1: *td1 = delay time from input low-to-high transition to output transition. td2 = delay time from input high-to-low transition to output transition.

POWER MANAGEMENT – Power MOSFET Drivers (continued)

| Part # | Configuration | Operating Temperature Range (°C) | Peak Output Current (A) | Output Resistance (RH/RL) (Max. Ω @ 25°C) | Max. Supply Voltage (V) | Input/Output Delay (td1, td2) ⁽¹⁾ (ns) | Packages |
|---|--|----------------------------------|-------------------------|---|-------------------------|---|---|
| Low-Side Drivers, 0.5A to 1.2A Peak Output Current (continued) | | | | | | | |
| TC1427 | Dual, Non-inverting | 0 to +70 | 1.2 | 18/18 | 16 | 75/75 | 8-Pin PDIP, 8-Pin SOIC |
| TC1428 | Dual, Inverting and Non-inverting | 0 to +70 | 1.2 | 18/18 | 16 | 75/75 | 8-Pin PDIP, 8-Pin SOIC |
| TC4467 | Quad, Inverting | -40 to +85 | 1.2 | 15/15 | 18 | 40/40 | 14-Pin PDIP, 16-Pin SOIC (W) |
| TC4468 | Quad, Non-inverting | -40 to +85 | 1.2 | 15/15 | 18 | 40/40 | 14-Pin PDIP, 16-Pin SOIC (W) |
| TC4469 | Quad, Non-inverting | -40 to +85 | 1.2 | 15/15 | 18 | 40/40 | 14-Pin PDIP, 16-Pin SOIC (W) |
| Low-Side Drivers, 1.5A Peak Output Current | | | | | | | |
| TC4403 | Single, Non-inverting Floating Load Driver | -40 to +85 | 1.5 | 5/5 | 18 | 33/38 | 8-Pin PDIP |
| TC4426A | Dual, Inverting | -40 to +125 | 1.5 | 9/9 | 18 | 30/30 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin DFN |
| TC4427A | Dual, Non-inverting | -40 to +125 | 1.5 | 9/9 | 18 | 30/30 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin DFN |
| TC4428A | Dual, Inverting and Non-inverting | -40 to +125 | 1.5 | 9/9 | 18 | 30/30 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin DFN |
| TC4426 | Dual, Inverting | -40 to +125 | 1.5 | 10/10 | 18 | 20/40 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin DFN, 8-Pin MSOP |
| TC4427 | Dual, Non-inverting | -40 to +125 | 1.5 | 10/10 | 18 | 20/40 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin DFN, 8-Pin MSOP |
| TC4428 | Dual, Inverting and Non-inverting | -40 to +125 | 1.5 | 10/10 | 18 | 20/40 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin DFN, 8-Pin MSOP |
| TC426 | Dual, Inverting | -40 to +85 | 1.5 | 15/10 | 18 | 50/75 | 8-Pin PDIP, 8-Pin SOIC |
| TC427 | Dual, Non-inverting | -40 to +85 | 1.5 | 15/10 | 18 | 50/75 | 8-Pin PDIP, 8-Pin SOIC |
| TC428 | Dual, Inverting and Non-inverting | -40 to +85 | 1.5 | 15/10 | 18 | 50/75 | 8-Pin PDIP, 8-Pin SOIC |
| TC4404 | Dual, Inverting | -40 to +85 | 1.5 | 10/10 | 18 | 15/32 | 8-Pin PDIP, 8-Pin SOIC |
| TC4405 | Dual, Non-inverting | -40 to +85 | 1.5 | 10/10 | 18 | 15/32 | 8-Pin PDIP, 8-Pin SOIC |
| Low-Side Drivers, 2.0A to 9.0A Peak Output Current | | | | | | | |
| TC1412 | Single, Inverting | -40 to +85 | 2 | 6/6 | 16 | 35/35 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| TC1412N | Single, Non-inverting | -40 to +85 | 2 | 6/6 | 16 | 35/35 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| TC1413 | Single, Inverting | -40 to +85 | 3 | 4/4 | 16 | 35/35 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| TC1413N | Single, Non-inverting | -40 to +85 | 3 | 4/4 | 16 | 35/35 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| TC4423 | Dual, Inverting | -40 to +125 | 3 | 5/5 | 18 | 33/38 | 8-Pin PDIP, 16-Pin SOIC (W), 8-Pin DFN |
| TC4424 | Dual, Non-inverting | -40 to +125 | 3 | 5/5 | 18 | 33/38 | 8-Pin PDIP, 16-Pin SOIC (W), 8-Pin DFN |
| TC4425 | Dual, Inverting and Non-inverting | -40 to +125 | 3 | 5/5 | 18 | 33/38 | 8-Pin PDIP, 16-Pin SOIC (W), 8-Pin DFN |
| TC429 | Single, Inverting | -40 to +85 | 6 | 2.5/2.5 | 18 | 53/60 | 8-Pin PDIP, 8-Pin DFN, 8-Pin SOIC |
| TC4420 | Single, Non-inverting | -40 to +125 | 6 | 2.8/2.5 | 18 | 55/55 | 8-Pin PDIP, 8-Pin SOIC, 5-Pin TO-220, 8-Pin DFN |
| TC4429 | Single, Inverting | -40 to +125 | 6 | 2.8/2.5 | 18 | 55/55 | 8-Pin PDIP, 8-Pin SOIC, 5-Pin TO-220, 8-Pin DFN |
| TC4421 | Single, Inverting | -40 to +125 | 9 | 1.4 (typ)/1.7 | 18 | 30/33 | 8-Pin PDIP, 5-Pin TO-220, 8-Pin DFN |
| TC4421A | Single, Inverting | -40 to +125 | 9 | 1.25 (typ)/1.5 | 18 | 38/42 | 8-Pin PDIP, 8-Pin SOIC, 5-Pin TO-220, 8-Pin 6x5 DFN |
| TC4422 | Single, Non-inverting | -40 to +125 | 9 | 1.4 (typ)/1.7 | 18 | 30/33 | 8-Pin PDIP, 5-Pin TO-220, 8-Pin DFN |

NOTE 1: *td1 = delay time from input low-to-high transition to output transition. td2 = delay time from input high-to-low transition to output transition.

POWER MANAGEMENT – Power MOSFET Drivers (continued)

| Part # | Configuration | Operating Temperature Range (°C) | Peak Output Current (A) | Output Resistance (RH/RL) (Max. Ω @ 25°C) | Max. Supply Voltage (V) | Input/Output Delay (td1, td2) ⁽¹⁾ (ns) | Packages |
|---|-----------------------|----------------------------------|-------------------------|--|-------------------------|---|---|
| Low-Side Drivers, 2.0A to 9.0A Peak Output Current (continued) | | | | | | | |
| TC4422A | Single, Non-inverting | -40 to +125 | 9 | 1.25 (typ)/1.5 | 18 | 38/42 | 8-Pin PDIP, 8-Pin SOIC, 5-Pin TO-220, 8-Pin 6x5 DFN |
| High-Side/Low-Side Drivers | | | | | | | |
| TC4626 | Single, Inverting | -40 to +85 | 1.5 | 15/10 | 6 | 35/45 | 8-Pin PDIP, 16-Pin SOIC (W) |
| TC4627 | Single, Non-inverting | -40 to +85 | 1.5 | 15/10 | 6 | 35/45 | 8-Pin PDIP, 16-Pin SOIC (W) |
| TC4431 | Single, Inverting | -40 to +85 | 1.5 | 10/10 | 30 | 62/78 | 8-Pin PDIP, 8-Pin SOIC |
| TC4432 | Single, Non-inverting | -40 to +85 | 1.5 | 10/10 | 30 | 62/78 | 8-Pin PDIP, 8-Pin SOIC |

NOTE 1: *td1 = delay time from input low-to-high transition to output transition. td2 = delay time from input high-to-low transition to output transition.

POWER MANAGEMENT – Battery Chargers

| Part # | Mode | Cell Type | # of Cells | Vcc Range (V) | Max. Voltage Regulation (%) | Int/Ext FET | Features | Packages |
|----------|--------|-------------------|------------|---------------|-----------------------------|-------------|---|-----------------------------|
| MCP73826 | Linear | Li-Ion/Li-Polymer | 1 | 4.5 to 5.5 | ± 1.0 | Ext | Small size | 6-Pin SOT-23 |
| MCP73827 | Linear | Li-Ion/Li-Polymer | 1 | 4.5 to 5.5 | ± 1.0 | Ext | Mode indicator, Charge Current monitor | 8-Pin MSOP |
| MCP73828 | Linear | Li-Ion/Li Polymer | 1 | 4.5 to 5.5 | ± 1.0 | Ext | Temperature monitor | 8-Pin MSOP |
| MCP73831 | Linear | Li-Ion/Li-Polymer | 1 | 3.7 to 6.0 | ± 0.5 | Int | SOT-23 charger, UVLO, Thermal regulation, Programmable charge current, 4.2, 4.35, 4.4 and 4.5V VREG options | 5-Pin SOT-23, 8-Pin 2x3 DFN |
| MCP73841 | Linear | Li-Ion/Li-Polymer | 1 | 4.5 to 12 | ± 0.5 | Ext | Safety charge timers, Temperature monitor | 10-Pin MSOP |
| MCP73842 | Linear | Li-Ion/Li-Polymer | 2 | 8.7 to 12 | ± 0.5 | Ext | Safety charge timers, Temperature monitor | 10-Pin MSOP |
| MCP73843 | Linear | Li-Ion/Li-Polymer | 1 | 4.5 to 12 | ± 0.5 | Ext | Safety charge timers | 8-Pin MSOP |
| MCP73844 | Linear | Li-Ion/Li-Polymer | 2 | 8.7 to 12 | ± 0.5 | Ext | Safety charge timers | 8-Pin MSOP |
| MCP73853 | Linear | Li-Ion/Li-Polymer | 1 | 4.5 to 5.5 | ± 0.5 | Int | USB control, Safety charge timers, Temperature monitor, Thermal regulation | 16-Pin QFN (4x4) |
| MCP73855 | Linear | Li-Ion/Li-Polymer | 1 | 4.5 to 5.5 | ± 0.5 | Int | USB control, Safety charge timers, Thermal regulation | 10-Pin DFN (3x3) |
| MCP73861 | Linear | Li-Ion/Li-Polymer | 1 | 4.5 to 12 | ± 0.5 | Int | Safety charge timers, Temperature monitor, Thermal regulation | 16-Pin 4x4 QFN, 16-Pin SOIC |
| MCP73862 | Linear | Li-Ion/Li-Polymer | 2 | 8.7 to 12 | ± 0.5 | Int | Safety charge timers, Temperature monitor, Thermal regulation | 16-pin 4x4 QFN, 16-Pin SOIC |

POWER MANAGEMENT – Hot Swap Controllers

| Part # | Number of Outputs | Vpos to Vneg Differential Voltage (V) | Junction Temperature Range (°C) | OVLO | UVLO | Power Good | Int/Ext FET | Applications | Packages |
|----------|-------------------|---------------------------------------|---------------------------------|------------|------------|------------|-------------|-------------------------------------|-------------|
| MCP18480 | 1 | -0.3 to +15.0 | -40 to +85 | Adjustable | Adjustable | Adjustable | Ext | -48V Telecom/Datacom, Bus/Backplane | 20-Pin SSOP |

LINEAR – Op Amps

| Part # | # per Package | GBWP | Iq Typical (μA) | Vos Max (mV) | Input Voltage Noise Density (nV/rtHz) | Operating Voltage (V) | Temp. Range (°C) | Features | Packages |
|---------|---------------|---------|-----------------|--------------|---------------------------------------|-----------------------|------------------|---|---|
| TC1034 | 1 | 90 kHz | 6 | 1.5 | 125 ⁽¹⁾ | 1.8 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output | 5-Pin SOT-23A ^(R) |
| TC1035 | 1 | 90 kHz | 6 | 1.5 | 125 ⁽¹⁾ | 1.8 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output, Shutdown pin | 6-Pin SOT-23A ^(R) |
| TC1029 | 2 | 90 kHz | 12 | 1.5 | 125 ⁽¹⁾ | 1.8 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin MSOP, 8-Pin SOIC |
| TC1030 | 4 | 90 kHz | 5 | 1.5 | 125 ⁽¹⁾ | 1.8 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output, Shutdown pins | 16-Pin QSOP |
| MCP6041 | 1 | 14 kHz | 0.6 | 3 | 170 ⁽¹⁾ | 1.4 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP, 5-Pin SOT-23 ^(S) |
| MCP6042 | 2 | 14 kHz | 0.6 | 3 | 170 ⁽¹⁾ | 1.4 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6043 | 1 | 14 kHz | 0.6 | 3 | 170 ⁽¹⁾ | 1.4 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output, Chip Select | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6044 | 4 | 14 kHz | 0.6 | 3 | 170 ⁽¹⁾ | 1.4 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP6141 | 1 | 100 kHz | 0.6 | 3 | 170 ⁽¹⁾ | 1.4 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output, G>10 stable | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6142 | 2 | 100 kHz | 0.6 | 3 | 170 ⁽¹⁾ | 1.4 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output, G>10 stable | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6143 | 1 | 100 kHz | 0.6 | 3 | 170 ⁽¹⁾ | 1.4 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output, G>10 stable, Chip Select | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6144 | 4 | 100 kHz | 0.6 | 3 | 170 ⁽¹⁾ | 1.4 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output, G>10 stable | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP606 | 1 | 155 kHz | 19 | 0.25 | 38 ⁽¹⁾ | 2.5 to 5.5 | -40 to +85 | Rail-to-Rail Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP, 5-Pin SOT23 ^(S) |
| MCP607 | 2 | 155 kHz | 19 | 0.25 | 38 ⁽¹⁾ | 2.5 to 5.5 | -40 to +85 | Rail-to-Rail Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |
| MCP608 | 1 | 155 kHz | 19 | 0.25 | 38 ⁽¹⁾ | 2.5 to 5.5 | -40 to +85 | Rail-to-Rail Output, Chip Select | 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |
| MCP609 | 4 | 155 kHz | 19 | 0.25 | 38 ⁽¹⁾ | 2.5 to 5.5 | -40 to +85 | Rail-to-Rail Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP616 | 1 | 190 kHz | 19 | 0.15 | 32 ⁽¹⁾ | 2.3 to 5.5 | -40 to +85 | Rail-to-Rail Output, PNP Input | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP617 | 2 | 190 kHz | 19 | 0.15 | 32 ⁽¹⁾ | 2.3 to 5.5 | -40 to +85 | Rail-to-Rail Output, PNP | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP618 | 1 | 190 kHz | 19 | 0.15 | 32 ⁽¹⁾ | 2.3 to 5.5 | -40 to +85 | Rail-to-Rail Output, Chip Select, PNP Input | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP619 | 4 | 190 kHz | 19 | 0.15 | 32 ⁽¹⁾ | 2.3 to 5.5 | -40 to +85 | Rail-to-Rail Output, PNP Input | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP6231 | 1 | 300 kHz | 20 | 5 | 52 ⁽¹⁾ | 1.8 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 5-Pin SC-70 ^(U) , 5-Pin SOT-23 ^(S,R,U) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6232 | 2 | 300 kHz | 20 | 5 | 52 ⁽¹⁾ | 1.8 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6234 | 4 | 300 kHz | 20 | 5 | 52 ⁽¹⁾ | 1.8 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP6241 | 1 | 550 kHz | 50 | 5 | 45 ⁽¹⁾ | 1.8 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 5-Pin SC-70 ^(U) , 5-Pin SOT-23 ^(S,R,U) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6242 | 2 | 550 kHz | 50 | 5 | 45 ⁽¹⁾ | 1.8 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6244 | 4 | 550 kHz | 50 | 5 | 45 ⁽¹⁾ | 1.8 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |

Legend: S = Standard Pinout; R = Reverse Pinout; U = Alternative Pinout

NOTE 1: Values are typical at 1 kHz
2: Values are typical at 10 kHz

LINEAR – Op Amps (continued)

| Part # | # per Package | GBWP | I _Q Typical (μA) | V _{OS} Max (mV) | Input Voltage Noise Density (nV/rtHz) | Operating Voltage (V) | Temp. Range (°C) | Features | Packages |
|---------|---------------|---------|-----------------------------|--------------------------|---------------------------------------|-----------------------|------------------|---|---|
| MCP6001 | 1 | 1 MHz | 140 | 4.5 | 28 ⁽¹⁾ | 1.8 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 5-Pin SOT-23 ^(U) , 5-Pin SC-70 ^(S,R,U) |
| MCP6002 | 2 | 1 MHz | 140 | 4.5 | 28 ⁽¹⁾ | 1.8 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6004 | 4 | 1 MHz | 140 | 4.5 | 28 ⁽¹⁾ | 1.8 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP6271 | 1 | 2 MHz | 170 | 3 | 20 ⁽¹⁾ | 2.0 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 5-Pin SOT-23 ^(S,R) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6272 | 2 | 2 MHz | 170 | 3 | 20 ⁽¹⁾ | 2.0 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6273 | 1 | 2 MHz | 170 | 3 | 20 ⁽¹⁾ | 2.0 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output, Chip Select | 5-Pin SOT-23 ^(S) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6274 | 4 | 2 MHz | 170 | 3 | 20 ⁽¹⁾ | 2.0 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP6275 | 2 | 2 MHz | 150 | 3 | 20 ⁽¹⁾ | 2.0 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output, Dual connected, Chip Select | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP601 | 1 | 2.8 MHz | 230 | 2 | 29 ⁽¹⁾ | 2.7 to 5.5 | -40 to +125 | Rail-to-Rail Output | 5-Pin SOT-23 ^(S,R) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |
| MCP602 | 2 | 2.8 MHz | 230 | 2 | 29 ⁽¹⁾ | 2.7 to 5.5 | -40 to +125 | Rail-to-Rail Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |
| MCP603 | 1 | 2.8 MHz | 230 | 2 | 29 ⁽¹⁾ | 2.7 to 5.5 | -40 to +125 | Rail-to-Rail Output, Chip Select | 6-Pin SOT-23 ^(S) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |
| MCP604 | 4 | 2.8 MHz | 230 | 2 | 29 ⁽¹⁾ | 2.7 to 5.5 | -40 to +125 | Rail-to-Rail Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP6281 | 1 | 5 MHz | 445 | 3 | 16 ⁽¹⁾ | 2.2 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 5-Pin SOT-23 ^(S,R) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6282 | 2 | 5 MHz | 445 | 3 | 16 ⁽¹⁾ | 2.2 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6283 | 1 | 5 MHz | 445 | 3 | 16 ⁽¹⁾ | 2.2 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output, Chip Select | 6-Pin SOT-23 ^(S,R) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6284 | 4 | 5 MHz | 445 | 3 | 16 ⁽¹⁾ | 2.2 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP6285 | 2 | 5 MHz | 400 | 3 | 16 ⁽¹⁾ | 2.2 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output, Dual connected, Chip Select | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6291 | 1 | 10 MHz | 1000 | 3 | 8.7 ⁽²⁾ | 2.4 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 5-Pin SOT-23 ^(S,R) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6292 | 2 | 10 MHz | 1000 | 3 | 8.7 ⁽²⁾ | 2.4 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6293 | 1 | 10 MHz | 1000 | 3 | 8.7 ⁽²⁾ | 2.4 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output, Chip Select | 6-Pin SOT-23 ^(S) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6294 | 4 | 10 MHz | 1000 | 3 | 8.7 ⁽²⁾ | 2.4 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP6295 | 2 | 10 MHz | 1100 | 3 | 8.7 ⁽²⁾ | 2.4 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output, Dual connected, Chip Select | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6021 | 1 | 10 MHz | 1000 | 0.5 | 8.7 ⁽²⁾ | 2.5 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output, 1/2 V _{CC} V _{REF} | 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |

Legend: S = Standard Pinout; R = Reverse Pinout; U = Alternative Pinout

NOTE 1: Values are typical at 1 kHz
2: Values are typical at 10 kHz

LINEAR – Op Amps (continued)

| Part # | # per Package | GBWP | I _q Typical (μA) | V _{os} Max (mV) | Input Voltage Noise Density (nV/rtHz) | Operating Voltage (V) | Temp. Range (°C) | Features | Packages |
|---------|---------------|--------|-----------------------------|--------------------------|---------------------------------------|-----------------------|------------------|--|--|
| MCP6022 | 2 | 10 MHz | 1000 | 0.5 | 8.7 ⁽²⁾ | 2.5 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |
| MCP6023 | 1 | 10 MHz | 1000 | 0.5 | 8.7 ⁽²⁾ | 2.5 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output, Chip Select | 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |
| MCP6024 | 4 | 10 MHz | 1000 | 0.5 | 8.7 ⁽²⁾ | 2.5 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |

Legend: S = Standard Pinout; R = Reverse Pinout; U = Alternative Pinout

NOTE 1: Values are typical at 1 kHz

2: Values are typical at 10 kHz

LINEAR – High Precision Operational Amplifiers

| Part # | # per Package | GBWP | I _q MAX (mA) | Typical V _{os} (μV) | V _{os} Drift Max (μV/°C) | Operating Voltage (V) | Temp. Range (°C) | Features | Packages |
|---------------------------|---------------|---------|-------------------------|------------------------------|-----------------------------------|-----------------------|------------------|------------------------------------|-------------------------|
| Chopper Stabilized | | | | | | | | | |
| TC7650 | 1 | 2.0 MHz | 3.5 | 5 | 0.05 | 4.5 to 16 | 0 to 70 | Single and Split Supply | 8-Pin PDIP, 14-Pin PDIP |
| TC7652 | 1 | 0.4 MHz | 3 | 5 | 0.05 | 5 to 16 | 0 to 70 | Single and Split Supply, Low Noise | 8-Pin PDIP, 14-Pin PDIP |
| Auto-Zero | | | | | | | | | |
| TC913A/B | 2 | 1.5 MHz | 1.1 | 15 | 0.15/0.30 | 6.5 to 16 | 0 to 70 | Single and Split Supply | 8-Pin PDIP, 8-Pin SOIC |

LINEAR – Programmable Gain Amplifiers (PGA)

| Part # | Channels | -3dB BW (MHz) | I _q Typ. | V _{os} (μV) | Operating Voltage (V) | Temp. Range (°C) | Features | Packages |
|---------|----------|---------------|---------------------|----------------------|-----------------------|------------------|--------------------------------------|--|
| MCP6S21 | 1 | 2 to 12 | 1.1 mA | 275 | 2.5 to 5.5 | -40 to +85 | SPI, 8 Gain Steps, Software Shutdown | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6S22 | 2 | 2 to 12 | 1.1 mA | 275 | 2.5 to 5.5 | -40 to +85 | SPI, 8 Gain Steps, Software Shutdown | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6S26 | 6 | 2 to 12 | 1.1 mA | 275 | 2.5 to 5.5 | -40 to +85 | SPI, 8 Gain Steps, Software Shutdown | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP6S28 | 8 | 2 to 12 | 1.1 mA | 275 | 2.5 to 5.5 | -40 to +85 | SPI, 8 Gain Steps, Software Shutdown | 16-Pin PDIP, 16-Pin SOIC |
| MCP6S91 | 1 | 1 to 18 | 1.0 mA | 4000 | 2.5 to 5.5 | -40 to +125 | SPI, 8 Gain Steps, Software Shutdown | 8-Pin PDIP, 8-Pin SSOIC, 8-Pin MSOP |
| MCP6S92 | 2 | 1 to 18 | 1.0 mA | 4000 | 2.5 to 5.5 | -40 to +125 | SPI, 8 Gain Steps, Software Shutdown | 8-Pin PDIP, 8-Pin SSOIC, 8-Pin MSOP |
| MCP6S93 | 2 | 1 to 18 | 1.0 mA | 4000 | 2.5 to 5.5 | -40 to +125 | SPI, 8 Gain Steps, Software Shutdown | 10-Pin MSOP |

LINEAR – Integrated Devices

| Part # | # of Op Amps per Package | # of Comparators per Package | I _q Typical (μA) | V _{REF} (V) | Operating Voltage (V) | Temp. Range (°C) | Features | Packages |
|---------|--------------------------|------------------------------|-----------------------------|----------------------|-----------------------|------------------|--|------------------------------------|
| TC1026C | 1 | 1 | 12 | 1.2 | 1.8 to 5.5 | -40 to +85 | On-board V _{REF} | 8-Pin PDIP, 8-Pin MSOP, 8-Pin SOIC |
| TC1043C | 2 | 2 | 16 | 1.2 | 1.8 to 5.5 | -40 to +85 | On-board V _{REF} , Shutdown pin | 16-Pin QSOP |

LINEAR – Comparators

| Part # | # per Package | VREF (V) | Typical Propagation Delay (μ s) | Iq Typical (μ A) | Vos Max (mV) | Operating Voltage (V) | Temp. Range ($^{\circ}$ C) | Features | Packages |
|---------|---------------|----------|--------------------------------------|-----------------------|--------------|-----------------------|-----------------------------|---|---|
| TC1027 | 4 | 1.2 | 4 | 18 | 5 | 1.8 to 5.5 | -40 to +85 | On-board VREF, Rail-to-Rail Input/Output | 16-Pin PDIP, 16-Pin QSOP, 16-Pin SOIC |
| TC1037 | 1 | — | 4 | 4 | 5 | 1.8 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output | 5-Pin SOT-23A ^(S) |
| TC1038 | 1 | — | 4 | 4 | 5 | 1.8 to 5.5 | -40 to +85 | Shutdown pin, Rail-to-Rail Input/Output | 6-Pin SOT-23A ^(S) |
| TC1039 | 1 | 1.2 | 4 | 6 | 5 | 1.8 to 5.5 | -40 to +85 | On-board VREF, Rail-to-Rail Input/Output | 6-Pin SOT-23A ^(S) |
| TC1041 | 2 | 1.2 | 4 | 10 | 5 | 1.8 to 5.5 | -40 to +85 | On-board VREF, Programmable hysteresis, Rail-to-Rail Input/Output | 8-Pin MSOP, 8-Pin SOIC |
| MCP6541 | 1 | — | 4 | 1 | 5 | 1.6 to 5.5 | -40 to +85 | Push-Pull, Rail-to-Rail Input/Output | 5-Pin SOT-23 ^(S,R) , 5-Pin SC-70 ^(S) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6542 | 2 | — | 4 | 1 | 5 | 1.6 to 5.5 | -40 to +85 | Push-Pull, Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6543 | 1 | — | 4 | 1 | 5 | 1.6 to 5.5 | -40 to +85 | Push-Pull, Rail-to-Rail Input/Output, Chip Select | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6544 | 4 | — | 4 | 1 | 5 | 1.6 to 5.5 | -40 to +85 | Push-Pull, Rail-to-Rail Input/Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP6546 | 1 | — | 4 | 1 | 5 | 1.6 to 5.5 | -40 to +85 | Open-drain, 9V, Rail-to-Rail Input/Output | 5-Pin SOT-23 ^(S,R) , 5-Pin SC-70 ^(S) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6547 | 2 | — | 4 | 1 | 5 | 1.6 to 5.5 | -40 to +85 | Open-drain, 9V, Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6548 | 1 | — | 4 | 1 | 5 | 1.6 to 5.5 | -40 to +85 | Open-drain, 9V, Rail-to-Rail Input/Output, Chip Select | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6549 | 4 | — | 4 | 1 | 5 | 1.6 to 5.5 | -40 to +85 | Open-drain, 9V, Rail-to-Rail Input/Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |

Legend: S = Standard Pinout; R = Reverse Pinout

MIXED SIGNAL – Successive Approximation Register (SAR) A/D Converters

| Part # | Resolution (bits) | Maximum Sampling Rate (ksamples/sec) | # of Input Channels | Input Type | Interface | Input Voltage Range (V) | Max. Supply Current (μ A) | Max. INL | Temp. Range ($^{\circ}$ C) | Packages |
|---------|-------------------|--------------------------------------|---------------------|--------------|------------------|-------------------------|--------------------------------|-------------|-----------------------------|--|
| MCP3021 | 10 | 22 | 1 | Single-ended | I ² C | 2.7 to 5.5 | 250 | \pm 1 LSB | -40 to +125 | 5-Pin SOT-23A |
| MCP3001 | 10 | 200 | 1 | Single-ended | SPI | 2.7 to 5.5 | 500 | \pm 1 LSB | -40 to +85 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |
| MCP3002 | 10 | 200 | 2 | Single-ended | SPI | 2.7 to 5.5 | 650 | \pm 1 LSB | -40 to +85 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |
| MCP3004 | 10 | 200 | 4 | Single-ended | SPI | 2.7 to 5.5 | 550 | \pm 1 LSB | -40 to +85 | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP3008 | 10 | 200 | 8 | Single-ended | SPI | 2.7 to 5.5 | 550 | \pm 1 LSB | -40 to +85 | 16-Pin PDIP, 16-Pin SOIC |
| MCP3221 | 12 | 22 | 1 | Single-ended | I ² C | 2.7 to 5.5 | 250 | \pm 2 LSB | -40 to +125 | 5-Pin SOT-23A |
| MCP3201 | 12 | 100 | 1 | Single-ended | SPI | 2.7 to 5.5 | 400 | \pm 1 LSB | -40 to +85 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |
| MCP3202 | 12 | 100 | 2 | Single-ended | SPI | 2.7 to 5.5 | 550 | \pm 1 LSB | -40 to +85 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |
| MCP3204 | 12 | 100 | 4 | Single-ended | SPI | 2.7 to 5.5 | 400 | \pm 1 LSB | -40 to +85 | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP3208 | 12 | 100 | 8 | Single-ended | SPI | 2.7 to 5.5 | 400 | \pm 1 LSB | -40 to +85 | 16-Pin PDIP, 16-Pin SOIC |
| MCP3301 | 13 | 100 | 1 | Differential | SPI | 2.7 to 5.5 | 450 | \pm 1 LSB | -40 to +85 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP3302 | 13 | 100 | 2 | Differential | SPI | 2.7 to 5.5 | 450 | \pm 1 LSB | -40 to +85 | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP3304 | 13 | 100 | 4 | Differential | SPI | 2.7 to 5.5 | 450 | \pm 1 LSB | -40 to +85 | 16-Pin PDIP, 16-Pin SOIC |

MIXED SIGNAL – Delta-Sigma A/D Converters

| Part # | Resolution (bits) | Maximum Sampling Rate (samples/sec) | # of Input Channels | Interface | Supply Voltage Range (V) | Typical Supply Current (μ A) | Typical INL (%FSR) | Temp. Range ($^{\circ}$ C) | Features | Packages |
|-----------------------|-------------------|-------------------------------------|------------------------|-----------|--------------------------|-----------------------------------|--------------------|-----------------------------|--|--------------------------|
| MCP3551 | 22 | 15 | 1 Diff | SPI™ | 2.7 to 5.5 | 120 | 0.0002 | -40 to +125 | Simultaneous 50/60 Hz rejection | 8-Pin SOIC, 8-Pin MSOP |
| MCP3553 | 22 | 60 | 1 Diff | SPI™ | 2.7 to 5.5 | 120 | 0.0002 | -40 to +125 | | 8-pin SOIC, 8-Pin MSOP |
| TC3400 ⁽¹⁾ | 10 to 16 | >400 | 1 Diff | 2-Wire | 1.8 to 5.5 | 260 | 0.0038 | 0 to +85 | | 8-Pin PDIP, 8-Pin SOIC |
| TC3401 ⁽¹⁾ | 10 to 16 | >400 | 2 Diff | 2-Wire | 1.8 to 5.5 | 300 | 0.0038 | 0 to +85 | Enable mode, Reset monitor, Power-fail monitor | 16-Pin PDIP, 16-Pin QSOP |
| TC3402 ⁽¹⁾ | 10 to 16 | >400 | 4 Diff | 2-Wire | 1.8 to 5.5 | 250 | 0.0038 | 0 to +85 | | 16-Pin PDIP, 16-Pin QSOP |
| TC3405 ⁽¹⁾ | 10 to 16 | >400 | 3 Single-ended, 1 Diff | 2-Wire | 1.8 to 5.5 | 250 | 0.0038 | 0 to +85 | Enable mode, Reset monitor | 16-Pin PDIP, 16-Pin QSOP |

NOTE 1: All TC340X are not recommended for new designs.

MIXED SIGNAL – Energy Measurement ICs

| Part # | Dynamic Measurement | Typical Measurement Accuracy | Gain | Typical Voltage Reference Drift | Typical Supply Current | Supply Voltage Range (V) | Temp. Range ($^{\circ}$ C) | Features | Packages |
|---------|---------------------|------------------------------|-------------|---------------------------------|------------------------|--------------------------|-----------------------------|----------------------------------|-------------|
| MCP3905 | 500:1 | 0.1% | 1, 2, 8, 16 | 15 ppm | 4 mA | 4.5 to 5.5 | -40 to +85 | Active (real) power pulse output | 24-Pin SSOP |

MIXED SIGNAL – Dual Slope A/D Converters

| Part # | Supply Voltage (V) | Input Voltage Range (V) | Resolution | Sampling Rate (Conv/s) | Input Channels | Data Interface | Temp. Range ($^{\circ}$ C) | Features | Packages |
|---------|------------------------|--------------------------|-----------------------|------------------------|----------------|-------------------------|-----------------------------|--|--|
| TC500 | \pm 4.5 to \pm 7.5 | VSS + 1.5V to VDD – 1.5V | Up to 16 bits | 4 to 10 | 1 | 3-Wire | 0 to +70 | Differential input range, Programmable resolution/conversion time | 16-Pin PDIP, 16-Pin SOIC, 16-Pin CerDIP |
| TC500A | \pm 4.5 to \pm 7.5 | VSS + 1.5V to VDD – 1.5V | Up to 17 bits | 4 to 10 | 1 | 3-Wire | 0 to +70 | Differential input range, Programmable resolution/conversion time | 16-Pin PDIP, 16-Pin SOIC, 16-Pin CerDIP |
| TC510 | +4.5 to +5.5 | VSS + 1.5V to VDD – 1.5V | Up to 17 bits | 4 to 10 | 1 | 3-Wire | 0 to +70 | Differential input range, Programmable resolution/conversion time, Charge pump (-V) output pin | 24-Pin PDIP, 24-Pin SOIC |
| TC514 | +4.5 to +5.5 | VSS + 1.5V to VDD – 1.5V | Up to 17 bits | 4 to 10 | 4 | 3-Wire | 0 to +70 | Differential input range, Programmable resolution/conversion time, Charge pump (-V) output pin | 28-Pin PDIP, 28-Pin SOIC |
| TC520A | +4.5 to +5.5 | — | — | — | — | Serial port | 0 to +70 | Optional serial interface adapter for TC500/500A/510/514 | 14-Pin PDIP, 16-Pin SOIC |
| TC530 | +4.5 to +5.5 | VSS + 1.5V to VDD – 1.5V | Up to 17 bits | 3 to 10 | 1 | Serial port | 0 to +70 | Differential input range, Programmable resolution/conversion time, Charge pump (-V) output pin | 28-Pin PDIP, 28-Pin SOIC |
| TC534 | +4.5 to +5.5 | VSS + 1.5V to VDD – 1.5V | Up to 17 bits | 3 to 10 | 4 | Serial port | 0 to +70 | Differential input range, Programmable resolution/conversion time, Charge pump (-V) output pin | 40-Pin PDIP, 44-Pin MQFP |
| TC7109 | \pm 4.5 to \pm 5.5 | VSS + 1.5V to VDD – 1.0V | 12 bits plus sign bit | 2 to 10 | 1 | Parallel or Serial port | -25 to +85 | Differential input range | 40-Pin PDIP, 40-Pin CerDip, 44-Pin PLCC, 44-Pin MQFP |
| TC7109A | \pm 4.5 to \pm 5.5 | VSS + 1.5V to VDD – 1.0V | 12 bits plus sign bit | 2 to 10 | 1 | Parallel or Serial port | -25 to +85 | Differential input range | 40-Pin PDIP, 40-Pin CerDip, 44-Pin PLCC, 44-Pin MQFP |

MIXED SIGNAL – Binary and BCD A/D Converters

| Part # | Description | Supply Voltage (V) | Input Voltage Range (V) | Resolution (Digits) | Resolution (Counts) | Max Power (mW) | Data Interface | Temp. Range (°C) | Features | Packages |
|----------|-------------|--------------------|--|---------------------|---------------------|----------------|----------------|------------------|--|--|
| TC835 | BCD A/D | ±5 | V _{SS} + 1.0V to V _{DD} – 0.5V | 4½ | ±20,000 | 30 | MUXed BCD | 0 to +70 | Upgrade to TC7135 | 64-Pin MQFP, 44-Pin MQFP, 28-Pin PDIP |
| TC850 | Binary A/D | ±5 | V _{SS} + 1.5V to V _{DD} – 1.5V | 15-bit | ±32,768 | 35 | 8-bit parallel | -25 to +70 | Highest conversion speed (40 conv/sec) | 44-Pin PLCC, 40-Pin PDIP, 40-Pin CerDIP |
| TC7135 | BCD A/D | ±5 | V _{SS} + 1.0V to V _{DD} – 1.0V | 4½ | ±20,000 | 30 | MUXed BCD | 0 to +70 | For DMM, DPM, Data loggers | 28-Pin PLCC, 28-Pin PDIP, 64-Pin MQFP |
| TC14433 | BCD A/D | ±4.5 to ±8 | ±199.9 mV to 1.999V | 3½ | ±2,000 | 20 | MUXed BCD | -40 to +85 | For DMM, DPM, Data loggers | 24-Pin SOIC, 24-Pin PDIP, 28-Pin PLCC, 24-Pin CerDIP |
| TC14433A | BCD A/D | ±4.5 to ±8 | ±199.9 mV to 1.999V | 3½ | ±2,000 | 20 | MUXed BCD | -40 to +85 | For DMM, DPM, Data loggers | 24-Pin PDIP, 28-Pin PLCC, 24-Pin CerDIP |

MIXED SIGNAL – Display A/D Converters

| Part # | Display Type | Supply Voltage (V) | Resolution (Digits) | Resolution (Counts) | Power (mW) | Temp. Range (°C) | Features | Packages |
|---------|--------------|--------------------|---------------------|---------------------|------------|------------------|--|--|
| TC820 | LCD | 9 | 3¾ | ±4,000 | 10 | 0 to +70 | DMM plus frequency counter and logic probe | 40-Pin PDIP, 44-Pin PLCC, 44-Pin MQFP |
| TC7106 | LCD | 9 | 3½ | ±2,000 | 10 | -25 to +85 | For DMM, DPM, Data logger applications | 40-Pin PDIP, 44-Pin PLCC, 44-Pin MQFP, 40-Pin CerDIP |
| TC7106A | LCD | 9 | 3½ | ±2,000 | 10 | -25 to +85 | For DMM, DPM, Data logger applications | 40-Pin PDIP, 44-Pin PLCC, 44-Pin MQFP, 40-Pin CerDIP |
| TC7107 | LED | ±5 | 3½ | ±2,000 | 10 | -25 to +85 | For DMM, DPM, Data logger applications | 40-Pin PDIP, 44-Pin PLCC, 44-Pin MQFP, 40-Pin CerDIP |
| TC7107A | LED | ±5 | 3½ | ±2,000 | 10 | -25 to +85 | For DMM, DPM, Data logger applications | 40-Pin PDIP, 44-Pin PLCC, 44-Pin MQFP, 40-Pin CerDIP |
| TC7116 | LCD | 9 | 3½ | ±2,000 | 10 | -25 to +85 | Hold function | 40-Pin PDIP, 44-Pin PLCC, 44-Pin MQFP, 40-Pin CerDIP |
| TC7116A | LCD | 9 | 3½ | ±2,000 | 10 | -25 to +85 | Hold function | 40-Pin PDIP, 44-Pin PLCC, 44-Pin MQFP, 40-Pin CerDIP |
| TC7117 | LED | ±5 | 3½ | ±2,000 | 10 | -25 to +85 | Hold function | 40-Pin PDIP, 44-Pin PLCC, 44-Pin MQFP, 40-Pin CerDIP |
| TC7117A | LED | ±5 | 3½ | ±2,000 | 10 | -25 to +85 | Hold function | 40-Pin PDIP, 44-Pin PLCC, 44-Pin MQFP, 40-Pin CerDIP |
| TC7126 | LCD | 9 | 3½ | ±2,000 | 0.5 | -25 to +85 | Low-power TC7106 | 40-Pin PDIP, 44-Pin PLCC, 44-Pin MQFP, 40-Pin CerDIP |
| TC7126A | LCD | 9 | 3½ | ±2,000 | 0.5 | -25 to +85 | Low-power TC7106 | 40-Pin PDIP, 44-Pin PLCC, 44-Pin MQFP, 40-Pin CerDIP |
| TC7129 | LCD | 9 | 4½ | ±20,000 | 4.5 | 0 to +70 | Lowest noise ±3 mV sensitivity | 40-Pin PDIP, 44-Pin PLCC, 44-Pin MQFP |

MIXED SIGNAL – Digital Potentiometers

| Part # | Number of Taps | Memory | Number per Package | Interface | Resistance (kOhms) | INL (max) | DNL (max) | Temp. Range (°C) | Comments | Packages |
|---------|----------------|----------|--------------------|-----------|--------------------|-----------|-----------|------------------|----------------------------------|---|
| MCP4011 | 64 | Volatile | 1 | Up/Down | 2, 5, 10, 50 | 0.5 | 0.5 | -40 to +125 | Potentiometer mode | 6-Pin SOT-23, 8-Pin SOIC, 8-Pin MSOP, 8-Pin 2x3 DFN |
| MCP4012 | 64 | Volatile | 1 | Up/Down | 2, 5, 10, 50 | 0.5 | 0.5 | -40 to +125 | Rheostat mode | 6-Pin SOT-23 |
| MCP4013 | 64 | Volatile | 1 | Up/Down | 2, 5, 10, 50 | 0.5 | 0.5 | -40 to +125 | Potentiometer to V _{SS} | 6-Pin SOT-23 |

MIXED SIGNAL – Digital Potentiometers (continued)

| Part # | Number of Taps | Memory | Number per Package | Interface | Resistance (kOhms) | INL (max) | DNL (max) | Temp. Range (°C) | Comments | Packages |
|----------|----------------|--------------|--------------------|-----------|--------------------|-----------|-----------|------------------|---|---|
| MCP4014 | 64 | Volatile | 1 | Up/Down | 2, 5, 10, 50 | 0.5 | 0.5 | -40 to +125 | Rheostat to Vss | 5-Pin SOT-23 |
| MCP4021 | 64 | Non-volatile | 1 | Up/Down | 2, 5, 10, 50 | 0.5 | 0.5 | -40 to +125 | Potentiometer mode, Shutdown, WiperLock™ Technology | 6-Pin SOT-23, 8-Pin SOIC, 8-Pin MSOP, 8-Pin 2x3 DFN |
| MCP4022 | 64 | Non-volatile | 1 | Up/Down | 2, 5, 10, 50 | 0.5 | 0.5 | -40 to +125 | Rheostat mode, Shutdown, WiperLock™ Technology | 6-Pin SOT-23 |
| MCP4023 | 64 | Non-volatile | 1 | Up/Down | 2, 5, 10, 50 | 0.5 | 0.5 | -40 to +125 | Potentiometer to Vss, WiperLock™ Technology | 6-Pin SOT-23 |
| MCP4024 | 64 | Non-volatile | 1 | Up/Down | 2, 5, 10, 50 | 0.5 | 0.5 | -40 to +125 | Rheostat to Vss, Shutdown, WiperLock™ Technology | 5-Pin SOT-23 |
| MCP41010 | 256 | Volatile | 1 | SPI™ | 10 | 1 | 1 | -40 to +85 | Potentiometer mode, Shutdown | 8-Pin PDIP, 8-Pin SOIC |
| MCP41050 | 256 | Volatile | 1 | SPI™ | 50 | 1 | 1 | -40 to +85 | Potentiometer mode, Shutdown | 8-Pin PDIP, 8-Pin SOIC |
| MCP41100 | 256 | Volatile | 1 | SPI™ | 100 | 1 | 1 | -40 to +85 | Potentiometer mode, Shutdown | 8-Pin PDIP, 8-Pin SOIC |
| MCP42010 | 256 | Volatile | 2 | SPI™ | 10 | 1 | 1 | -40 to +85 | Potentiometer mode, Shutdown | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP42050 | 256 | Volatile | 2 | SPI™ | 50 | 1 | 1 | -40 to +85 | Potentiometer mode, Shutdown | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP42100 | 256 | Volatile | 2 | SPI™ | 100 | 1 | 1 | -40 to +85 | Potentiometer mode, Shutdown | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |

MIXED SIGNAL – Frequency-to-Voltage/Voltage-to-Frequency Converters

| Part # | Frequency Range (kHz) | Full Scale (ppm FS/°C) | Non-linearity (%FS) | Temp. Range (°C) | Packages |
|--------|-----------------------|------------------------|---------------------|------------------|--------------------------|
| TC9400 | 100 | ±40 | ±0.05 | -40 to +85 | 14-Pin PDIP, 14-Pin SOIC |
| TC9401 | 100 | ±40 | ±0.02 | -40 to +85 | 14-Pin PDIP, 14-Pin SOIC |
| TC9402 | 100 | ±100 | ±0.25 | -40 to +85 | 14-Pin PDIP, 14-Pin SOIC |

MIXED SIGNAL – D/A Converters

| Part # | Resolution (Bits) | DACs per Package | Interface | VREF | Output Settling Time (µs) | DNL (LSB) | Typical Standby Current (µA) | Typical Operating Current (µA) | Temp. Range (°C) | Packages |
|---------|-------------------|------------------|-----------|------|---------------------------|-----------|------------------------------|--------------------------------|------------------|--|
| TC1320 | 8 | 1 | SMBus | Ext | 10 | ±0.8 | 0.1 | 350 | -40 to +85 | 8-Pin MSOP, 8-Pin SOIC |
| TC1321 | 10 | 1 | SMBus | Ext | 10 | ±2 | 0.1 | 350 | -40 to +85 | 8-Pin MSOP, 8-Pin SOIC |
| MCP4821 | 12 | 1 | SPI | Y | 4.5 | 1 | 0.3 | 330 | -40 to +125 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP4822 | 12 | 2 | SPI | Y | 4.5 | 1 | 0.3 | 415 | -40 to +125 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP4921 | 12 | 1 | SPI | Ext | 4.5 | 0.75 | 1 | 175 | -40 to +125 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP4922 | 12 | 2 | SPI | Ext | 4.5 | 0.75 | 1 | 350 | -40 to +125 | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |

NOTE: The analog output is voltage.

INTERFACE – Controller Area Network (CAN) Products

| Part # | Operating Voltage (V) | Temperature Range (°C) | Tx Buffers | Rx Buffers | Filters | Masks | Interrupt Output | Unique Features | Packages |
|------------------------|-----------------------|------------------------|------------|------------|---------|-------|------------------|---|--|
| MCP2510 ⁽¹⁾ | 2.7 to 5.5 | -40 to +125 | 3 | 2 | 6 | 2 | Yes | CAN 2.0B Active controller with SPI interface to MCU, 3 transmit buffers, 2 receive buffers, HW and SW message triggers | 18-Pin PDIP, 18-Pin SOIC, 20-Pin TSSOP |
| MCP2515 | 2.7 to 5.5 | -40 to +125 | 3 | 2 | 6 | 2 | Yes | MCP2510 pin compatible upgrade with enhanced features including higher throughput and data byte filtering | 18-Pin PDIP, 18-Pin SOIC, 20-Pin TSSOP |
| MCP25020 | 2.7 to 5.5 | -40 to +125 | 3 | 2 | 2 | 1 | N/A | CAN 2.0B Active I/O Expander, Configurable I/O, 2 PWM outputs | 14-Pin PDIP, 14-Pin SOIC |
| MCP25025 | 2.7 to 5.5 | -40 to +85 | 3 | 2 | 2 | 1 | N/A | CAN 2.0B Active I/O Expander, Configurable I/O, 2 PWM outputs, One-wire CAN option | 14-Pin PDIP, 14-Pin SOIC |
| MCP25050 | 2.7 to 5.5 | -40 to +125 | 3 | 2 | 2 | 1 | N/A | Mixed-Signal CAN 2.0B Active I/O Expander, Configurable I/O, 4 10-bit ADCs, 2 PWM outputs | 14-Pin PDIP, 14-Pin SOIC |
| MCP25055 | 2.7 to 5.5 | -40 to +85 | 3 | 2 | 2 | 1 | N/A | Mixed-Signal CAN 2.0B Active I/O Expander, Configurable I/O, 4 10-bit ADCs, 2 PWM outputs, One-wire CAN option | 14-Pin PDIP, 14-Pin SOIC |
| MCP2551 | 4.5 to 5.5 | -40 to +125 | n/a | n/a | n/a | n/a | N/A | High-speed CAN Transceiver (1 Mbps max. CAN bus speed), ISO11898 compatible, Industry standard pinout | 8-Pin PDIP, 8-Pin SOIC |

NOTE 1: Not recommended for new designs.

INTERFACE – Infrared Products

| Part # | Operating Voltage (V) | Operating Temperature Range (°C) | Max. Baud Rate (Kbaud) | Unique Features | Packages |
|---------|-----------------------|----------------------------------|---------------------------|--|---------------------------------------|
| MCP2120 | 2.5 to 5.5 | -40 to +85 | 325 | UART to IR encoder/decoder with both hardware and software baud rate selection | 14-Pin PDIP, 14-Pin SOIC |
| MCP2122 | 1.8 to 5.5 | -40 to +85 | 16x less than clock input | UART to IR encoder/decoder | 8-Pin PDIP, 8-Pin SOIC |
| MCP2140 | 2.7 to 5.5 | -40 to +85 | 9.6 | IrDA® Standard protocol handler plus bit encoder/decoder, Fixed baud rate, Low-cost | 18-Pin PDIP, 18-Pin SOIC, 20-Pin SSOP |
| MCP2150 | 3.0 to 5.5 | -40 to +85 | 115.2 | IrDA® Standard protocol handler plus bit encoder/decoder on one chip for DTE applications, Programmable ID | 18-Pin PDIP, 18-Pin SOIC, 20-Pin SSOP |
| MCP2155 | 3.0 to 5.5 | -40 to +85 | 115.2 | IrDA® Standard protocol handler plus bit encoder/decoder on one chip for DCE applications, Programmable ID | 18-Pin PDIP, 18-Pin SOIC, 20-Pin SSOP |

NOTE: IrDA® is a registered trademark of Infrared Data Association.

INTERFACE – Ethernet Products

| Part # | Operating Voltage (V) | Operating Temperature Range (°C) | MAC | PHY | TX/RX Dual Port RAM | Bus Type | Max Bus Speed (MHz) | Features | Packages |
|----------|-----------------------|----------------------------------|-----|-----------|---------------------|----------|---------------------|--|--|
| ENC28J60 | 3.14 to 3.45 | -40 to +85 | yes | 10-Base-T | 8 KB | SPI | 25 | Ethernet controller, IEEE 802.3 compatible, Loopback Test modes, Auto-polarity detection | 28-Pin SOIC, 28-Pin SSOP, 28-Pin 6x6 QFN |

INTERFACE – LIN Transceiver Products

| Part # | Description | Vreg Output Voltage (V) | Operating Temperature Range (°C) | Vreg Output Current (mA) | Vcc Range (V) | Max Baud Rate | LIN Specification Supported | Packages |
|--------|--------------------------------------|-------------------------|----------------------------------|--------------------------|--------------------------|---------------|-----------------------------|-----------------------------------|
| MCP201 | LIN Transceiver with integrated VREG | 4.75 to 5.25 | -40 to +125 | 50 | 7.4 to 18 ⁽¹⁾ | 20 Kbaud | Revision 1.2 | 8-pin PDIP, 8-pin SOIC, 8-Pin DFN |

NOTE 1: Can withstand 40V load dump.

INTERFACE – Serial Peripherals

| Part # | Description | Operating Voltage (V) | Operating Temperature Range (°C) | Bus Type | Max. Bus Frequency (kHz) | Features | Packages |
|----------|--------------------------|-----------------------|----------------------------------|-------------------|--------------------------|--|---|
| MCP23008 | 8-bit I/O Port Expander | 1.8 to 5.5 | -40 to +85 | I ² C™ | 1700 | 3 HW address pins, HW interrupt, 25 mA source/sink capability per I/O | 18-Pin PDIP, 18-Pin SOIC, 20-Pin SSOP |
| MCP23S08 | 8-bit I/O Port Expander | 1.8 to 5.5 | -40 to +85 | SPI™ | 10000 | 2 HW address pins, HW interrupt, 25 mA source/sink capability per I/O | 18-Pin PDIP, 18-Pin SOIC, 20-Pin SSOP |
| MCP23016 | 16-bit I/O Port Expander | 2.0 to 5.5 | -40 to +85 | I ² C™ | 400 | 3 H/W address inputs, HW interrupt, 25 mA source/sink capability per I/O | 28-Pin PDIP, 28-Pin SOIC, 28-Pin SSOP, 28-Pin 6x6 QFN |
| MCP23017 | 16-bit I/O expander | 1.8 to 5.5 | -40 to +125 | I ² C™ | 1,700 | 3 HW address pins, 25 mA sink/source per I/O, 100 kHz, 400 kHz and 3-4 MHz I ² C™ supported, Interrupt output | 28-Pin PDIP, 28-Pin SOIC, 28-Pin SSOP, 28-Pin QFN |
| MCP23S17 | 16-bit I/O expander | 1.8 to 5.5 | -40 to +125 | SPI™ | 10,000 | 3 HW address pins, 25 mZ sink/source per I/O, Interrupt output | 28-Pin PDIP, 28-Pin SOIC, 28-Pin SSOP, 28-Pin QFN |

FUTURE ANALOG/INTERFACE PRODUCTS

Lead-free versions of many devices are currently offered. Check Microchip's web site for availability.

| Power Management – Low-Side Power MOSFET Drivers | | | | | | | |
|--|-----------------------|----------------------------|-------------------------|-----------------------|---------------------|-------------------------------|---|
| Part # | Configuration | Operating Temperature (°C) | Peak Output Current (A) | Output Resistance (Ω) | Max. Supply Voltage | Input/Output Delay (td1, td2) | Packages |
| TC4451 | Single, Inverting | -40 to +125 | 12 | 0.6 (typ)/1.5 | 18 | 15/15 | 8-Pin SOIC, 8-Pin PDIP, 8-Pin 6x5 DFN, 5-Pin TO-220, 5-Pin DDPACK |
| TC4452 | Single, Non-inverting | -40 to +125 | 12 | 0.6 (typ)/1.5 | 18 | 15/15 | 8-Pin SOIC, 8-Pin PDIP, 8-Pin 6x5 DFN, 5-Pin TO-220, 5-Pin DDPACK |

| Power Management – Battery Chargers | | | | | | | | |
|-------------------------------------|--------|-------------------|------------|---------------|-----------------------------|-------------|---------------------------|-----------------------------|
| Part # | Mode | Cell Type | # of Cells | Vcc Range (V) | Max. Voltage Regulation (%) | Int/Ext FET | Features | Packages |
| MCP73831 | Linear | Li-Ion/Li-Polymer | 1 | 4.5 to 5.5 | ±0.5 | Int | Small size, Status output | 5-Pin SOT-23, 8-Pin 2x3 DFN |

| Power Management – Charge Pump DC/DC Converters | | | | | | | |
|---|-------------------|--------------------|----------------------------------|----------------------------|------------------------------------|---|-----------------------------|
| Part # | Input Voltage (V) | Output Voltage (V) | Operating Temperature Range (°C) | Maximum Input Current (mA) | Typical Active Output Current (mA) | Features | Packages |
| MCP1256/7/8/9 | 1.8 to 3.6 | 3.3 | -40 to +85 | 100 | 100 | 650 kHz Oscillator, High-Efficiency Fractional mode, Low-Power Sleep and Shutdown modes | 10-Pin MSOP, 10-Pin 3x3 DFN |

| Power Management – Linear Regulators | | | | | | | | | |
|--------------------------------------|------------------------|---|---------------------|---------------------------|-----------------------------|--|-------------------------------------|--|--|
| Part # | Max. Input Voltage (V) | Output Voltage (V) | Output Current (mA) | Junction Temp. Range (°C) | Typical Active Current (mA) | Typical Dropout Voltage of Rated IOUT (mV) | Typical Output Voltage Accuracy (%) | Features | Packages |
| MCP1702 | 12 | 1.2, 1.5, 1.8, 2.5, 2.8, 3.0, 3.5, 4.0, 5.0 | 250 | -40 to +125 | 2 | 650 | ±0.4 | Ultra-low ground current, 12V max. input voltage | 3-Pin SOT-23A, 3-Pin SOT-89, 3-Pin TO-92 |

| Power Management – Switching Regulators | | | | | | | | | | |
|---|----------------------------------|-------------------|--------------------|----------------------------|----------------|-----------------------|-----------------------------|---------------------|---|-----------------------------|
| Part # | Description | Input Voltage (V) | Output Voltage (V) | Operating Temp. Range (°C) | Control Scheme | Switching Freq. (kHz) | Typical Active Current (mA) | Output Current (mA) | Features | Packages |
| MCP1603 | Synchronous Buck DC/DC Regulator | 2.7 to 5.5 | 0.8 to 4.5 | -40 to +85 | PFM/PWM | 2000 | 35 | 500 | PFM, PWM auto-switching, UVLO, soft-start | 5-Pin SOT-23, 8-Pin 2x3 DFN |

| Power Management – CPU/System Supervisors | | | | | | | | | |
|---|---------------|----------------------------------|---------------------------|------------|----------------|--------------------------------|-----------------------------|--|--------------|
| Part # | Vcc Range (V) | Operating Temperature Range (°C) | Nominal Reset Voltage (V) | Reset Type | Output | Typical Reset Pulse Width (ms) | Typical Supply Current (µA) | Features | Packages |
| MCP1316 | 1.0 to 5.5 | -40 to +125 | 2.9, 4.6 | Active-Low | CMOS Push-Pull | 200 | 5 | Watchdog Input (WDI time-out = 1.6s), Manual Reset | 5-Pin SOT-23 |

Power Management – CPU/System Supervisors (continued)

| Part # | Vcc Range (V) | Operating Temperature Range (°C) | Nominal Reset Voltage (V) | Reset Type | Output | Typical Reset Pulse Width (ms) | Typical Supply Current (µA) | Features | Packages |
|---------|---------------|----------------------------------|---------------------------|-----------------|-------------------------------|--------------------------------|-----------------------------|--|--------------|
| MCP1317 | 1.0 to 5.5 | -40 to +125 | 2.9, 4.6 | Active-High | CMOS Push-Pull | 200 | 5 | Watchdog Input (WDI time-out = 1.6s), Manual Reset | 5-Pin SOT-23 |
| MCP1318 | 1.0 to 5.5 | -40 to +125 | 4.6 | Active-Low/High | CMOS Push-Pull | 200 | 5 | Watchdog Input (WDI time-out = 1.6s) | 5-Pin SOT-23 |
| MCP1319 | 1.0 to 5.5 | -40 to +125 | 4.6 | Active-Low/High | CMOS Push-Pull | 200 | 1 | Manual Reset | 5-Pin SOT-23 |
| MCP1320 | 1.0 to 5.5 | -40 to +125 | 2.9, 4.6 | Active-Low | Open-Drain | 200 | 5 | Watchdog Input (WDI time-out = 1.6s), Manual Reset | 5-Pin SOT-23 |
| MCP1321 | 1.0 to 5.5 | -40 to +125 | 4.6 | Active-Low | Open-Drain/ CMOS Push-Pull | 200 | 5 | Watchdog Input (WDI time-out = 1.6s), Two Reset outputs (Active-Low Open-Drain, Active-High Push-Pull) | 5-Pin SOT-23 |
| MCP1322 | 1.0 to 5.5 | -40 to +125 | 4.6 | Active-High | Open-Drain/ CMOS Push-Pull | 200 | 1 | Manual Reset, Two Reset outputs (Active-Low Open-Drain, Active-High Push-Pull) | 5-Pin SOT-23 |

Linear – Linear Gain Blocks

| Part # | Channels | -3dB BW (kHz) | I _Q (µA) | V _{OS} (mV) | Operating Voltage (V) | Temperature Range (°C) | Gain Steps (V/V) | Features | Packages |
|---------|----------|---------------|---------------------|----------------------|-----------------------|------------------------|------------------|-----------------------|--|
| MCP6G01 | 1 | 1000 | 120 | 3 | 1.8 to 5.5 | -40 to +125 | 1, 10, 50 | Tri-State Control Pin | 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |
| MCP6G02 | 2 | 1000 | 120 | 3 | 1.8 to 5.5 | -40 to +125 | 1, 10, 50 | Tri-State Control Pin | 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |
| MCP6G04 | 4 | 1000 | 120 | 3 | 1.8 to 5.5 | -40 to +125 | 1, 10, 50 | Tri-State Control Pin | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |

Mixed Signal – Successive Approximation Register (SAR) A/D Converters

| Part # | Resolution (bits) | Maximum Sampling Rate (ksamples/sec) | # of Input Channels | Input Type | Interface | Input Voltage Range (V) | Maximum Supply current (mA) | Maximum INL (LSB) | Temperature Range (°C) | Packages |
|---------|-------------------|--------------------------------------|---------------------|--------------|-----------|-------------------------|-----------------------------|-------------------|------------------------|--|
| MCP3601 | 16 | 100 | 1 | Single-ended | SPI | 2.7 to 5.5 | 750 | ±3 | -40 to +125 | 8-Pin PDIP, 8-Pin MSOP, 8-Pin SOIC |
| MCP3602 | 16 | 100 | 2 | Single-ended | SPI | 2.7 to 5.5 | 1000 | ±3 | -40 to +125 | 8-Pin PDIP, 8-Pin MSOP, 8-Pin SOIC |
| MCP3604 | 16 | 100 | 4 | Single-ended | SPI | 2.7 to 5.5 | 750 | ±3 | -40 to +125 | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP3608 | 16 | 100 | 8 | Single-ended | SPI | 2.7 to 5.5 | 750 | ±3 | -40 to +125 | 16-Pin PDIP, 16-Pin SOIC |

Interface – Passive Access Products

| Part # | Operating Voltage (V) | Operating Temp. Range (°C) | Bus Type | RF Carrier Frequency | Data Format | Features | Packages |
|---------|-----------------------|----------------------------|----------|----------------------|-------------|---|--|
| MCP2030 | 1.8 to 3.6 | -40 to +85 | SPI | 125 kHz | NRZ | Three axis signal conditioning devices for passive access applications, high-sensitivity, configurable smart wake-up filter | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |

CURRENT PICmicro® MICROCONTROLLER FAMILY PRODUCTS

Baseline 8-Bit PICmicro® Microcontroller Family (12-bit Instruction Set)

| Product | Program Memory Bytes & Type (Words) | RAM Bytes | I/O Pins | Packages | Analog | | Digital | Max. Speed MHz | IntOSC | ICSP™ | BOR/PBOR/PLVD | ICD # of Breakpoints | Operating Voltage (V) | Other Features | |
|---|-------------------------------------|---------------------|----------|----------|-----------------------------|---------|------------|----------------|--------|-------|---------------|----------------------|-----------------------|----------------|--|
| | | | | | ADC | Comp. | Timers/WDT | | | | | | | | |
| PIC10FXXX: 500 ns Instruction Execution, 33 Instructions, 25 mA Source and Sink per I/O | | | | | | | | | | | | | | | |
| | PIC10F200 | 384 StdFI (256) | 16 | 4 | 60T, 8P | — | — | 1-8 bit, 1-WDT | 4 | 4 MHz | ✓ | — | 1** | 2.0-5.5 | |
| | PIC10F202 | 768 StdFI (512) | 24 | 4 | 60T, 8P | — | — | 1-8 bit, 1-WDT | 4 | 4 MHz | ✓ | — | 1** | 2.0-5.5 | |
| | PIC10F204 | 384 StdFI (256) | 16 | 4 | 60T, 8P | — | 1 | 1-8 bit, 1-WDT | 4 | 4 MHz | ✓ | — | 1** | 2.0-5.5 | Band gap reference |
| | PIC10F206 | 768 StdFI (512) | 24 | 4 | 60T, 8P | — | 1 | 1-8 bit, 1-WDT | 4 | 4 MHz | ✓ | — | 1** | 2.0-5.5 | Band gap reference |
| NEW | PIC10F220 | 384 StdFI (256) | 16 | 4 | 60T, 8P | 2x8-bit | — | 1-8 bit, 1-WDT | 8 | 8 MHz | ✓ | — | 1** | 2.0-5.5 | Band gap reference |
| NEW | PIC10F222 | 768 StdFI (512) | 23 | 4 | 60T, 8P | 2x8-bit | — | 1-8 bit, 1-WDT | 8 | 8 MHz | ✓ | — | 1** | 2.0-5.5 | Band gap reference |
| PIC12FXXX: 500 ns Instruction Execution, 33 Instructions, 25 mA Source and Sink I/O | | | | | | | | | | | | | | | |
| | PIC12F508 | 768 StdFI (512) | 25 | 6 | 8P, 8SN, 8MS | — | — | 1-8 bit, 1-WDT | 4 | 4 MHz | ✓ | — | 1** | 2.0-5.5 | |
| | PIC12F509 | 1,536 StdFI (1,024) | 41 | 6 | 8P, 8SN, 8MS | — | — | 1-8 bit, 1-WDT | 4 | 4 MHz | ✓ | — | 1** | 2.0-5.5 | |
| NEW | PIC12F510 | 1,536 StdFI (1,024) | 38 | 6 | 8P, 8SN, 8MS | 3x8-bit | 1 | 1-8 bit, 1-WDT | 8 | 8 MHz | ✓ | — | 1** | 2.0-5.5 | Band gap reference |
| PIC16F5XX: 100-200 ns Instruction Execution, 33 Instructions, 25 mA Source and Sink I/O | | | | | | | | | | | | | | | |
| | PIC16F505 | 1,536 StdFI (1,024) | 72 | 12 | 14P, 14JW, 14SL, 14ST | — | — | 1-8 bit, 1-WDT | 20 | 4 MHz | ✓ | — | 1** | 2.0-5.5 | |
| NEW | PIC16F506 | 1,536 StdFI (1,024) | 67 | 12 | 14P, 14SO, 14ST | 3x8-bit | 2 | 1-8 bit, 1-WDT | 20 | 8 MHz | ✓ | — | 1** | 2.0-5.5 | Band gap reference |
| | PIC16F54 | 768 StdFI (512) | 25 | 12 | 18P, 18SO, 20SS | — | — | 1-8 bit, 1-WDT | 20 | — | ✓ | — | — | 2.0-5.5 | |
| | PIC16F57 | 3072 StdFI (2048) | 72 | 20 | 28P, 28SO, 28SS, 28SP | — | — | 1-8 bit, 1-WDT | 20 | — | ✓ | — | — | 2.0-5.5 | |
| | PIC16F59 | 3,072 StdFI (2,048) | 134 | 32 | 40P, 44PT | — | — | 1-8 bit, 1-WDT | 20 | — | ✓ | — | — | 2.0-5.5 | |
| PIC16C5X: 100-200 ns Instruction Execution, 33 Instructions, 25 mA Source and Sink I/O | | | | | | | | | | | | | | | |
| | PIC16C55A | 768 OTP (512) | 24 | 20 | 28P, 28JW, 28SP, 28SO, 28SS | — | — | 1-8 bit, 1-WDT | 40 | — | — | — | — | 2.5-5.5 | |
| | PIC16C56A | 1,536 OTP (1,024) | 25 | 12 | 18P, 18JW, 18SO, 20SS | — | — | 1-8 bit, 1-WDT | 40 | — | — | — | — | 2.5-5.5 | |
| | PIC16CR56A | 1,536 ROM (1,024) | 25 | 12 | 18P, 18SO, 20SS | — | — | 1-8 bit, 1-WDT | 20 | — | — | — | — | 2.5-5.5 | |
| | PIC16C58B | 3,072 OTP (2,048) | 73 | 12 | 18P, 18JW, 18SO, 20SS | — | — | 1-8 bit, 1-WDT | 40 | — | — | — | — | 2.5-5.5 | |
| | PIC16CR58B | 3,072 ROM (2,048) | 73 | 12 | 18P, 18SO, 20SS | — | — | 1-8 bit, 1-WDT | 20 | — | — | — | — | 2.5-5.5 | |
| | PIC16HV540 | 768 OTP (512) | 25 | 12 | 18P, 18JW, 18SO, 20SS | — | — | 1-8 bit, 1-WDT | 20 | — | — | BOR | — | 3.5-15 | 8 high-voltage (15V) I/Os, 4 deep stack, 5 I/Os with wake-up-on-change |

*Contact Microchip Technology for availability date.

** Requires ICD specific device with header module – refer to Development Tools.

Abbreviations are found on the last page of the Selector Guide.

| Mid-Range 8-Bit PICmicro® Microcontroller Family (14-bit Instruction Set) | | | | | | | | | | | | | | | | | |
|--|-------------------------------------|--------------------------|-----------|----------|-----------------------|------------------------|-----------|--------------------------|--------------------------|--------------------------------|--------|---------------|----------------------|----------|-----|----------------------------------|---|
| Product | Program Memory Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog | | Digital | | Max. Speed MHz | IntOSC | BOR/PBOR/PLVD | ICD # of Breakpoints | CCP/ECCP | nW | Other Features | |
| | | | | | | ADC Ch | Comp. | Timers/WDT | Serial I/O | | | | | | | | |
| PIC12FXXX: 1 μs Instruction Execution, 35 Instructions, ICSP™ | | | | | | | | | | | | | | | | | |
| PIC12F629 | 1,792 StdFI (1,024) | 128 | 64 | 6 | 8P, 8SN, 8MF | — | 1 | 1-8 bit, 1-16 bit, 1-WDT | — | 20 | 4 MHz | BOR | 1** | — | — | | |
| PIC12F635 | 1,792 StdFI (1,024) | 128 | 64 | 6 | 8P, 8SN, 8MF | — | 1 | 1-8 bit, 1-16 bit, 1-WDT | — | 20 | 8 MHz | BOR/PLVD | 1** | — | ✓ | KEELOQ® hardware peripheral, WUR | |
| PIC12F675 | 1,792 StdFI (1,024) | 128 | 64 | 6 | 8P, 8SN, 8MF | 4x10-bit | 1 | 1-8 bit, 1-16 bit, 1-WDT | — | 20 | 4 MHz | BOR | 1** | — | — | | |
| PIC12F683 | 3,584 StdFI (2,048) | 256 | 128 | 6 | 8P, 8SN, 8MF | 4x10-bit | 1 | 1-16 bit, 2-8 bit, 1-WDT | — | 20 | 8 MHz | BOR | 1** | 1/0 | ✓ | | |
| PIC16FXXX: 200 ns Instruction Execution, 35 Instructions, ICSP™ (except ROM), 25 mA Source and Sink per I/O | | | | | | | | | | | | | | | | | |
| PIC16F627A | 1,792 StdFI (1,024) | 128 | 224 | 16 | 18P, 18SO, 20SS, 28ML | — | 2 | 1-16 bit, 2-8 bit, 1-WDT | AUSART | 20 | 4 MHz | BOR | 1** | 1/0 | ✓ | | |
| PIC16F628A | 3,584 StdFI (2,048) | 128 | 224 | 16 | 18P, 18SO, 20SS, 28ML | — | 2 | 1-16 bit, 2-8 bit, 1-WDT | AUSART | 20 | 4 MHz | BOR | 1** | 1/0 | ✓ | | |
| PIC16F648A | 7,168 StdFI (4,096) | 256 | 256 | 16 | 18P, 18SO, 20SS, 28ML | — | 2 | 1-16 bit, 2-8 bit, 1-WDT | AUSART | 20 | 4 MHz | BOR | 1** | 1/0 | ✓ | | |
| PIC16F630 | 1,792 StdFI (1,024) | 128 | 64 | 12 | 14P, 14SL, 14ST | — | 1 | 1-8 bit, 1-16 bit, 1-WDT | — | 20 | 4 MHz | BOR | 1** | — | — | | |
| PIC16F636 | 3,584 StdFI (2,048) | 256 | 128 | 12 | 14P, 14SL, 14ST | — | 2 | 1-8 bit, 1-16 bit, 1-WDT | — | 20 | 8 MHz | BOR/PLVD | 1** | — | ✓ | KEELOQ® hardware peripheral | |
| NEW | PIC16F639 | 3,584 StdFI (2,048) | 256 | 128 | 12 | 20P, 20SO, 20SS | — | 2 | 1-16 bit, 1-8 bit, 1-WDT | — | 20 | 8 MHz | BOR | 1** | — | ✓ | Transponder Analog Front End, KEELOQ® hardware peripheral |
| | PIC16F676 | 1,792 StdFI (1,024) | 128 | 64 | 12 | 14P, 14SL, 14ST | 8x10-bit | 1 | 1-8 bit, 1-16 bit, 1-WDT | — | 20 | 4 MHz | BOR | 1** | — | — | |
| | PIC16F684 | 3,584 StdFI (2,048) | 256 | 128 | 12 | 14P, 14SL, 14ST | 8x10-bit | 2 | 1-16 bit, 2-8 bit, 1-WDT | — | 20 | 8 MHz | BOR | 1** | 0/1 | ✓ | |
| NEW | PIC16F685 | 7,168 StdFI (4,096) | 256 | 256 | 18 | 20P, 20SO, 20SS | 12x10-bit | 2 | 1-16 bit, 2-8 bit, 1-WDT | — | 20 | 8 MHz | BOR | 1** | 0/1 | ✓ | |
| NEW | PIC16F687 | 3,584 StdFI (2,048) | 256 | 128 | 18 | 20P, 20SO, 20SS | 12x10-bit | 2 | 1-16 bit, 1-8 bit, 1-WDT | EUSART, I ² C™/SPI™ | 20 | 8 MHz | BOR | 1** | — | ✓ | |
| | PIC16F688 | 7,168 StdFI (4,096) | 256 | 256 | 12 | 14P, 14SL, 14ST | 8x10-bit | 2 | 1-8 bit, 1-16 bit, 1-WDT | EUSART | 20 | 8 MHz | BOR | 1** | — | ✓ | |
| NEW | PIC16F689 | 7,168 StdFI (4,096) | 256 | 256 | 18 | 20P, 20SO, 20SS | 12x10-bit | 2 | 1-16 bit, 1-8 bit, 1-WDT | EUSART, I ² C/SPI | 20 | 8 MHz | BOR | 1** | — | ✓ | |
| NEW | PIC16F690 | 7,168 StdFI (4,096) | 256 | 256 | 18 | 20P, 20SO, 20SS | 12x10-bit | 2 | 1-16 bit, 2-8 bit, 1-WDT | EUSART, I ² C, SPI | 20 | 8 MHz | BOR | 1** | 0/1 | ✓ | |
| | PIC16F716 | 3,584 StdFI (2,048) | — | 128 | 13 | 18P, 18SO, 20SS | 4x8-bit | — | 1-16 bit, 2-8 bit, 1-WDT | — | 20 | — | BOR | 1** | 0/1 | — | |
| | PIC16F72 | 3,584 StdFI (2,048) | — | 128 | 22 | 28SP, 28SO, 28SS, 28ML | 5x8-bit | — | 1-16 bit, 2-8 bit, 1-WDT | I ² C/SPI | 20 | — | BOR | — | 1/0 | — | |
| | PIC16F73 | 7,168 StdFI (4,096) | — | 192 | 22 | 28SP, 28SO, 28SS, 28ML | 5x8-bit | — | 1-16 bit, 2-8 bit, 1-WDT | USART, I ² C/SPI | 20 | — | BOR | — | 2/0 | — | |

*Contact Microchip Technology for availability date.

** Requires ICD specific device with header module – refer to Development Tools.

Abbreviations are found on the last page of the Selector Guide.

Mid-Range 8-Bit PICmicro® Microcontroller Family (14-bit Instruction Set) (continued)

| Product | Program Memory Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog | | Digital | | Max. Speed MHz | IntOSC | BOR/PBOR/PLVD | ICD # of Breakpoints | CCP/ECCP | nW | Other Features |
|--|-------------------------------------|--------------------------|-----------|----------|------------------------|-----------|-------|--------------------------|-------------------------------|----------------|--------|---------------|----------------------|----------|----|---|
| | | | | | | ADC Ch | Comp. | Timers/WDT | Serial I/O | | | | | | | |
| PIC16FXXX: 200 ns Instruction Execution, 35 Instructions, ICSP™ (except ROM), 25 mA Source and Sink per I/O (continued) | | | | | | | | | | | | | | | | |
| PIC16F737 | 7,168 StdFI (4,096) | — | 368 | 25 | 28SP, 28SO, 28SS, 28ML | 11x10-bit | 2 | 1-16 bit, 2-8 bit, 1-WDT | AUSART, MI ² C/SPI | 20 | 8 MHz | PBOR/PLVD | 1 | 3/0 | ✓ | |
| PIC16F74 | 7,168 StdFI (4,096) | — | 192 | 33 | 40P, 44ML, 44L, 44PT | 8x8-bit | — | 1-16 bit, 2-8 bit, 1-WDT | USART, I ² C/SPI | 20 | — | BOR | — | 2/0 | — | PSP |
| PIC16F747 | 7,168 StdFI (4,096) | — | 368 | 36 | 40P, 44PT, 44ML | 14x10-bit | 2 | 1-16 bit, 2-8 bit, 1-WDT | AUSART, MI ² C/SPI | 20 | 8 MHz | PBOR/PLVD | 1 | 3/0 | ✓ | PSP |
| PIC16F76 | 14,336 StdFI (8,192) | — | 368 | 22 | 28SP, 28SO, 28SS, 28ML | 5x8-bit | — | 1-16 bit, 2-8 bit, 1-WDT | USART, I ² C/SPI | 20 | — | BOR | — | 2/0 | — | |
| PIC16F767 | 14,336 StdFI (8,192) | — | 368 | 25 | 28SP, 28SO, 28SS, 28ML | 11x10-bit | 2 | 1-16 bit, 2-8 bit, 1-WDT | AUSART, MI ² C/SPI | 20 | 8 MHz | PBOR/PLVD | 1 | 3/0 | ✓ | |
| PIC16F77 | 14,336 StdFI (8,192) | — | 368 | 33 | 40P, 44ML, 44L, 44PT | 8x8-bit | — | 1-16 bit, 2-8 bit, 1-WDT | USART, I ² C/SPI | 20 | — | BOR | — | 2/0 | — | PSP |
| PIC16F777 | 14,336 StdFI (8,192) | — | 368 | 36 | 40P, 44PT, 44ML | 14x10-bit | 2 | 1-16 bit, 2-8 bit, 1-WDT | AUSART, MI ² C/SPI | 20 | 8 MHz | PBOR/PLVD | 1 | 3/0 | ✓ | PSP |
| NEW PIC16F785 | 3,584 StdFI (2,048) | 256 | 128 | 18 | 20P, 20SO, 20SS | 12x10-bit | 2 | 1-16 bit, 2-8 bit, 1-WDT | — | 20 | 8 MHz | BOR | 1** | 1/0 | ✓ | 2-phase PWM, 2 x Op Amp, VREF |
| PIC16F818 | 1,792 EnhFI (1,024) | 128 | 128 | 16 | 18P, 18SO, 20SS, 28ML | 5x10-bit | — | 1-16 bit, 2-8 bit, 1-WDT | I ² C/SPI | 20 | 8 MHz | BOR | 1 | 1/0 | ✓ | |
| PIC16F819 | 3,584 EnhFI (2,048) | 256 | 256 | 16 | 18P, 18SO, 20SS, 28ML | 5x10-bit | — | 1-16 bit, 2-8 bit, 1-WDT | I ² C/SPI | 20 | 8 MHz | BOR | 1 | 1/0 | ✓ | |
| PIC16F84A | 1,792 StdFI (1,024) | 64 | 68 | 13 | 18P, 18SO, 20SS | — | — | 1-8 bit, 1-WDT | — | 20 | — | — | — | — | — | |
| PIC16F87 | 7,168 EnhFI (4,096) | 256 | 368 | 16 | 18P, 18SO, 20SS, 28ML | — | 2 | 1-16 bit, 2-8 bit, 1-WDT | AUSART, I ² C/SPI | 20 | 8 MHz | BOR | 1 | 1/0 | ✓ | |
| PIC16F870 | 3,584 EnhFI (2,048) | 64 | 128 | 22 | 28SP, 28SO, 28SS | 5x10-bit | — | 1-16 bit, 2-8 bit, 1-WDT | AUSART | 20 | — | BOR | 1 | 1/0 | — | |
| PIC16F871 | 3,584 EnhFI (2,048) | 64 | 128 | 33 | 40P, 44L, 44PT | 8x10-bit | — | 1-16 bit, 2-8 bit, 1-WDT | AUSART | 20 | — | BOR | 1 | 1/0 | — | PSP |
| PIC16F872 | 3,584 EnhFI (2,048) | 64 | 128 | 22 | 28SP, 28SO, 28SS | 5x10-bit | — | 1-16 bit, 2-8 bit, 1-WDT | MI ² C/SPI | 20 | — | BOR | 1 | 1/0 | — | |
| PIC16F873A | 7,168 EnhFI (4,096) | 128 | 192 | 22 | 28SP, 28SO, 28SS, 28ML | 5x10-bit | 2 | 1-16 bit, 2-8 bit, 1-WDT | AUSART, MI ² C/SPI | 20 | — | BOR | 1 | 2/0 | — | |
| PIC16F874A | 7,168 EnhFI (4,096) | 128 | 192 | 33 | 40P, 44ML, 44L, 44PT | 8x10-bit | 2 | 1-16 bit, 2-8 bit, 1-WDT | AUSART, MI ² C/SPI | 20 | — | BOR | 1 | 2/0 | — | PSP |
| PIC16F876A | 14,336 EnhFI (8,192) | 256 | 368 | 22 | 28SP, 28SO, 28SS, 28ML | 5x10-bit | 2 | 1-16 bit, 2-8 bit, 1-WDT | AUSART, MI ² C/SPI | 20 | — | BOR | 1 | 2/0 | — | |
| PIC16F877A | 14,336 EnhFI (8,192) | 256 | 368 | 33 | 40P, 44ML, 44L, 44PT | 8x10-bit | 2 | 1-16 bit, 2-8 bit, 1-WDT | AUSART, MI ² C/SPI | 20 | — | BOR | 1 | 2/0 | — | PSP |
| PIC16F88 | 7,168 EnhFI (4,096) | 256 | 368 | 16 | 18P, 18SO, 20SS, 28ML | 7x10-bit | 2 | 1-16 bit, 2-8 bit, 1-WDT | AUSART, I ² C/SPI | 20 | 8 MHz | BOR | 1 | 1/0 | ✓ | |
| NEW PIC16F913 | 7,168 StdFI (4,096) | 256 | 256 | 25 | 28P, 28SO, 28SS, 28ML | 5x10-bit | 2 | 2-8 bit, 1-16 bit, 1-WDT | AUSART, I ² C/SPI | 20 | 8 MHz | BOR/PLVD | 1 | 1/0 | ✓ | Integrated LCD control modules with 60 segments |

*Contact Microchip Technology for availability date.

** Requires ICD specific device with header module – refer to Development Tools. Abbreviations are found on the last page of the Selector Guide.

| Mid-Range 8-Bit PICmicro® Microcontroller Family (14-bit Instruction Set) (continued) | | | | | | | | | | | | | | | | | |
|--|-------------------------------------|--------------------------|-----------|----------|----------|------------------------------|----------|------------|--------------------------|------------------------------|--------|---------------|----------------------|----------|-----|----------------|--|
| Product | Program Memory Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog | | Digital | | Max. Speed MHz | IntOSC | BOR/PBOR/PLVD | ICD # of Breakpoints | CCP/ECCP | nW | Other Features | |
| | | | | | | ADC Ch | Comp. | Timers/WDT | Serial I/O | | | | | | | | |
| PIC16FXXX: 200 ns Instruction Execution, 35 Instructions, ICSP™ (except ROM), 25 mA Source and Sink per I/O (continued) | | | | | | | | | | | | | | | | | |
| NEW | PIC16F914 | 7,168 StdFI (4,096) | 256 | 256 | 36 | 40P, 44PT, 44ML | 8x10-bit | 2 | 2-8 bit, 1-16 bit, 1-WDT | AUSART, I ² C/SPI | 20 | 8 MHz | BOR/PLVD | 1 | 2/0 | ✓ | Integrated LCD control modules with 96 segments |
| NEW | PIC16F916 | 14,336 StdFI (8,192) | 256 | 352 | 25 | 28P, 28SO, 28SS, 28ML | 5x10-bit | 2 | 2-8 bit, 1-16 bit, 1-WDT | AUSART, I ² C/SPI | 20 | 8 MHz | BOR/PLVD | 1 | 1/0 | ✓ | Integrated LCD control modules with 60 segments |
| NEW | PIC16F917 | 14,336 StdFI (8,192) | 256 | 352 | 36 | 40P, 44PT, 44ML | 8x10-bit | 2 | 2-8 bit, 1-16 bit, 1-WDT | AUSART, I ² C/SPI | 20 | 8 MHz | BOR/PLVD | 1 | 2/0 | ✓ | Integrated LCD control modules with 96 segments |
| NEW | PIC16F946 | 14,336 StdFI (8,192) | 256 | 336 | 53 | 64PT | 8x10-bit | 2 | 1-16 bit, 2-8 bit, 1-WDT | AUSART/I ² C/SPI | 20 | 8 MHz 32 kHz | BOR/PLVD | 1 | 2/0 | ✓ | Integrated LCD control modules with 168 segments |
| PIC16CXXX: 100-200 ns Instruction Execution, 35 Instructions, ICSP™ (except ROM), 25 mA Source and Sink per I/O | | | | | | | | | | | | | | | | | |
| | PIC14000 | 7,168 OTP (4,096) | — | 192 | 20 | 28SP, 28SO, 28SS, 28JW | 8 SLAC | 2 | 1-8 bit, 1-16 bit, 1-WDT | I ² C/SMB | 20 | 4 MHz | — | — | — | — | Temperature Sensor, Program Reference Generator |
| | PIC16C432 | 3,584 OTP (2,048) | — | 128 | 12 | 20SS, 20P, 20JW | — | 2 | 1-8 bit, 1-WDT | LIN | 20 | — | BOR | — | — | — | LIN XCVR, 18V/40 mA |
| | PIC16C433 | 3,584 OTP (2,048) | — | 128 | 6 | 18SO, 18P, 18JW | 4x8-bit | — | 1-8 bit, 1-WDT | LIN | 10 | 4 MHz | — | — | — | — | LIN XCVR, 18V/40 mA |
| | PIC16C554 | 896 OTP (512) | — | 80 | 13 | 18P, 18SO, 18JW, 20SS | — | — | 1-8 bit, 1-WDT | — | 20 | — | — | — | — | — | |
| | PIC16C558 | 3,584 OTP (2,048) | — | 128 | 13 | 18P, 18SO, 18JW, 20SS | — | — | 1-8 bit, 1-WDT | — | 20 | — | — | — | — | — | |
| | PIC16C62B | 3,584 OTP (2,048) | — | 128 | 22 | 28SP, 28SO, 28SS, 28JW, 28ML | — | — | 1-16 bit, 2-8 bit, 1-WDT | I ² C/SPI | 20 | — | BOR | — | 1/0 | — | |
| | PIC16C620A | 896 OTP (512) | — | 96 | 13 | 18P, 18SO, 18JW, 20SS | — | 2 | 1-8 bit, 1-WDT | — | 40 | — | BOR | — | — | — | |
| | PIC16CR620A | 896 ROM (512) | — | 96 | 13 | 18P, 18SO, 20SS | — | 2 | 1-8 bit, 1-WDT | — | 20 | — | BOR | — | — | — | |
| | PIC16C621A | 1,792 OTP (1,024) | — | 96 | 13 | 18P, 18SO, 18JW, 20SS | — | 2 | 1-8 bit, 1-WDT | — | 40 | — | BOR | — | — | — | |
| | PIC16C622A | 3,584 OTP (2,048) | — | 128 | 13 | 18P, 18SO, 18JW, 20SS | — | 2 | 1-8 bit, 1-WDT | — | 40 | — | BOR | — | — | — | |
| | PIC16C63A | 7,168 OTP (4,096) | — | 192 | 22 | 28SP, 28SO, 28SS, 28JW, 28ML | — | — | 1-16 bit, 2-8 bit, 1-WDT | USART, I ² C/SPI | 20 | — | BOR | — | 2/0 | — | |
| | PIC16CR63 | 7,168 ROM (4,096) | — | 192 | 22 | 28SP, 28SO, 28SS | — | — | 1-16 bit, 2-8 bit, 1-WDT | USART, I ² C/SPI | 20 | — | BOR | — | 2/0 | — | |
| | PIC16C65B | 7,168 OTP (4,096) | — | 192 | 33 | 40P, 40JW, 44L, 44PQ, 44PT | — | — | 1-16 bit, 2-8 bit, 1-WDT | USART, I ² C/SPI | 20 | — | BOR | — | 2/0 | — | PSP |
| | PIC16CR65 | 7,168 ROM (4,096) | — | 192 | 33 | 40P, 44L, 44PQ, 44PT | — | — | 1-16 bit, 2-8 bit, 1-WDT | USART, I ² C/SPI | 20 | — | BOR | — | 2/0 | — | PSP |
| | PIC16C717 | 3,584 OTP (2,048) | — | 256 | 16 | 18P, 18SO, 18JW, 20SS | 6x10-bit | — | 1-16 bit, 2-8 bit, 1-WDT | MI ² C/SPI | 20 | 4 MHz | PBOR/PLVD | — | 0/1 | — | |
| | PIC16CR72 | 3,584 ROM (2,048) | — | 128 | 22 | 28SP, 28SO, 28SS | 5x8-bit | — | 1-16 bit, 2-8 bit, 1-WDT | I ² C/SPI | 20 | — | BOR | — | 1/0 | — | |
| | PIC16C745 | 14,336 OTP (8,192) | — | 256 | 22 | 28SP, 28SO, 28JW | 5x8-bit | — | 1-16 bit, 2-8 bit, 1-WDT | USART, low-speed USB | 24 | — | BOR | — | 2/0 | — | USB 1.1, 64 bytes dual port RAM |

*Contact Microchip Technology for availability date.

** Requires ICD specific device with header module – refer to Development Tools.

Abbreviations are found on the last page of the Selector Guide.

Mid-Range 8-Bit PICmicro® Microcontroller Family (14-bit Instruction Set) (continued)

| Product | Program Memory Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog | | Digital | | Max. Speed MHz | IntOSC | BOR/PBOR/PLVD | ICD # of Breakpoints | CCP/ECCP | nW | Other Features |
|--|-------------------------------------|--------------------------|-----------|----------|----------------------------|-----------|-------|--------------------------|-------------------------------|----------------|--------|---------------|----------------------|----------|----|---|
| | | | | | | ADC Ch | Comp. | Timers/WDT | Serial I/O | | | | | | | |
| PIC16CXXX: 100-200 ns Instruction Execution, 35 Instructions, ICSP™ (except ROM), 25 mA Source and Sink per I/O (continued) | | | | | | | | | | | | | | | | |
| PIC16C765 | 14,336 OTP (8,192) | — | 256 | 33 | 40P, 40JW, 44L, 44PT | 8x8-bit | — | 1-16 bit, 2-8 bit, 1-WDT | USART, low-speed USB | 24 | — | BOR | — | 2/0 | — | USB 1.1, 64 bytes dual port RAM, PSP |
| PIC16C770 | 3,584 OTP (2,048) | — | 256 | 16 | 20P, 20SO, 20JW, 20SS | 6x12-bit | — | 1-16 bit, 2-8 bit, 1-WDT | MI ² C/SPI | 20 | 4 MHz | PBOR/PLVD | — | 0/1 | — | |
| PIC16C771 | 7,168 OTP (4,096) | — | 256 | 16 | 20P, 20SO, 20JW, 20SS | 6x12-bit | — | 1-16 bit, 2-8 bit, 1-WDT | MI ² C/SPI | 20 | 4 MHz | PBOR/PLVD | — | 0/1 | — | |
| PIC16C773 | 7,168 OTP (4,096) | — | 256 | 22 | 28SP, 28SO, 28SS, 28JW | 6x12-bit | — | 1-16 bit, 2-8 bit, 1-WDT | AUSART, MI ² C/SPI | 20 | — | PBOR/PLVD | — | 2/0 | — | |
| PIC16C774 | 7,168 OTP (4,096) | — | 256 | 33 | 40P, 40JW, 44L, 44PQ, 44PT | 10x12-bit | — | 1-16 bit, 2-8 bit, 1-WDT | AUSART, MI ² C/SPI | 20 | — | PBOR/PLVD | — | 2/0 | — | PSP |
| PIC16C781 | 1,792 OTP (1,024) | — | 128 | 16 | 20P, 20SO, 20SS, 20JW | 8x8-bit | 2 | 1-16 bit, 2-8 bit, 1-WDT | — | 20 | 4 MHz | PBOR | — | — | — | Op Amp, PSMC, DAC |
| PIC16C782 | 3,584 OTP (2,048) | — | 128 | 16 | 20P, 20SO, 20SS, 20JW | 8x8-bit | 2 | 1-16 bit, 2-8 bit, 1-WDT | — | 20 | 4 MHz | PBOR/PLVD | — | — | — | Op Amp, PSMC, DAC |
| PIC16C925 | 7,168 OTP (4,096) | — | 176 | 52 | 68CL, 68L, 64PT | 5x10-bit | — | 1-16 bit, 2-8 bit, 1-WDT | I ² C/SPI | 20 | — | BOR | — | 1/0 | — | LCD module, static, 1/2, 1/3, 1/4 multiplex |
| PIC16C926 | 14,336 OTP (8,192) | — | 336 | 52 | 68CL, 68L, 64PT | 5x10-bit | — | 1-16 bit, 2-8 bit, 1-WDT | I ² C/SPI | 20 | — | BOR | — | 1/0 | — | LCD module, static, 1/2, 1/3, 1/4 multiplex |

*Contact Microchip Technology for availability date.

** Requires ICD specific device with header module – refer to Development Tools.

Abbreviations are found on the last page of the Selector Guide.

High-Performance 8-Bit PICmicro® Microcontroller Family (16-bit Instruction Set)

| Product | Program Memory Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog | | Digital | | Max. Speed MHz | IntOSC | BOR/PBOR/PLVD | ICD # of Breakpoints | CCP/ECCP | nW | Other Features |
|---|-------------------------------------|--------------------------|-----------|----------|-----------------------|-----------------------|-------|--------------------------|-------------------------------|----------------|-----------------|---------------|----------------------|----------|----|----------------------------|
| | | | | | | ADC Ch | Comp. | Timers/WDT | Serial I/O | | | | | | | |
| PIC18 Flash MCUs: 10 MIPS, V_{DD} = 2.0 - 5.5V, Upwardly Compatible with PIC16C, 77 Instructions, C Compiler Efficient Instruction Set | | | | | | | | | | | | | | | | |
| PIC18C601 | ROM-less | — | 1536 | 26 | 64PT, 68L | 8x10-bit 30 ksps | — | 3-16 bit, 1-8 bit, 1-WDT | AUSART, MI ² C/SPI | 25 | — | — | — | 2/0 | — | 256 KB EMA, Bootloader RAM |
| PIC18C801 | ROM-less | — | 1536 | 37 | 80PT, 84L | 12x10-bit 30 ksps | — | 3-16 bit, 1-8 bit, 1-WDT | AUSART, MI ² C/SPI | 25 | — | — | — | 2/0 | — | 2 MB EMA, Bootloader RAM |
| PIC18F1220 | 4,096 EnhFI (2,048) | 256 | 256 | 16 | 18P, 18SO, 20SS, 28ML | 7x10-bit 30 ksps | — | 3-16 bit, 1-8 bit, 1-WDT | EUSART | 40 | 8 MHz 32 kHz | PBOR/PLVD | 1 | 0/1 | ✓ | |
| PIC18F1320 | 8,192 EnhFI (4,096) | 256 | 256 | 16 | 18P, 18SO, 20SS, 28ML | 7x10-bit 30 ksps | — | 3-16 bit, 1-8 bit, 1-WDT | EUSART | 40 | 8 MHz 32 kHz | PBOR/PLVD | 1 | 0/1 | ✓ | |
| PIC18F2220 | 4,096 EnhFI (2,048) | 256 | 512 | 25 | 28SP, 28SO | 10x10-bit 30 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | AUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/PLVD | 1 | 2/0 | ✓ | |
| NEW PIC18F2221* | 4,096 EnhFI (2,048) | 256 | 512 | 25 | 28SP, 28SO, 28ML | 10x10-bit 100 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/PLVD | 3 | 2/0 | ✓ | |
| PIC18F2320 | 8,192 EnhFI (4,096) | 256 | 512 | 25 | 28SP, 28SO | 10x10-bit 30 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | AUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/PLVD | 1 | 2/0 | ✓ | |

*Contact Microchip Technology for availability date.

Abbreviations are found on the last page of the Selector Guide.

High-Performance 8-Bit PICmicro® Microcontroller Family (16-bit Instruction Set) (continued)

NEW

| Product | Program Memory Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog | | Digital | | Max. Speed MHz | IntOSC | BOR/PBOR/PLVD | ICD # of Breakpoints | CCP/ECCP | nW | Other Features |
|---|-------------------------------------|--------------------------|-----------|----------|------------------|------------------------|-------|-----------------------------|--|----------------|-----------------|---------------|----------------------|----------|----|--|
| | | | | | | ADC Ch | Comp. | Timers/WDT | Serial I/O | | | | | | | |
| PIC18 Flash MCUs: 10 MIPS, V_{DD} = 2.0 - 5.5V, Upwardly Compatible with PIC16C, 77 Instructions, C Compiler Efficient Instruction Set (continued) | | | | | | | | | | | | | | | | |
| PIC18F2321* | 8,192 EnhFI (4,096) | 256 | 512 | 25 | 28SP, 28SO, 28ML | 10x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, M ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/0 | ✓ | |
| PIC18F2331 | 8,192 EnhFI (4,096) | 256 | 768 | 24 | 28SP, 28SO, 28MM | 5x10-bit, 200 ksp/s | — | 3-16 bit, 1-8 bit, 1-WDT | EUSART, I ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 1 | 2/0 | ✓ | 6-channel 14-bit Motor Control PWMs, 2-ch Quadrature Encoder |
| PIC18F2410 | 16,384 StdFI (8,192) | — | 768 | 25 | 28SP, 28SO, 28ML | 10x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, M ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/0 | ✓ | |
| PIC18F2420 | 16,384 EnhFI (8,192) | 256 | 768 | 25 | 28SP, 28SO, 28ML | 10x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, M ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/0 | ✓ | |
| PIC18F2431 | 16,384 EnhFI (8,192) | 256 | 768 | 24 | 28SP, 28SO, 28MM | 5x10-bit, 200 ksp/s | — | 3-16 bit, 1-8 bit, 1-WDT | EUSART, I ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 1 | 2/0 | ✓ | 6-channel 14-bit Motor Control PWMs, 2-ch Quadrature Encoder |
| PIC18F2455 | 24,576 EnhFI (12,288) | 256 | 2048 | 23 | 28SP, 28SO | 11x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | USB 2.0, M ² C/SPI, EUSART | 48 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/0 | ✓ | Full-Speed USB 2.0 Compliant |
| PIC18F2480 | 16,384 EnhFI (8,192) | 256 | 768 | 25 | 28SP, 28SO, 28ML | 8x10-bit 100 ksp/s | — | 3-16 bit, 1-8 bit, 1-WDT | CAN 2.0B, M ² C/SPI, EUSART | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 1/0 | ✓ | ECAN™ technology |
| PIC18F2510 | 32,768 StdFI (16,384) | — | 1536 | 25 | 28SP, 28SO, 28ML | 10x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, M ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/0 | ✓ | |
| PIC18F2520 | 32,768 EnhFI (16,384) | 256 | 1536 | 25 | 28SP, 28SO, 28ML | 10x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, M ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/0 | ✓ | |
| PIC18F2515 | 49,152 StdFI (24,576) | — | 3968 | 25 | 28SP, 28SO | 10x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, M ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/0 | ✓ | |
| PIC18F2525 | 49,152 EnhFI (24,576) | 1024 | 3968 | 25 | 28SP, 28SO | 10x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, M ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/0 | ✓ | |
| PIC18F2550 | 32,768 EnhFI (16,384) | 256 | 2048 | 23 | 28SP, 28SO | 11x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | USB 2.0, M ² C/SPI, EUSART | 48 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/0 | ✓ | Full-Speed USB 2.0 Compliant |
| PIC18F2580 | 32,768 EnhFI (16,384) | 256 | 1536 | 25 | 28SP, 28SO, 28ML | 8x10-bit 100 ksp/s | — | 3-16 bit, 1-8 bit, 1-WDT | CAN 2.0B, M ² C/SPI, EUSART | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 1/0 | ✓ | ECAN™ technology |
| PIC18F2585 | 49,152 EnhFI (24,576) | 1024 | 3328 | 25 | 28SP, 28SO | 8x10-bit 100 ksp/s | — | 3-16 bit, 1-8 bit, 1-WDT | EUSART, M ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 1/0 | ✓ | ECAN™ technology |
| PIC18F2610 | 65,536 StdFI (32,768) | — | 3968 | 25 | 28SP, 28SO | 10x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, M ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/0 | ✓ | |
| PIC18F2620 | 65,536 EnhFI (32,768) | 1024 | 3968 | 25 | 28SP, 28SO | 10x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, M ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/0 | ✓ | |
| PIC18F2680 | 65,536 EnhFI (32,768) | 1024 | 3328 | 25 | 28SP, 28SO | 8x10-bit 100 ksp/s | — | 3-16 bit, 1-8 bit, 1-WDT | CAN 2.0B, M ² C/SPI, EUSART | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 1/0 | ✓ | ECAN™ technology |
| PIC18F4220 | 4,096 EnhFI (2,048) | 256 | 512 | 36 | 40P, 44ML, 44PT | 13x10-bit 30 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | AUSART, M ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 1 | 1/1 | ✓ | PSP |

*Contact Microchip Technology for availability date.

Abbreviations are found on the last page of the Selector Guide.

High-Performance 8-Bit PICmicro® Microcontroller Family (16-bit Instruction Set) (continued)

| Product | Program Memory Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog | | Digital | | Max. Speed MHz | IntOSC | BOR/PBOR/PLVD | ICD # of Breakpoints | CCP/ECCP | nW | Other Features | |
|---|-------------------------------------|--------------------------|-----------|----------|----------|-----------------|------------------------|------------|-----------------------------|---|--------|-----------------|----------------------|----------|-----|----------------|--|
| | | | | | | ADC Ch | Comp. | Timers/WDT | Serial I/O | | | | | | | | |
| PIC18 Flash MCUs: 10 MIPS, V_{DD} = 2.0 - 5.5V, Upwardly Compatible with PIC16C, 77 Instructions, C Compiler Efficient Instruction Set (continued) | | | | | | | | | | | | | | | | | |
| NEW | PIC18F4221* | 4,096 EnhFI (2,048) | 256 | 512 | 36 | 40P, 44ML, 44PT | 13x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 1/1 | ✓ | PSP |
| | PIC18F4320 | 8,192 EnhFI (4,096) | 256 | 512 | 36 | 40P, 44ML, 44PT | 13x10-bit 30 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | AUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 1 | 1/1 | ✓ | PSP |
| NEW | PIC18F4321* | 8,192 EnhFI (4,096) | 256 | 512 | 36 | 40P, 44ML, 44PT | 13x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 1/1 | ✓ | PSP |
| | PIC18F4331 | 8,192 EnhFI (4,096) | 256 | 768 | 36 | 40P, 44ML, 44PT | 9x10-bit 200 ksp/s | — | 3-16 bit, 1-8 bit, 1-WDT | EUSART, I ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 1 | 2/0 | ✓ | 8-channel 14-bit Motor Control PWMs, 2-ch Quadrature Encoder |
| | PIC18F4410 | 16,384 StdFI (8,192) | — | 768 | 36 | 40P, 44ML, 44PT | 13x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 1/1 | ✓ | PSP |
| | PIC18F4420 | 16,384 EnhFI (8,192) | 256 | 768 | 36 | 40P, 44ML, 44PT | 13x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 1/1 | ✓ | PSP |
| | PIC18F4431 | 16,384 EnhFI (8,192) | 256 | 768 | 36 | 40P, 44ML, 44PT | 9x10-bit 200 ksp/s | — | 3-16 bit, 1-8 bit, 1-WDT | EUSART, I ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 1 | 2/0 | ✓ | 8-channel 14-bit Motor Control PWMs, 2-ch Quadrature Encoder |
| | PIC18F4455 | 24,576 EnhFI (12,288) | 256 | 2048 | 34 | 40P, 44ML, 44PT | 13x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | USB 2.0, MI ² C/SPI, EUSART | 48 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 1/1 | ✓ | Full-Speed USB 2.0 Compliant, Streaming Port |
| | PIC18F4480 | 16,384 EnhFI (8,192) | 256 | 768 | 36 | 40P, 44ML, 44PT | 11x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | CAN 2.0B, MI ² C/SPI, EUSART | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 1/1 | ✓ | ECAN™ technology |
| | PIC18F4510 | 32,768 StdFI (16,384) | — | 1536 | 36 | 40P, 44ML, 44PT | 13x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 1/1 | ✓ | PSP |
| | PIC18F4520 | 32,768 EnhFI (16,384) | 256 | 1536 | 36 | 40P, 44ML, 44PT | 13x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 1/1 | ✓ | PSP |
| | PIC18F4515 | 49,152 StdFI (24,576) | — | 3968 | 36 | 40P, 44ML, 44PT | 13x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 1/1 | ✓ | PSP |
| | PIC18F4525 | 49,152 EnhFI (24,576) | 1024 | 3968 | 36 | 40P, 44ML, 44PT | 13x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 1/1 | ✓ | PSP |
| | PIC18F4580 | 32,768 EnhFI (16,384) | 256 | 1536 | 36 | 40P, 44ML, 44PT | 11x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | CAN 2.0B, MI ² C/SPI, EUSART | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 1/1 | ✓ | ECAN™ technology |
| | PIC18F4550 | 32,768 EnhFI (16,384) | 256 | 2048 | 34 | 40P, 44ML, 44PT | 13x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | USB 2.0, MI ² C/SPI, EUSART | 48 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 1/1 | ✓ | Full-Speed USB 2.0 Compliant, Streaming Port |
| | PIC18F4585 | 49,152 EnhFI (24,576) | 1024 | 3328 | 36 | 40P, 44ML, 44PT | 11x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | CAN 2.0B, MI ² C/SPI, EUSART | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 1/1 | ✓ | ECAN™ technology |
| | PIC18F4610 | 65,536 StdFI (32,768) | — | 3968 | 36 | 40P, 44ML, 44PT | 13x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 1/1 | ✓ | PSP |
| | PIC18F4620 | 65,536 EnhFI (32,768) | 1024 | 3968 | 36 | 40P, 44ML, 44PT | 13x10-bit 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 1/1 | ✓ | PSP |

*Contact Microchip Technology for availability date.

Abbreviations are found on the last page of the Selector Guide.

High-Performance 8-Bit PICmicro® Microcontroller Family (16-bit Instruction Set) (continued)

| Product | Program Memory Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog | | Digital | | Max. Speed MHz | IntOSC | BOR/PBOR/PLVD | ICD # of Breakpoints | CCP/ECCP | nW | Other Features |
|---|-------------------------------------|--------------------------|-----------|----------|-----------------|-----------------------|-------|-----------------------------|---|----------------|-----------------|---------------|----------------------|----------|----|-------------------------|
| | | | | | | ADC Ch | Comp. | Timers/WDT | Serial I/O | | | | | | | |
| PIC18 Flash MCUs: 10 MIPS, V_{DD} = 2.0 - 5.5V, Upwardly Compatible with PIC16C, 77 Instructions, C Compiler Efficient Instruction Set (continued) | | | | | | | | | | | | | | | | |
| PIC18F4680 | 65,536 EnhFI (32,768) | 1024 | 3328 | 36 | 40P, 44ML, 44PT | 11x10-bit 100 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | CAN 2.0B, MI ² C/SPI, EUSART | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 1/1 | ✓ | ECAN |
| PIC18F6310 | 8,192 StdFI (4,096) | — | 768 | 54 | 64PT | 12x10-bit 100 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | MI ² C/SPI, EUSART, AUSART | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 3/0 | 3 | EMA |
| PIC18F6410 | 16,384 StdFI (8,192) | — | 768 | 54 | 64PT | 12x10-bit 100 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | MI ² C/SPI, EUSART, AUSART | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 3/0 | ✓ | EMA |
| PIC18F6390 | 8,192 StdFI (4,096) | — | 768 | 50 | 64PT | 12x10-bit 100 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | MI ² C/SPI, EUSART, AUSART | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/0 | ✓ | LCD: up to 128 Segments |
| PIC18F6490 | 16,384 StdFI (8,192) | — | 768 | 50 | 64PT | 12x10-bit 100 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | MI ² C/SPI, EUSART, AUSART | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/0 | ✓ | LCD: up to 128 Segments |
| PIC18F6520 | 32,768 EnhFI (16,384) | 1024 | 2048 | 52 | 64PT | 12x10-bit 30 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2x AUSART, MI ² C/SPI | 40 | — | PBOR/ PLVD | 1 | 5/0 | — | PSP |
| NEW PIC18F6527 | 49,152 EnhFI (24,576) | 1024 | 3936 | 54 | 64PT | 12x10-bit 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2x EUSART, 2x MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/3 | ✓ | PSP |
| PIC18F6585 | 49,152 EnhFI (24,576) | 1024 | 3328 | 53 | 64PT, 68L | 12x10-bit 30 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI, CAN 2.0B | 40 | — | PBOR/ PLVD | 1 | 1/1 | — | ECAN |
| NEW PIC18F6622 | 65,536 EnhFI (32,768) | 1024 | 3936 | 54 | 64PT | 12x10-bit 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2x EUSART, 2x MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/3 | ✓ | PSP |
| PIC18F6627 | 98,304 EnhFI (49,152) | 1024 | 3936 | 54 | 64PT | 12x10-bit 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2x EUSART, 2x MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/3 | ✓ | PSP |
| PIC18F6680 | 65,536 EnhFI (32,768) | 1024 | 3328 | 53 | 64PT, 68L | 12x10-bit 30 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI, CAN 2.0B | 40 | — | PBOR/ PLVD | 1 | 1/1 | — | ECAN |
| PIC18F6722 | 131,072 EnhFI (65,536) | 1024 | 3936 | 54 | 64PT | 12x10-bit 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2x EUSART, 2x MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/3 | ✓ | PSP |
| PIC18F8310 | 8,192 StdFI (4,096) | — | 768 | 70 | 80PT | 12x10-bit 100 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | MI ² C/SPI, EUSART, AUSART | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 3/0 | ✓ | EMA |
| PIC18F8410 | 16,384 StdFI (8,192) | — | 768 | 70 | 80PT | 12x10-bit 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | MI ² C/SPI, EUSART, AUSART | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 3/0 | ✓ | EMA |
| PIC18F8390 | 8,192 StdFI (4,096) | — | 768 | 66 | 80PT | 12x10-bit 100 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | MI ² C/SPI, EUSART, AUSART | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/0 | ✓ | LCD: up to 192 Segments |
| PIC18F8490 | 16,384 StdFI (8,192) | — | 768 | 66 | 80PT | 12x10-bit 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | MI ² C/SPI, EUSART, AUSART | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/0 | ✓ | LCD: up to 192 Segments |

*Contact Microchip Technology for availability date.

Abbreviations are found on the last page of the Selector Guide.

High-Performance 8-Bit PICmicro® Microcontroller Family (16-bit Instruction Set) (continued)

| Product | Program Memory Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog | | Digital | | Max. Speed MHz | IntOSC | BOR/PBOR/PLVD | ICD # of Breakpoints | CCP/ECCP | nW | Other Features | |
|--|-------------------------------------|--------------------------|-----------|----------|----------|---------------------------|------------------------|------------|-----------------------------|---|--------|-----------------|----------------------|----------|-----|----------------|-----------|
| | | | | | | ADC Ch | Comp. | Timers/WDT | Serial I/O | | | | | | | | |
| PIC18 Flash MCUs: 10 MIPS, V_{DD} = 2.0 - 5.5V, Upwardly Compatible with PIC16C, 77 Instructions, C Compiler Efficient Instruction Set (continued) | | | | | | | | | | | | | | | | | |
| NEW | PIC18F8520 | 32,768 EnhFI (16,384) | 1024 | 2048 | 68 | 80PT | 16x10-bit 30 ksp/s | 2 | 2-8 bit, 3-16 bit, 1-WDT | 2x AUSART, MI ² C/SPI | 40 | — | PBOR/ PLVD | 1 | 5/0 | — | PSP, EMA |
| | PIC18F8527 | 49,152 EnhFI (24,576) | 1024 | 3936 | 70 | 80PT | 16x10-bit 100 ksp/s | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2x EUSART, 2x MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/3 | ✓ | PSP, EMA |
| | PIC18F8585 | 49,152 EnhFI (24,576) | 1024 | 3328 | 69 | 80PT | 16x10-bit 30 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI, CAN 2.0B | 40 | — | PBOR/ PLVD | 1 | 1/1 | — | ECAN, EMA |
| NEW | PIC18F8622 | 65,536 EnhFI (32,768) | 1024 | 3936 | 70 | 80PT | 16x10-bit 100 ksp/s | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2x EUSART, 2x MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/3 | ✓ | PSP, EMA |
| | PIC18F8627 | 98,304 EnhFI (49,152) | 1024 | 3936 | 70 | 80PT | 16x10-bit 100 ksp/s | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2x EUSART, 2x MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/3 | ✓ | PSP, EMA |
| | PIC18F8680 | 65,536 EnhFI (32,768) | 1024 | 3328 | 69 | 80PT | 16x10-bit 30 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI, CAN 2.0B | 40 | — | PBOR/ PLVD | 1 | 1/1 | — | ECAN, EMA |
| | PIC18F8722 | 131,072 EnhFI (65,536) | 1024 | 3936 | 70 | 80PT | 16x10-bit 100 ksp/s | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2xEUSART, 2xMI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/ PLVD | 3 | 2/3 | ✓ | PSP, EMA |
| PIC18FXXJXX Flash MCUs: 10 MIPS, V_{DD} = 2.0 - 3.6V, Self-Write, Upwardly Compatible with PIC18/PIC16, 77 Instructions, C Compiler Efficient Instruction Set | | | | | | | | | | | | | | | | | |
| NEW | PIC18F24J10 | 16,384 StdFI (8,192) | — | 1024 | 21 | 28SP, 28SO, 28SS, 28ML | 10x10-bit 100 ksp/s | 2 | 2-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI | 40 | 32 kHz | BOR | 3 | 2/0 | ✓ | |
| NEW | PIC18F25J10 | 32,768 StdFI (16,384) | — | 1024 | 21 | 28SP, 28SO, 28SS, 28ML | 10x10-bit 100 ksp/s | 2 | 2-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI | 40 | 32 kHz | BOR | 3 | 2/0 | ✓ | |
| NEW | PIC18F44J10 | 16,384 StdFI (8,192) | — | 1024 | 32 | 40P, 44ML, 44PT | 13x10-bit 100 ksp/s | 2 | 2-16 bit, 1-8 bit, 1-WDT | EUSART, 2xMI ² C/SPI | 40 | 32 kHz | BOR | 3 | 1/1 | ✓ | PSP |
| NEW | PIC18F45J10 | 32,768 StdFI (16,384) | — | 1024 | 32 | 40P, 44ML, 44PT | 13x10-bit 100 ksp/s | 2 | 2-16 bit, 1-8 bit, 1-WDT | EUSART, 2xMI ² C/SPI | 40 | 32 kHz | BOR | 3 | 1/1 | ✓ | PSP |
| NEW | PIC18F65J10 | 32,768 StdFI (16,384) | — | 2048 | 50 | 64PT | 11x10-bit 100 ksp/s | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2xEUSART, 2xMI ² C/SPI | 40 | 32 kHz | BOR | 3 | 2/3 | ✓ | PSP |
| NEW | PIC18F65J15 | 49,152 StdFI (24,576) | — | 2048 | 50 | 64PT | 11x10-bit 100 ksp/s | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2xEUSART, 2xMI ² C/SPI | 40 | 32 kHz | BOR | 3 | 2/3 | ✓ | PSP |
| NEW | PIC18F66J10 | 65,536 StdFI (32,768) | — | 2048 | 50 | 64PT | 11x10-bit 100 ksp/s | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2xEUSART, 2xMI ² C/SPI | 40 | 32 kHz | BOR | 3 | 2/3 | ✓ | PSP |
| NEW | PIC18F66J15 | 98,304 StdFI (49,152) | — | 3936 | 50 | 64PT | 11x10-bit 100 ksp/s | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2xEUSART, 2xMI ² C/SPI | 40 | 32 kHz | BOR | 3 | 2/3 | ✓ | PSP |
| NEW | PIC18F67J10 | 131,072 StdFL (65,536) | — | 3936 | 50 | 64PT | 11x10-bit 100 ksp/s | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2xEUSART, 2xMI ² C/SPI | 40 | 32 kHz | BOR | 3 | 2/3 | ✓ | PSP |
| NEW | PIC18F85J10 | 32,768 StdFL (16,384) | — | 2048 | 66 | 80PT | 15x10-bit 100 ksp/s | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2xEUSART, 2xMI ² C/SPI | 40 | 32 kHz | BOR | 3 | 2/3 | ✓ | PSP, EMA |
| NEW | PIC18F85J15 | 49,152 StdFL (24,576) | — | 2048 | 66 | 80PT | 15x10-bit 100 ksp/s | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2xEUSART, 2xMI ² C/SPI | 40 | 32 kHz | BOR | 3 | 2/3 | ✓ | PSP, EMA |
| NEW | PIC18F86J10 | 65,536 StdFL (32,768) | — | 2048 | 66 | 80PT | 15x10-bit 100 ksp/s | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2x EUSART, 2x MI ² C/SPI | 40 | 32 kHz | BOR | 3 | 2/3 | ✓ | PSP, EMA |
| NEW | PIC18F86J15 | 98,304 StdFL (49,152) | — | 3936 | 66 | 80PT | 15x10-bit 100 ksp/s | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2x EUSART, 2x MI ² C/SPI | 40 | 32 kHz | BOR | 3 | 2/3 | ✓ | PSP, EMA |
| NEW | PIC18F87J10 | 131,072 StdFI (65,536) | — | 3936 | 66 | 80PT | 15x10-bit 100 ksp/s | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2x EUSART, 2x MI ² C/SPI | 40 | 32 kHz | BOR | 3 | 2/3 | ✓ | PSP, EMA |

*Contact Microchip Technology for availability date.
Abbreviations are found on the last page of the Selector Guide.

FUTURE PICmicro® MICROCONTROLLER FAMILY PRODUCTS

| Mid-Range 8-Bit PICmicro® Microcontroller Family (14-bit Instruction Set) | | | | | | | | | | | | | | | | | |
|---|--------------------------------------|--------------------------|-----------|----------|------------------------|--------------|-------|--------------------------|-------------------------------|----------------|-----------------|---------------|----------------------|----------|----|---|--|
| Product | Program Memory: Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog | | Digital | | Max. Speed MHz | IntOSC | BOR/PBOR/PLVD | ICD # of Breakpoints | CCP/ECCP | nW | Other Features | |
| | | | | | | ADC Channels | Comp. | Timers/WDT | Serial I/O | | | | | | | | |
| PIC12FXXX: 200 ns Instruction Execution, 35 Instructions, 25 mA Source and Sink per I/O | | | | | | | | | | | | | | | | | |
| PIC12F615 | 1,792 StdFI (1,024) | — | 64 | 6 | 8P, 8SN, 8MD | 4x10-bit | 1 | 1-16 bit, 2-8 bit, 1-WDT | — | 20 | 8 MHz 32 kHz | BOR | 1** | 0/1 | — | High-Voltage Option with Internal Regulator | |
| PIC16FXXX: 200 ns Instruction Execution, 35 Instructions, ICSP™, 25 mA Source and Sink per I/O | | | | | | | | | | | | | | | | | |
| PIC16F616 | 3,584 StdFI (2,048) | — | 128 | 12 | 14P, 14SL, 14ST, 16ML | 8x10-bit | 2 | 1-16 bit, 2-8 bit, 1-WDT | — | 20 | 8 MHz 32 kHz | BOR | 1** | 0/1 | — | High-Voltage Option with Internal Regulator | |
| PIC16F631 | 1,792 StdFI (1,024) | 128 | 64 | 18 | 20P, 20SO, 20SS | — | 2 | 1-16 bit, 1-8 bit, 1-WDT | — | 20 | 8 MHz 32 kHz | BOR | 1** | — | ✓ | | |
| PIC16F677 | 3,584 StdFI (2,048) | 256 | 128 | 18 | 20P, 20SO, 20SS | 12x10-bit | 2 | 1-16 bit, 1-8 bit, 1-WDT | — | 20 | 8 MHz 32 kHz | BOR | 1** | — | ✓ | | |
| PIC16F883 | 7,168 EnhFI (4,096) | 256 | 256 | 25 | 28SP, 28SO, 28SS, 28ML | 11x10-bit | 2 | 1-16 bit, 2-8 bit, 1-WDT | EUSART, MI ² C/SPI | 20 | 8 MHz 32 kHz | BOR | 1 | 1/1 | ✓ | | |
| PIC16F884 | 7,168 EnhFI (4,096) | 256 | 256 | 36 | 40P, 44PT, 44ML | 14x10-bit | 2 | 1-16 bit, 2-8 bit, 1-WDT | EUSART, MI ² C/SPI | 20 | 8 MHz 32 kHz | BOR | 1 | 1/1 | ✓ | | |
| PIC16F886 | 14,336 EnhFI (8,192) | 256 | 368 | 25 | 28SP, 28SO, 28SS, 28ML | 11x10-bit | 2 | 1-16 bit, 2-8 bit, 1-WDT | EUSART, MI ² C/SPI | 20 | 8 MHz 32 kHz | BOR | 1 | 1/1 | ✓ | | |
| PIC16F887 | 14,336 EnhFI (8,192) | 256 | 368 | 36 | 40P, 44PT, 44ML | 14x10-bit | 2 | 1-16 bit, 2-8 bit, 1-WDT | EUSART, MI ² C/SPI | 20 | 8 MHz 32 kHz | BOR | 1 | 1/1 | ✓ | | |
| PIC16CRXX: 200 ns Instruction Execution, 35 Instructions, 25 mA Source and Sink per I/O | | | | | | | | | | | | | | | | | |
| PIC16CR73 | 7,168 ROM (4,096) | — | 192 | 22 | 28SP, 28SO, 28SS, 28ML | 5x8-bit | — | 1-16 bit, 2-8 bit, 1-WDT | USART, I ² C/SPI | 20 | — | BOR | — | 2/0 | — | | |
| PIC16CR74 | 7,168 ROM (4,096) | — | 192 | 33 | 40P, 44ML, 44L, 44PT | 8x8-bit | — | 1-16 bit, 2-8 bit, 1-WDT | USART, I ² C/SPI | 20 | — | BOR | — | 2/0 | — | PSP | |
| PIC16CR76 | 14,336 ROM (8,192) | — | 368 | 22 | 28SP, 28SO, 28SS, 28ML | 5x8-bit | — | 1-16 bit, 2-8 bit, 1-WDT | USART, I ² C/SPI | 20 | — | BOR | — | 2/0 | — | | |
| PIC16CR77 | 14,336 ROM (8,192) | — | 368 | 33 | 40P, 44ML, 44L, 44PT | 8x8-bit | — | 1-16 bit, 2-8 bit, 1-WDT | USART, I ² C/SPI | 20 | — | BOR | — | 2/0 | — | PSP | |

** Requires ICD specific device with header module – refer to Development Tools. Abbreviations are found on the last page of the Selector Guide.

| High-Performance 8-Bit PICmicro® Microcontroller Family (16-bit Instruction Set) | | | | | | | | | | | | | | | | | |
|--|--------------------------------------|--------------------------|-----------|----------|-----------------------|----------------------|-------|--------------------------|-------------------------------|----------------|-----------------|---------------|----------------------|----------|----|-------------------------------------|--|
| Product | Program Memory: Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog | | Digital | | Max. Speed MHz | IntOSC | BOR/PBOR/PLVD | ICD # of Breakpoints | CCP/ECCP | nW | Other Features | |
| | | | | | | ADC Channels | Comp. | Timers/WDT | Serial I/O | | | | | | | | |
| PIC18FXXX: Upwardly Compatible with PIC16, 77 Instructions, C Compiler Efficient Instruction Set, Software Stack Capability, Table Read/Write, Switchable Oscillator Sources, 4x PLL, 10-12 MIPS, ICSP™ | | | | | | | | | | | | | | | | | |
| PIC18F1230 | 4,096 EnhFI (2,048) | 128 | 256 | 16 | 18P, 18SO, 20SS, 28ML | 4x10-bit, 100 ksp/s | 3 | 2-16 bit, 1-WDT | EUSART | 40 | 8 MHz 32 kHz | PBOR/PLVD | 3 | — | ✓ | 6-channel 14-bit Motor Control PWMs | |
| PIC18F1330 | 8,192 EnhFI (4,096) | 128 | 256 | 16 | 18P, 18SO, 20SS, 28ML | 4x10-bit, 100 ksp/s | 3 | 2-16 bit, 1-WDT | EUSART | 40 | 8 MHz 32 kHz | PBOR/PLVD | 3 | — | ✓ | 6-channel 14-bit Motor Control PWMs | |
| PIC18F2450 | 16,384 EnhFI (8,192) | — | 768 | 23 | 28SP, 28SO, 28ML | 10x10-bit, 100 ksp/s | — | 2-16 bit, 1-8 bit, 1-WDT | USB 2.0, AUSART | 48 | 8 MHz 32 kHz | PBOR/PLVD | 3 | 1/0 | ✓ | Full-Speed USB 2.0 Compliant | |
| PIC18F2523 | 32,768 EnhFI (16,384) | 256 | 1536 | 25 | 28SP, 28SO, 28ML | 10x12-bit, 100 ksp/s | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI | 32 | 8 MHz 32 kHz | PBOR/PLVD | 3 | 2/0 | ✓ | V _{DD} = 2.7-3.6V | |

Abbreviations are found on the last page of the Selector Guide.

High-Performance 8-Bit PICmicro® Microcontroller Family (16-bit Instruction Set) (continued)

| Product | Program Memory: Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog | | Digital | | Max. Speed MHz | IntOSC | BOR/PBOR/PLVD | ICD # of Breakpoints | CCP/ECCP | nW | Other Features |
|--|--------------------------------------|--------------------------|-----------|----------|-----------------|------------------------|---|-----------------------------|--|----------------|-----------------|---------------|----------------------|----------|----|---|
| PIC18FXXX: Upwardly Compatible with PIC16, 77 Instructions, C Compiler Efficient Instruction Set, Software Stack Capability, Table Read/Write, Switchable Oscillator Sources, 4x PLL, 10-12 MIPS, ICSP™ (continued) | | | | | | | | | | | | | | | | |
| PIC18F4523 | 32,768 EnhI (16,384) | 256 | 1536 | 36 | 40P, 44ML, 44PT | 13x12-bit 100 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI | 32 | 8 MHz 32 kHz | PBOR/PLVD | 3 | 1/1 | ✓ | V _{DD} = 2.7-3.6V, PSP |
| PIC18F4450 | 16,384 EnhFI (8,192) | — | 768 | 34 | 40P, 44ML, 44PT | 13x10-bit, 100 ksps | — | 2-16 bit, 1-8 bit, 1-WDT | USB 2.0, AUSART | 48 | 8 MHz 32 kHz | PBOR/PLVD | 3 | 1/0 | ✓ | Full-Speed USB 2.0 Compliant |
| PIC18F6522 | 32,768 EnhFI (16,384) | 1024 | 2048 | 54 | 64PT | 12x10-bit, 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2xEUSART, 2xMI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR | 3 | 2/3 | ✓ | PSP |
| PIC18F6493 | 16,384 StdFI (8,192) | — | 768 | 50 | 64PT | 12x12-bit 100 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | MI ² C/SPI, EUSART, AUSART | 32 | 8 MHz 32 kHz | PBOR/PLVD | 3 | 2/0 | ✓ | V _{DD} = 2.7-3.6V LCD: up to 192 segments |
| PIC18F8493 | 16,384 StdFI (8,192) | — | 768 | 66 | 80PT | 12x12-bit 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | MI ² C/SPI, EUSART, AUSART | 32 | 8 MHz 32 kHz | PBOR/PLVD | 3 | 2/0 | ✓ | V _{DD} = 2.7-3.6V LCD: up to 192 segments |
| PIC18F8522 | 32,768 EnhFI (16,384) | 1024 | 2048 | 70 | 80PT | 16x10-bit, 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2xEUSART, 2xMI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR | 3 | 2/3 | ✓ | PSP, EMA |
| PIC18FXXJXX: Flash and ROM MCUs: 10 MIPS, V_{DD} = 2.0-3.6V, Self-Write Flash, Upwardly Compatible with PIC18/PIC16, 77 Instructions and C Compiler Efficient Instruction Set | | | | | | | | | | | | | | | | |
| PIC18F63J90 | 8,192 StdFI (4,096) | — | 1024 | 49 | 64PT | 12x10-bit, 100 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | AUSART, EUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | BOR | 3 | 2/0 | ✓ | LCD: up to 128 segments |
| PIC18F64J90 | 16,384 StdFI (8,192) | — | 1024 | 49 | 64PT | 12x10-bit, 100 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | AUSART, EUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | BOR | 3 | 2/0 | ✓ | LCD: up to 128 segments |
| PIC18R65J10 | 32,768 ROM (16,384) | — | 2048 | 50 | 64PT | 11x10-bit, 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2xEUSART, 2xMI ² C/SPI | 40 | 32 kHz | BOR | 3 | 2/3 | ✓ | PSP |
| PIC18F65J50 | 32,768 StdFI (16,384) | — | 3936 | 49 | 64PT | 8x10-bit 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | USB 2.0, 2xEUSART, 2xMI ² C/SPI | 48 | 8 MHz 32 kHz | BOR | 3 | 2/3 | ✓ | Full-Speed USB 2.0 Compliant PMP |
| PIC18F65J90 | 32,768 StdFI (16,384) | — | 2048 | 49 | 64PT | 12x10-bit, 100 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | AUSART, EUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | BOR | 3 | 2/0 | ✓ | LCD: up to 128 segments |
| PIC18R66J10 | 65,536 ROM (32,768) | — | 2048 | 50 | 64PT | 11x10-bit 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2xEUSART, 2xMI ² C/SPI | 40 | 32 kHz | BOR | 3 | 2/3 | ✓ | PSP |
| PIC18F66J50 | 65,536 ROM (32,768) | — | 3936 | 49 | 64PT | 8x10-bit 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | USB 2.0, 2xEUSART, 2xMI ² C/SPI | 48 | 8 MHz 32 kHz | BOR | 3 | 2/3 | ✓ | Full-Speed USB 2.0 Compliant PMP |
| PIC18F66J60 | 65,536 StdFI (32,768) | — | 2048 | 39 | 64PT | 11x10-bit, 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | EUSART, MI ² C/SPI | 42 | 32 kHz | BOR | 3 | 2/3 | ✓ | 10Base-T Ethernet |
| PIC18F66J65 | 98,304 StdFI (49,152) | — | 3808 | 39 | 64PT | 11x10-bit, 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | EUSART, MI ² C/SPI | 42 | 32 kHz | BOR | 3 | 2/3 | ✓ | 10Base-T Ethernet |
| PIC18R67J10 | 131,072 ROM (65,536) | — | 3936 | 50 | 64PT | 11x10-bit, 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2xEUSART, 2xMI ² C/SPI | 40 | 32 kHz | BOR | 3 | 2/3 | ✓ | PSP |
| PIC18F67J50 | 131,072 StdFI (65,536) | — | 3936 | 49 | 64PT | 8x10-bit 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | USB 2.0, 2xEUSART, 2xMI ² C/SPI | 48 | 8 MHz 32 kHz | BOR | 3 | 2/3 | ✓ | Full-Speed USB 2.0 Compliant PMP |
| PIC18F67J60 | 131,072 StdFI (65,536) | — | 3808 | 39 | 64PT | 11x10-bit, 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | EUSART, MI ² C/SPI | 42 | 32 kHz | BOR | 3 | 2/3 | ✓ | 10Base-T Ethernet |

Abbreviations are found on the last page of the Selector Guide.

| High-Performance 8-Bit PICmicro® Microcontroller Family (16-bit Instruction Set) (continued) | | | | | | | | | | | | | | | | |
|--|--------------------------------------|--------------------------|-----------|----------|------------------------|---------------------|---|--------------------------|--|----------------|---------------|---------------|----------------------|----------|----|---------------------------------------|
| Product | Program Memory: Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog | | Digital | | Max. Speed MHz | IntOSC | BOR/PBOR/PLVD | ICD # of Breakpoints | CCP/ECCP | nW | Other Features |
| PIC18FXXJXX: Flash and ROM MCUs: 10 MIPS, V_{DD} = 2.0-3.6V, Self-Write Flash, Upwardly Compatible with PIC18/PIC16, 77 Instructions and C Compiler Efficient Instruction Set (continued) | | | | | | | | | | | | | | | | |
| PIC18F83J90 | 8,192 StdFI (4,096) | — | 1024 | 64 | 80PT | 12x10-bit, 100 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | AUSART, EUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | BOR | 3 | 2/0 | ✓ | LCD: up to 192 segments |
| PIC18F84J90 | 16,384 StdFI (8,192) | — | 1024 | 64 | 80PT | 12x10-bit, 100 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | AUSART, EUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | BOR | 3 | 2/0 | ✓ | LCD: up to 192 segments |
| PIC18R85J10 | 32,768 ROM (16,384) | — | 2048 | 66 | 80PT | 15x10-bit, 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2xEUSART, 2xMI ² C/SPI | 40 | 32 kHz | BOR | 3 | 2/3 | ✓ | PSP, EMA |
| PIC18F85J50 | 32,768 StdFI (16,384) | — | 3936 | 66 | 80PT | 12x10-bit, 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | USB 2.0, 2xEUSART, 2xMI ² C/SPI | 48 | 8 MHz 32 kHz | BOR | 3 | 2/3 | ✓ | Full-Speed USB 2.0 Compliant PMP, EMA |
| PIC18F85J90 | 32,768 StdFI (16,384) | — | 2048 | 64 | 80PT | 12x10-bit, 100 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | AUSART, EUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | BOR | 3 | 2/0 | ✓ | LCD: up to 192 segments |
| PIC18R86J10 | 65,536 ROM (32,768) | — | 2048 | 66 | 80PT | 15x10-bit, 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2xEUSART, 2xMI ² C/SPI | 40 | 32 kHz | BOR | 3 | 2/3 | ✓ | PSP, EMA |
| PIC18F86J50 | 65,536 StdFI (32,768) | — | 3936 | 66 | 80PT | 12x10-bit, 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | USB 2.0, 2xEUSART, 2xMI ² C/SPI | 48 | 8 MHz 32 kHz | BOR | 3 | 2/3 | ✓ | Full-Speed USB 2.0 Compliant PMP, EMA |
| PIC18F86J60 | 65,536 StdFI (32,768) | — | 2048 | 55 | 80PT | 15x10-bit, 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2xEUSART, MI ² C/SPI | 42 | 32 kHz | BOR | 3 | 2/3 | ✓ | 10Base-T Ethernet |
| PIC18F86J65 | 98,304 StdFI (49,152) | — | 3808 | 55 | 80PT | 15x10-bit, 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2xEUSART, MI ² C/SPI | 42 | 32 kHz | BOR | 3 | 2/3 | ✓ | 10Base-T Ethernet |
| PIC18R87J10 | 131,072 ROM (65,536) | — | 3936 | 66 | 80PT | 15x10-bit, 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2xEUSART, 2xMI ² C/SPI | 40 | 32 kHz | BOR | 3 | 2/3 | ✓ | PSP, EMA |
| PIC18F87J50 | 131,072 StdFI (65,536) | — | 3936 | 66 | 80PT | 12x10-bit, 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | USB 2.0, 2x EUSART, 2x MI ² C/SPI | 48 | 8 MHz 32 kHz | BOR | 3 | 2/3 | ✓ | Full-Speed USB 2.0 Compliant PMP, EMA |
| PIC18F87J60 | 131,072 StdFI (65,536) | — | 3808 | 55 | 80PT | 15x10-bit, 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2xEUSART, MI ² C/SPI | 42 | 32 kHz | BOR | 3 | 2/3 | ✓ | 10Base-T Ethernet |
| PIC18F96J60 | 65,536 StdFI (32,768) | — | 2048 | 70 | 100PT | 16x10-bit, 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2x EUSART, 2x MI ² C/SPI | 42 | 32 kHz | BOR | 3 | 2/3 | ✓ | PSP, EMA, 10Base-T Ethernet |
| PIC18F96J65 | 98,304 StdFI (49,152) | — | 3808 | 70 | 100PT | 16x10-bit, 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2x EUSART, 2x MI ² C/SPI | 42 | 32 kHz | BOR | 3 | 2/3 | ✓ | PSP, EMA, 10Base-T Ethernet |
| PIC18F97J60 | 131,072 StdFI (65,536) | — | 3808 | 70 | 100PT | 16x10-bit, 100 ksps | 2 | 3-16 bit, 2-8 bit, 1-WDT | 2x EUSART, 2x MI ² C/SPI | 42 | 32 kHz | BOR | 3 | 2/3 | ✓ | PSP, EMA, 10Base-T Ethernet |
| PIC18FXXKXX Flash MCUs: 16 MIPS, V_{DD} = 1.8-3.6V, Self-Write | | | | | | | | | | | | | | | | |
| PIC18F25K20 | 32,768 EnhFI (16,384) | 256 | 1536 | 25 | 28SP, 28SO, 28SS, 28ML | 11x10 bit 100 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI | 64 | 16 MHz 32 kHz | PBOR/PLVD | 3 | 1/1 | ✓ | |
| PIC18F26K20 | 65,536 EnhFI (32,768) | 1024 | 3968 | 25 | 28SP, 28SO, 28SS, 28ML | 11x10 bit 100 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI | 64 | 16 MHz 32 kHz | PBOR/PLVD | 3 | 1/1 | ✓ | |
| PIC18F45K20 | 32,768 EnhFI (16,384) | 256 | 1536 | 36 | 40P, 44ML, 44PT | 14x10 bit 100 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/PLVD | 3 | 1/1 | ✓ | PSP |
| PIC18F46K20 | 65,536 EnhFI (32,768) | 1024 | 3968 | 36 | 40P, 44ML, 44PT | 14x10 bit 100 ksps | 2 | 3-16 bit, 1-8 bit, 1-WDT | EUSART, MI ² C/SPI | 40 | 8 MHz 32 kHz | PBOR/PLVD | 3 | 1/1 | ✓ | PSP |

Abbreviations are found on the last page of the Selector Guide.

PIC24 16-Bit Microcontroller (MCU) Family

| Product | Flash Program Memory (Bytes) | RAM (Bytes) | I/O Pins | Packages | Analog | | Digital | | | | | | | CAN | IntOSC | Power On Reset | nW | Other Features |
|---|------------------------------|-------------|----------|----------|----------------------|-------|---------------|-----------|-----------------|------|---------------|------|------|-----|--------------|----------------|----|----------------|
| | | | | | ADC Ch | Comp. | Timers 16-bit | Input Cap | Output Comp/PWM | RTCC | UART w/ IrDA® | SPI™ | I²C™ | | | | | |
| PIC24FJ128GA Family 16-bit Flash MCUs: 16 MIPS, VDD = 2.0 - 3.6V, Self-Write Flash | | | | | | | | | | | | | | | | | | |
| PIC24FJ64GA006 | 64K | 8K | 53 | 64PT | 16 X 10-bit 500 ksps | 2 | 5 | 5 | 5 | ✓ | 2 | 2 | 2 | — | 8 MHz 32 kHz | ✓ | ✓ | JTAG, PMP |
| PIC24FJ64GA008 | 64K | 8K | 69 | 80PT | 16 X 10-bit 500 ksps | 2 | 5 | 5 | 5 | ✓ | 2 | 2 | 2 | — | 8 MHz 32 kHz | ✓ | ✓ | JTAG, PMP |
| PIC24FJ64GA010 | 64K | 8K | 85 | 100PT | 16 X 10-bit 500 ksps | 2 | 5 | 5 | 5 | ✓ | 2 | 2 | 2 | — | 8 MHz 32 kHz | ✓ | ✓ | JTAG, PMP |
| PIC24FJ96GA006 | 96K | 8K | 53 | 64PT | 16 X 10-bit 500 ksps | 2 | 5 | 5 | 5 | ✓ | 2 | 2 | 2 | — | 8 MHz 32 kHz | ✓ | ✓ | JTAG, PMP |
| PIC24FJ96GA008 | 96K | 8K | 69 | 80PT | 16 X 10-bit 500 ksps | 2 | 5 | 5 | 5 | ✓ | 2 | 2 | 2 | — | 8 MHz 32 kHz | ✓ | ✓ | JTAG, PMP |
| PIC24FJ96GA010 | 96K | 8K | 85 | 100PT | 16 X 10-bit 500 ksps | 2 | 5 | 5 | 5 | ✓ | 2 | 2 | 2 | — | 8 MHz 32 kHz | ✓ | ✓ | JTAG, PMP |
| PIC24FJ128GA006 | 128K | 8K | 53 | 64PT | 16 X 10-bit 500 ksps | 2 | 5 | 5 | 5 | ✓ | 2 | 2 | 2 | — | 8 MHz 32 kHz | ✓ | ✓ | JTAG, PMP |
| PIC24FJ128GA008 | 128K | 8K | 69 | 80PT | 16 X 10-bit 500 ksps | 2 | 5 | 5 | 5 | ✓ | 2 | 2 | 2 | — | 8 MHz 32 kHz | ✓ | ✓ | JTAG, PMP |
| PIC24FJ128GA010 | 128K | 8K | 85 | 100PT | 16 X 10-bit 500 ksps | 2 | 5 | 5 | 5 | ✓ | 2 | 2 | 2 | — | 8 MHz 32 kHz | ✓ | ✓ | JTAG, PMP |
| PIC24HJ256GP Family 16-bit Flash MCUs: 40 MIPS, VDD = 3.0 - 3.6V, Self-Write Flash | | | | | | | | | | | | | | | | | | |
| PIC24HJ64GP206 | 64 | 8 | 53 | 64PT | 18 x 12-bit 500 ksps | — | 9 | 8 | 8 | — | 2 | 2 | 1 | — | 8 MHz 32 kHz | ✓ | ✓ | JTAG, DMA |
| PIC24HJ64GP210 | 64 | 8 | 85 | 100PT | 32 x 12-bit 500 ksps | — | 9 | 8 | 8 | — | 2 | 2 | 2 | — | 8 MHz 32 kHz | ✓ | ✓ | JTAG, DMA |
| PIC24HJ64GP506 | 64 | 8 | 53 | 64PT | 18 x 12-bit 500 ksps | — | 9 | 8 | 8 | — | 2 | 2 | 2 | 1 | 8 MHz 32 kHz | ✓ | ✓ | JTAG, DMA |
| PIC24HJ64GP510 | 64 | 8 | 85 | 100PT | 32 x 12-bit 500 ksps | — | 9 | 8 | 8 | — | 2 | 2 | 2 | 1 | 8 MHz 32 kHz | ✓ | ✓ | JTAG, DMA |
| PIC24HJ128GP206 | 128 | 8 | 53 | 64PT | 18 x 12-bit 500 ksps | — | 9 | 8 | 8 | — | 2 | 2 | 1 | — | 8 MHz 32 kHz | ✓ | ✓ | JTAG, DMA |
| PIC24HJ128GP210 | 128 | 8 | 85 | 100PT | 32 x 12-bit 500 ksps | — | 9 | 8 | 8 | — | 2 | 2 | 2 | — | 8 MHz 32 kHz | ✓ | ✓ | JTAG, DMA |
| PIC24HJ128GP506 | 128 | 8 | 53 | 64PT | 18 x 12-bit 500 ksps | — | 9 | 8 | 8 | — | 2 | 2 | 2 | 1 | 8 MHz 32 kHz | ✓ | ✓ | JTAG, DMA |

Abbreviations are found on the last page of the Selector Guide.

PIC24 16-Bit Microcontroller (MCU) Family (continued)

| Product | Flash Program Memory (Bytes) | RAM (Bytes) | I/O Pins | Packages | Analog | | Digital | | | | | | | CAN | IntOSC | Power On Reset | nW | Other Features |
|---|------------------------------|-------------|----------|----------|-----------------------------|-------|---------------|-----------|-----------------|------|---------------|------|------|-----|-----------------|----------------|----|----------------|
| | | | | | ADC Ch | Comp. | Timers 16-bit | Input Cap | Output Comp/PWM | RTCC | UART w/ IrDA® | SPI™ | I²C™ | | | | | |
| PIC24HJ256GP Family 16-bit Flash MCUs: 40 MIPS, VDD = 3.0 - 3.6V, Self-Write Flash (continued) | | | | | | | | | | | | | | | | | | |
| PIC24HJ128GP510 | 128 | 8 | 85 | 100PT | 32 x 12-bit 500 ksps | — | 9 | 8 | 8 | — | 2 | 2 | 2 | 1 | 8 MHz 32 kHz | ✓ | ✓ | JTAG, DMA |
| PIC24HJ128GP306 | 128 | 16 | 53 | 64PT | 18 x 12-bit 500 ksps | — | 9 | 8 | 8 | — | 2 | 2 | 2 | — | 8 MHz 32 kHz | ✓ | ✓ | JTAG, DMA |
| PIC24HJ128GP310 | 128 | 16 | 85 | 100PT | 32 x 12-bit 500 ksps | — | 9 | 8 | 8 | — | 2 | 2 | 2 | — | 8 MHz 32 kHz | ✓ | ✓ | JTAG, DMA |
| PIC24HJ256GP206 | 256 | 16 | 53 | 64PT | 18 x 12-bit 500 ksps | — | 9 | 8 | 8 | — | 2 | 2 | 2 | — | 8 MHz 32 kHz | ✓ | ✓ | JTAG, DMA |
| PIC24HJ256GP210 | 256 | 16 | 85 | 100PT | 32 x 12-bit 500 ksps | — | 9 | 8 | 8 | — | 2 | 2 | 2 | — | 8 MHz 32 kHz | ✓ | ✓ | JTAG, DMA |
| PIC24HJ256CP610 | 256 | 16 | 85 | 100PT | (2) 16 x 12-bit 500 ksps | — | 9 | 8 | 8 | — | 2 | 2 | 2 | 2 | 8 MHz 32 kHz | ✓ | ✓ | JTAG, DMA |

Abbreviations are found on the last page of the Selector Guide.

MATURE – PICmicro[®] MICROCONTROLLER FAMILY PRODUCTS

Not recommended for new designs.

Please use a device from the recommended column for new designs.

| Product | Program Memory (Bytes/Words) | Package Size | Recommended Design-In Device |
|-------------|------------------------------|--------------|------------------------------|
| PIC12C508 | 768/512x12 | 8 | PIC12F508 |
| PIC12C508A | 768/512x12 | 8 | PIC12F508 |
| PIC12C509 | 1,536/1,024x12 | 8 | PIC12F509 |
| PIC12C509A | 1,536/1,024x12 | 8 | PIC12F509 |
| PIC12C671 | 1,536/1,024x14 | 8 | PIC12F675 |
| PIC12C672 | 3,584/2,048x14 | 8 | PIC12F683 |
| PIC12CE673 | 1,792/1,024x14 | 8 | PIC12F675 |
| PIC12CE674 | 3,584/2,048x14 | 8 | PIC12F683 |
| PIC12CE518 | 768/512x12 | 8 | PIC12F629 |
| PIC12CE519 | 1,536/1,024x12 | 8 | PIC12F629 |
| PIC12CR509A | 1,536/1,024x12 | 8 | PIC12F509 |
| PIC16C505 | 1,536/1,024x12 | 14 | PIC16F505 |
| PIC16C54 | 768/512x12 | 18 | PIC16F54 |
| PIC16C54A | 768/512x12 | 18 | PIC16F54 |
| PIC16C54C | 768/512x12 | 18 | PIC16F54 |
| PIC16C55 | 768/512x12 | 28 | PIC16C55A |
| PIC16C56 | 1,536/1,024x12 | 18 | PIC16C56A |
| PIC16C57 | 3,072/2,048x12 | 28 | PIC16F57 |
| PIC16C57C | 3,072/2,048x12 | 28 | PIC16F57 |
| PIC16C62A | 3,584/2,048x14 | 28 | PIC16C62B or PIC16F72 |
| PIC16C620 | 896/2,048x14 | 18 | PIC16C620A |
| PIC16C621 | 1,792/1,024x14 | 18 | PIC16C621A |
| PIC16C622 | 3,584/2,048x14 | 18 | PIC16C622A |
| PIC16C63 | 7,168/4,096x14 | 28 | PIC16C63B or PIC16F73 |
| PIC16C64A | 3,584/2,048x14 | 40 | PIC16F74 |
| PIC16C642 | 7,168/4,096x14 | 28 | PIC16F72 |
| PIC16C65A | 7,168/4,096x14 | 40 | PIC16C65B or PIC16F74 |
| PIC16C66 | 1,4336/8,192x14 | 28 | PIC16F76 |
| PIC16C662 | 7,168/4,096x14 | 40 | PIC16F74 |
| PIC16C67 | 14,336/8,192x14 | 40 | PIC16F77 |
| PIC16C71 | 1,792/1,024x14 | 18 | PIC16F716 |
| PIC16C72 | 3,584/2,048x14 | 28 | PIC16F72 |
| PIC16C72A | 3,584/2,048x14 | 28 | PIC16F72 |
| PIC16C710 | 896/512x14 | 18 | PIC16F716 |
| PIC16C711 | 1,792/1,024x14 | 18 | PIC16F716 |
| PIC16C712 | 1,792/1,024x14 | 18 | PIC16F716 |

| Product | Program Memory (Bytes/Words) | Package Size | Recommended Design-In Device |
|------------|------------------------------|--------------|------------------------------|
| PIC16C715 | 3,584/2,048x14 | 18 | PIC16F716 |
| PIC16C716 | 3,584/2,048x14 | 18 | PIC16F716 |
| PIC16C73A | 7,168/4,096x14 | 28 | PIC16F73 |
| PIC16C73B | 7,168/4,096x14 | 28 | PIC16F73 |
| PIC16C74A | 7,168/4,096x14 | 40 | PIC16F74 |
| PIC16C74B | 7,168/4,096x14 | 40 | PIC16F74 |
| PIC16C76 | 14,336/8,192x14 | 28 | PIC16F76 |
| PIC16C77 | 14,336/8,192x14 | 40 | PIC16F77 |
| PIC16C923 | 7,168/4,096x14 | 68 | PIC16C925 |
| PIC16C924 | 7,168/4,096x14 | 68 | PIC16C925 |
| PIC16CE623 | 896/512x14 | 18 | PIC16F627A |
| PIC16CE624 | 1,792/1,024x14 | 18 | PIC16F627A |
| PIC16CE625 | 3,584/2,048x14 | 18 | PIC16F628A |
| PIC16CR54A | 768/512x12 | 18 | PIC16CR54C |
| PIC16CR54C | 768/512x12 | 18 | PIC16F54 |
| PIC16CR57C | 3,072/2,048x12 | 28 | PIC16F57 |
| PIC16CR83 | 896/512x14 | 18 | PIC16F84A |
| PIC16CR84 | 1,792/1,024x14 | 18 | PIC16F84A |
| PIC16F627 | 1,792/1,024x14 | 18 | PIC16F627A |
| PIC16F628 | 3,584/2,048x14 | 18 | PIC16F628A |
| PIC16F83 | 896/512x14 | 18 | PIC16F84A |
| PIC16F84 | 1,792/1,024x14 | 18 | PIC16F84A |
| PIC16F873 | 7,168/4,096x14 | 28 | PIC16F873A |
| PIC16F874 | 7,168/4,096x14 | 28 | PIC16F874A |
| PIC16F876 | 14,336/8,192x14 | 40 | PIC16F876A |
| PIC16F877 | 14,336/8,192x14 | 40 | PIC16F877A |
| PIC17C42A | 4,096/2,048x16 | 40 | PIC18F4220 |
| PIC17C43 | 8,192/4,096x16 | 40 | PIC18F4320 |
| PIC17C44 | 16,384/8,192x16 | 40 | PIC18F4420 |
| PIC17C752 | 16,384/8,192x16 | 68 | PIC18F6520 |
| PIC17C756A | 32,768/16,384x16 | 68 | PIC18F6520 |
| PIC17C762 | 16,384/8,192x16 | 84 | PIC18F8520 |
| PIC17C766 | 32,768/16,384x16 | 84 | PIC18F8520 |
| PIC18C242 | 16,384/8,192x16 | 28 | PIC18F2420 |
| PIC18C252 | 32,768/16,384x16 | 28 | PIC18F2520 |
| PIC18C442 | 16,384/8,192x16 | 40 | PIC18F4420 |

| Product | Program Memory (Bytes/Words) | Package Size | Recommended Design-In Device |
|------------|------------------------------|--------------|------------------------------|
| PIC18C452 | 32,768/16,384x16 | 40 | PIC18F4520 |
| PIC18C658 | 32,768/16,384x16 | 68 | PIC18F6585 |
| PIC18C858 | 32,768/16,384x16 | 84 | PIC18F8585 |
| PIC18F242 | 16,384/8,192x16 | 28 | PIC18F2420 |
| PIC18F248 | 16,384/8,192x16 | 28 | PIC18F2480 |
| PIC18F252 | 32,768/16,384x16 | 28 | PIC18F2520 |
| PIC18F258 | 32,768/16,384x16 | 28 | PIC18F2580 |
| PIC18F442 | 16,384/8,192x16 | 40 | PIC18F4420 |
| PIC18F448 | 16,384/8,192x16 | 40 | PIC18F4480 |
| PIC18F452 | 32,768/16,384x16 | 40 | PIC18F4520 |
| PIC18F458 | 32,768/16,384x16 | 40 | PIC18F4580 |
| PIC18F2439 | 12,288/6,144x16 | 28 | PIC18F2431 |
| PIC18F2539 | 24,576/12,288x16 | 28 | PIC18F2431 |

| Product | Program Memory (Bytes/Words) | Package Size | Recommended Design-In Device |
|------------|------------------------------|--------------|------------------------------|
| PIC18F4439 | 12,288/6,144x16 | 40 | PIC18F4431 |
| PIC18F4539 | 24,576/12,288x16 | 40 | PIC18F4431 |
| PIC18F6525 | 49,152/24,576x16 | 64 | PIC18F6527 |
| PIC18F6620 | 65,536/32,768x16 | 64 | PIC18F6622 |
| PIC18F6621 | 65,536/32,768x16 | 64 | PIC18F6622 |
| PIC18F6720 | 131,072/65,536x16 | 64 | PIC18F6722 |
| PIC18F8525 | 49,152/24,576x16 | 80 | PIC18F8527 |
| PIC18F8620 | 65,536/32,768x16 | 80 | PIC18F8622 |
| PIC18F8621 | 65,536/32,768x16 | 80 | PIC18F8622 |
| PIC18F8720 | 131,072/65,536x16 | 80 | PIC18F8722 |

FOCUSED SOLUTIONS

| Product | Program Memory Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog Peripherals | Digital Peripherals | Max. Speed MHz | ICD # of Breakpoints | Function-Specific Features | | | | | Development Boards | |
|----------------------|-------------------------------------|--------------------------|-----------|----------|------------------------|--------------------|--|---|----------------------|----------------------------|------------------|-----------------|--------------------|-------------------------|----------------------------|---------------------------|
| | | | | | | | | | | ISO-16845 Tested | Transmit Buffers | Receive Buffers | Configurable RX/TX | Acceptance Filters/Mask | | |
| CAN Solutions | | | | | | | | | | | | | | | | |
| PIC18F2480 | 16 KB EnhFI (8 KW) | 256 | 768 | 25 | 28SP, 28SO, 28ML | ADC | EUSART, CCP | 40 | 3 | Planned | 3 | 2 | 6 | 16/2 | DM163011 PICDEM™ CAN-LIN 2 | |
| PIC18F2580 | 32 KB EnhFI (16 KW) | 256 | 1536 | 25 | 28SP, 28SO, 28ML | ADC | EUSART, CCP | 40 | 3 | Planned | 3 | 2 | 6 | 16/2 | DM163011 PICDEM™ CAN-LIN 2 | |
| PIC18F2585 | 48 KB EnhFI (24 KW) | 1024 | 3328 | 25 | 28SP, 28SO | ADC | EUSART, CCP | 40 | 3 | Planned | 3 | 2 | 6 | 16/2 | DM163011 PICDEM™ CAN-LIN 2 | |
| PIC18F2680 | 64 KB EnhFI (32 KW) | 1024 | 3328 | 25 | 28SP, 28SO | ADC | EUSART, CCP | 40 | 3 | Planned | 3 | 2 | 6 | 16/2 | DM163011 PICDEM™ CAN-LIN 2 | |
| PIC18F4480 | 16 KB EnhFI (8 KW) | 256 | 768 | 36 | 40P, 44PT, 44ML | ADC/Comp | EUSART, CCP/ECCP | 40 | 3 | Planned | 3 | 2 | 6 | 16/2 | DM163011 PICDEM™ CAN-LIN 2 | |
| PIC18F4580 | 32 KB EnhFI (16 KW) | 256 | 1536 | 36 | 40P, 44PT, 44ML | ADC/Comp | EUSART, CCP/ECCP | 40 | 3 | Planned | 3 | 2 | 6 | 16/2 | DM163011 PICDEM™ CAN-LIN 2 | |
| PIC18F4585 | 48 KB EnhFI (24 KW) | 1024 | 3328 | 36 | 40P, 44PT, 44ML | ADC/Comp | EUSART, CCP/ECCP | 40 | 3 | Planned | 3 | 2 | 6 | 16/2 | DM163011 PICDEM™ CAN-LIN 2 | |
| PIC18F4680 | 64 KB EnhFI (32 KW) | 1024 | 3328 | 36 | 40P, 44PT, 44ML | ADC/Comp | EUSART, CCP/ECCP | 40 | 3 | Planned | 3 | 2 | 6 | 16/2 | DM163011 PICDEM™ CAN-LIN 2 | |
| PIC18F6585 | 48 KB EnhFI (24 KW) | 1024 | 3328 | 53 | 64PT, 68L | ADC/Comp | EUSART, CCP/ECCP | 40 | 1 | Yes | 3 | 2 | 6 | 16/2 | DM163015 PICDEM™ CAN-LIN 3 | |
| PIC18F6680 | 64 KB EnhFI (32 KW) | 1024 | 3328 | 53 | 64PT, 68L | ADC/Comp | EUSART, CCP/ECCP | 40 | 1 | Yes | 3 | 2 | 6 | 16/2 | DM163015 PICDEM™ CAN-LIN 3 | |
| PIC18F8585 | 48 KB EnhFI (24 KW) | 1024 | 3328 | 69 | 80PT | ADC/Comp | EUSART, CCP/ECCP | 40 | 1 | Yes | 3 | 2 | 6 | 16/2 | DM163015 PICDEM™ CAN-LIN 3 | |
| PIC18F8680 | 64 KB EnhFI (32 KW) | 1024 | 3328 | 69 | 80PT | ADC/Comp | EUSART, CCP/ECCP | 40 | 1 | Yes | 3 | 2 | 6 | 16/2 | DM163015 PICDEM™ CAN-LIN 3 | |
| dsPIC30F4011 | 48 KB EnhFI (16 KW) | 1024 | 2048 | 30 | 40P, 44PT, 44ML (8x8) | ADC | CAN, SPI, I ² C, 2xUART | 120 | 1 | Yes | 3 | 2 | 0 | 4/2 | DM300018 dsPICDEM™ 2 | |
| dsPIC30F4012 | 48 KB EnhFI (16 KW) | 1024 | 2048 | 20 | 28SP, 28SO, 44ML (8x8) | ADC | CAN, SPI, I ² C, 2xUART | 120 | 1 | Yes | 3 | 2 | 0 | 4/2 | DM300018 dsPICDEM™ 2 | |
| dsPIC30F4013 | 48 KB EnhFI (16 KW) | 1024 | 2048 | 30 | 40P, 44PT, 44ML (8x8) | ADC | CAN, SPI, I ² C, 2xUART | 120 | 1 | Yes | 3 | 2 | 0 | 4/2 | DM300018 dsPICDEM™ 2 | |
| dsPIC30F5011 | 65 KB EnhFI (22 KW) | 1024 | 4096 | 52 | 64PT | ADC | 2xCAN, 2xSPI, I ² C, 2xUART | 120 | 2 | Yes | 3 | 2 | 0 | 4/2 | DM300014 dsPICDEM™ 1.1 GP | |
| dsPIC30F5013 | 65 KB EnhFI (22 KW) | 1024 | 4096 | 68 | 80PT | ADC | 2xCAN, 2xSPI, I ² C, 2xUART | 120 | 2 | Yes | 3 | 2 | 0 | 4/2 | DM300014 dsPICDEM™ 1.1 GP | |
| NEW | dsPIC30F5015 | 66 KB EnhFI (22 KW) | 1024 | 2048 | 52 | 64PT | ADC | CAN, UART, 2xSPI, I ² C | 120 | 2 | Yes | 3 | 2 | 0 | 4/2 | DM300020*** |
| NEW | dsPIC30F5016 | 66 KB EnhFI (22 KW) | 1024 | 2048 | 68 | 80PT | ADC | CAN, UART, 2xSPI, I ² C | 120 | 2 | Yes | 3 | 2 | 0 | 4/2 | DM300020*** |
| | dsPIC30F6010 | 147 KB EnhFI (49 KW) | 4096 | 8192 | 68 | 80PF | ADC | 2xCAN, 2xSPI, I ² C, 2xUART | 120 | 2 | Yes | 3 | 2 | 0 | 4/2 | DM300020*** |
| NEW | dsPIC30F6010A | 144 KB EnhFI (48 KW) | 4096 | 8192 | 68 | 80PF, 80PT | ADC | 2xCAN, 2xSPI, I ² C, 2xUART | 120 | 2 | Yes | 3 | 2 | 0 | 4/2 | DM300020*** |
| | dsPIC30F6011 | 131 KB EnhFI (44 KW) | 2048 | 6144 | 52 | 64PF | ADC | 2xCAN, 2xSPI, I ² C, 2xUART | 120 | 2 | Yes | 3 | 2 | 0 | 4/2 | DM300014 dsPICDEM™ 1.1 GP |
| NEW | dsPIC30F6011A | 131 KB EnhFI (44 KW) | 2048 | 6144 | 52 | 64PF, 64PT | ADC | 2xCAN, 2xSPI, I ² C, 2xUART ^C | 120 | 2 | Yes | 3 | 2 | 0 | 4/2 | DM300014 dsPICDEM™ 1.1 GP |

| Product | Program Memory Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog Peripherals | Digital Peripherals | Max. Speed MHz | ICD # of Breakpoints | Function-Specific Features | | | | | Development Boards |
|----------------------------------|-------------------------------------|--------------------------|-----------|----------|------------|--------------------|--|----------------|----------------------|----------------------------|------------------|-----------------|--------------------|-------------------------|--------------------------------|
| | | | | | | | | | | ISO-16845 Tested | Transmit Buffers | Receive Buffers | Configurable RX/TX | Acceptance Filters/Mask | |
| CAN Solutions (continued) | | | | | | | | | | | | | | | |
| dsPIC30F6012 | 147 KB EnhFl (49 KW) | 4096 | 8192 | 52 | 64PF | ADC | 2xCAN, 2xSPI, I ² C, 2xUART | 120 | 2 | Yes | 3 | 2 | 0 | 4/2 | DM300014 dsPICDEM 1.1 GP Board |
| NEW dsPIC30F6012A | 147 KB EnhFl (49 KW) | 4096 | 8192 | 52 | 64PF, 64PT | ADC | 2xCAN, 2xSPI, I ² C, 2xUART | 120 | 2 | Yes | 3 | 2 | 0 | 4/2 | DM300014 dsPICDEM 1.1 GP Board |
| dsPIC30F6013 | 131 KB EnhFl (44 KW) | 2048 | 6144 | 68 | 80PF | ADC | 2xCAN, 2xSPI, I ² C, 2xUART | 120 | 2 | Yes | 3 | 2 | 0 | 4/2 | DM300014 dsPICDEM 1.1 GP Board |
| NEW dsPIC30F6013A | 131 KB EnhFl (44 KW) | 2048 | 6144 | 68 | 80PF, 80PT | ADC | 2xCAN, 2xSPI, I ² C, 2xUART | 120 | 2 | Yes | 3 | 2 | 0 | 4/2 | DM300014 dsPICDEM 1.1 GP Board |
| dsPIC30F6014 | 147 KB EnhFl (49 KW) | 4096 | 8192 | 68 | 80PF | ADC | 2xCAN, 2xSPI, I ² C, 2xUART | 120 | 2 | Yes | 3 | 2 | 0 | 4/2 | DM300014 dsPICDEM 1.1 GP Board |
| NEW dsPIC30F6014A | 147 KB EnhFl (49 KW) | 4096 | 8192 | 68 | 80PF, 80PT | ADC | 2xCAN, 2xSPI, I ² C, 2xUART | 120 | 2 | Yes | 3 | 2 | 0 | 4/2 | |

Refer to Connectivity Design Center on www.microchip.com/can for further details. Abbreviations are found on the last page of the Selector Guide.

| Part # | Operating Voltage (V) | Temperature Range (°C) | Tx Buffers | Rx Buffers | Filters | Masks | Interrupt Output | Unique Features | Packages |
|-------------------------------------|-----------------------|------------------------|------------|------------|---------|-------|------------------|---|--|
| CAN Peripherals/Transceivers | | | | | | | | | |
| MCP2515 | 2.7 to 5.5 | -40 to +125 | 3 | 2 | 6 | 2 | Yes | MCP2510 pin compatible upgrade with enhanced features including higher throughput and data byte filtering | 18-Pin PDIP, 18-Pin SOIC, 20-Pin TSSOP |
| MCP25020 | 2.7 to 5.5 | -40 to +125 | 3 | 2 | 2 | 1 | N/A | CAN 2.0B Active I/O Expander. See "Interface Section" of the Analog/Interface Family Products. | 14-Pin PDIP, 14-Pin SOIC |
| MCP25025 | 2.7 to 5.5 | -40 to +85 | 3 | 2 | 2 | 1 | N/A | CAN 2.0B Active I/O Expander. See "Interface Section" of the Analog/Interface Family Products. | 14-Pin PDIP, 14-Pin SOIC |
| MCP25050 | 2.7 to 5.5 | -40 to +125 | 3 | 2 | 2 | 1 | N/A | CAN 2.0B Active I/O Expander. See "Interface Section" of the Analog/Interface Family Products. | 14-Pin PDIP, 14-Pin SOIC |
| MCP25055 | 2.7 to 5.5 | -40 to +85 | 3 | 2 | 2 | 1 | N/A | CAN 2.0B Active I/O Expander. See "Interface Section" of the Analog/Interface Family Products. | 14-Pin PDIP, 14-Pin SOIC |
| MCP2551 | 4.5 to 5.5 | -40 to +125 | n/a | n/a | n/a | n/a | N/A | CAN 2.0B Active I/O Expander. See "Interface Section" of the Analog/Interface Family Products. | 8-Pin PDIP, 8-Pin SOIC |

| Product | Program Memory Bytes & Type (Words) | EEPROM Data Memory | RAM Bytes | I/O Pins | Packages | Analog Peripherals | Digital Peripherals | Max. Speed MHz | ICD # of Breakpoints | Function-Specific Features | | | | | |
|--|-------------------------------------|-----------------------|-----------|----------|----------|--------------------|---------------------|------------------|----------------------|----------------------------|-----|-----|----------------------|----------------------------|--------------|
| | | | | | | | | | | IEEE.802.3 Compliant | MAC | PHY | TX/RX Buffer (bytes) | Ethernet Voltage Range (V) | |
| Ethernet Solutions – Integrated | | | | | | | | | | | | | | | |
| NEW | PIC18F66J60* | 16,384 EnhFI (8,192) | — | 2048 | 39 | 64PT | ADC/Comp | EUSART, CCP/ECCP | 42 | 3 | Yes | Yes | 10 Base-T | 8192 | 3.14 to 3.45 |
| NEW | PIC18F66J65* | 32,768 EnhFI (16,384) | — | 3808 | 39 | 64PT | ADC/Comp | EUSART, CCP/ECCP | 42 | 3 | Yes | Yes | 10 Base-T | 8192 | 3.14 to 3.45 |
| NEW | PIC18F67J60* | 49,152 EnhFI (24,576) | — | 3808 | 39 | 64PT | ADC/Comp | EUSART, CCP/ECCP | 42 | 3 | Yes | Yes | 10 Base-T | 8192 | 3.14 to 3.45 |
| NEW | PIC18F86J60* | 65,536 EnhFI (32,768) | — | 2048 | 55 | 80PT | ADC/Comp | EUSART, CCP/ECCP | 42 | 3 | Yes | Yes | 10 Base-T | 8192 | 3.14 to 3.45 |
| NEW | PIC18F86J65* | 16,384 EnhFI (8,192) | — | 3808 | 55 | 80PT | ADC/Comp | EUSART, CCP/ECCP | 42 | 3 | Yes | Yes | 10 Base-T | 8192 | 3.14 to 3.45 |
| NEW | PIC18F87J60* | 32,768 EnhFI (16,384) | — | 3808 | 55 | 80PT | ADC/Comp | EUSART, CCP/ECCP | 42 | 3 | Yes | Yes | 10 Base-T | 8192 | 3.14 to 3.45 |
| NEW | PIC18F96J60* | 49,152 EnhFI (24,576) | — | 3808 | 70 | 100PT | ADC/Comp | EUSART, CCP/ECCP | 42 | 3 | Yes | Yes | 10 Base-T | 8192 | 3.14 to 3.45 |
| NEW | PIC18F96J65* | 65,536 EnhFI (32,768) | — | 3808 | 70 | 100PT | ADC/Comp | EUSART, CCP/ECCP | 42 | 3 | Yes | Yes | 10 Base-T | 8192 | 3.14 to 3.45 |
| NEW | PIC18F97J60* | 49,152 EnhFI (24,576) | — | 3808 | 70 | 100PT | ADC/Comp | EUSART, CCP/ECCP | 42 | 3 | Yes | Yes | 10 Base-T | 8192 | 3.14 to 3.45 |

Abbreviations are found on the last page of the Selector Guide.

| Product | MAC | PHY | TX/RX Dual Port RAM Buffer | Interrupts | LEDs | Operating Voltage (V) | Max. Speed MHz | Serial | Features | Package | |
|---|----------|-----|----------------------------|------------|------|-----------------------|----------------|--------|----------|------------------------------------|------------------|
| Ethernet Solutions – Stand-Alone | | | | | | | | | | | |
| NEW | ENC28J60 | Yes | 10 Base-T | 8 KB | 2 | 2 | 3.3 | 25 | SPI | Loopback Test modes, auto-polarity | 28SO, 28SS, 28ML |

Abbreviations are found on the last page of the Selector Guide.

| Product | Program Memory Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog Peripherals | Digital Peripherals | Max. Speed MHz | ICD # of Breakpoints | Function-Specific Features | | | | | Development Boards |
|----------------------|-------------------------------------|--------------------------|-----------|----------|----------------------|--------------------|-------------------------------|----------------|----------------------|----------------------------|------------------------|----------------|--------------------|----------------|-------------------------|
| | | | | | | | | | | Compliant | Speed | # of Endpoints | USB Buffer (bytes) | Streaming Port | |
| USB Solutions | | | | | | | | | | | | | | | |
| PIC16C745 | 14,336 OTP (8,192) | — | 256 | 22 | 28SP, 28SO, 28JW | ADC | UART | 24 | — | USB 1.1 | Low-Speed (1.5 Mbit/s) | 16 | 64 | — | DM163010 PICDEM™ USB |
| PIC16C765 | 14,336 OTP (8,192) | — | 256 | 33 | 40P, 40JW, 44L, 44PT | ADC | UART | 24 | — | USB 1.1 | Low-Speed (1.5 Mbit/s) | 16 | 64 | — | DM163010 PICDEM™ USB |
| PIC18F2450* | 16384 EnhFI (8192) | — | 768 | 23 | 28SP, 28SO, 28ML | ADC/Comp | USB 2.0, AUSART | 48 | 3 | USB 2.0 | Full-Speed (12 Mbit/s) | 16 | 256 | — | DM163025 PICDEM™ FS-USB |
| PIC18F2455 | 24,576 EnhFI (12,288) | 256 | 2048 | 24 | 28SP, 28SO | ADC/Comp | EUSART, MI ² C/SPI | 48 | 3 | USB 2.0 | Full-Speed (12 Mbit/s) | 16 | 1024 | — | DM163025 PICDEM™ FS-USB |
| PIC18F2550 | 32,768 EnhFI (16,384) | 256 | 2048 | 24 | 28SP, 28SO | ADC/Comp | EUSART, MI ² C/SPI | 48 | 3 | USB 2.0 | Full-Speed (12 Mbit/s) | 16 | 1024 | — | DM163025 PICDEM™ FS-USB |

*Contact Microchip Technology Inc. for availability.

Refer to Connectivity Design Center on www.microchip.com/usb for further details.

Abbreviations are found on the last page of the Selector Guide.

| Product | Program Memory Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog Peripherals | Digital Peripherals | Max. Speed MHz | ICD # of Breakpoints | Function-Specific Features | | | | | Development Boards | |
|----------------------------------|-------------------------------------|--------------------------|-----------|----------|-----------------|--------------------|-------------------------------|--|----------------------|----------------------------|------------------------|------------------------|--------------------|----------------|-------------------------|--|
| | | | | | | | | | | Compliant | Speed | # of Endpoints | USB Buffer (bytes) | Streaming Port | | |
| USB Solutions (continued) | | | | | | | | | | | | | | | | |
| PIC18F4450* | 16,384 EnhFI (8183) | — | 768 | 34 | 40P, 44ML, 44PT | ADC/Comp | USB 2.0, AUSART | 48 | 3 | USB 2.0 | Full-Speed (12 Mbit/s) | 16 | 256 | — | DM163025 PICDEM™ FS-USB | |
| PIC18F4455 | 24,576 EnhFI (12,288) | 256 | 2048 | 36 | 40P, 44PT, 44ML | ADC/Comp | EUSART, MI ² C/SPI | 48 | 3 | USB 2.0 | Full-Speed (12 Mbit/s) | 16 | 1024 | ✓ | DM163025 PICDEM™ FS-USB | |
| PIC18F4550 | 32,768 EnhFI (16,384) | 256 | 2048 | 36 | 40P, 44PT, 44ML | ADC/Comp | EUSART, MI ² C/SPI | 48 | 3 | USB 2.0 | Full-Speed (12 Mbit/s) | 16 | 1024 | ✓ | DM163025 PICDEM™ FS-USB | |
| NEW | PIC18F65J50* | 32,768 StdFI (16,384) | — | 3936 | 50 | 64PT | ADC/Comp | USB 2.0, 2xEUSART, 2xMI ² C/SPI | 48 | 3 | USB 2.0 | Full-Speed (12 Mbit/s) | 16 | 1024 | — | |
| NEW | PIC18F66J50* | 65,536 StdFI (32,768) | — | 3936 | 50 | 64PT | ADC/Comp | USB 2.0, 2xEUSART, 2xMI ² C/SPI | 48 | 3 | USB 2.0 | Full-Speed (12 Mbit/s) | 16 | 1024 | — | |
| NEW | PIC18F67J50* | 131,072 StdFI (65,536) | — | 3936 | 50 | 64PT | ADC/Comp | USB 2.0, 2xEUSART, 2xMI ² C/SPI | 48 | 3 | USB 2.0 | Full-Speed (12 Mbit/s) | 16 | 1024 | — | |
| NEW | PIC18F85J50* | 32,768 StdFI (16,384) | — | 3936 | 66 | 80PT | ADC/Comp | USB 2.0, 2xEUSART, 2xMI ² C/SPI | 48 | 3 | USB 2.0 | Full-Speed (12 Mbit/s) | 16 | 1024 | — | |
| NEW | PIC18F86J50* | 65,536 StdFI (32,768) | — | 3936 | 66 | 80PT | ADC/Comp | USB 2.0, 2xEUSART, 2xMI ² C/SPI | 48 | 3 | USB 2.0 | Full-Speed (12 Mbit/s) | 16 | 1024 | — | |
| NEW | PIC18F87J50* | 131,072 StdFI (65,536) | — | 3936 | 66 | 80PT | ADC/Comp | USB 2.0, 2xEUSART, 2xMI ² C/SPI | 48 | 3 | USB 2.0 | Full-Speed (12 Mbit/s) | 16 | 1024 | — | |

*Contact Microchip Technology Inc. for availability.
Refer to Connectivity Design Center on www.microchip.com/usb for further details.
Abbreviations are found on the last page of the Selector Guide.

| Part # | Mode | Cell Type | # of Cells | Vcc Range (V) | Max. Voltage Regulation (%) | Int/Ext FET | Features | Packages |
|-----------------------------|--------|-------------------|------------|---------------|-----------------------------|-------------|--|------------------|
| USB Battery Chargers | | | | | | | | |
| MCP73853 | Linear | Li-Ion/Li-Polymer | 1 | 4.5 to 5.5 | ±0.5 | Int | USB control, Safety charge timers, Temperature monitor, Thermal regulation | 16-Pin QFN (4x4) |
| MCP73855 | Linear | Li-Ion/Li-Polymer | 1 | 4.5 to 5.5 | ±0.5 | Int | USB control, Safety charge timers, Thermal regulation | 10-Pin DFN (3x3) |

| Product | Mode | Cell Type | # of Cells | Vin Range (V) | Max. Voltage Regulation (%) | Int/Ext FET | Features | Package |
|-----------------------------------|--------|---------------------|------------|---------------|-----------------------------|-------------|---|-------------------------|
| Switching Battery Chargers | | | | | | | | |
| PS200* | Switch | Li-Ion / Li-Polymer | 1-4 | 5-18 | ±1% | Ext | Voltage and current regulation, safety charge timers and temperature limits, internal voltage regulator, 500 kHz (max.) PWM | 20-Pin PDIP, SOIC, SSOP |

* Contact Microchip Technology for availability.

| Product | Battery Chemistry | # of Cells | Interface | Data Set | A/D Converter | Programmable Memory | Programmable I/O Functions | Accuracy | Time Base | Temp. Sensor | Packaging | Description |
|-------------------------------|-------------------|-------------|-----------|----------|--------------------|-----------------------------------|----------------------------|----------|-----------|------------------|--------------------------|--|
| Battery Fuel Gauge ICs | | | | | | | | | | | | |
| PS501 | Li-Ion NiMH | 2-4 6-12 | SMBus | > 1% | 16-bit Sigma-Delta | 16 Kbytes Flash, 256 bytes EEPROM | 12 GPIO | - | On-chip | On-chip external | 28-pin SSOP | Single chip field reprogrammable battery manager IC reports capacity, current, temperature, voltage and other status for Li-Ion or Nickel batteries. |
| PS810 | Li-Ion | 1 | SMBus/SI | - | 16-bit Sigma-Delta | 4k x 16 Flash | 6 GPIO | 1% | On-chip | On-chip | 14-pin TSSOP, 16-pin QFN | Single cell Li-Ion fuel gauge provides battery status such as run time to empty, run time to full, relative state-of-charge and battery state-of-health. |

Radio Frequency Solutions

| Product | Program Memory Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog Peripherals | Digital Peripherals | Max. Speed (MHz) | Function-Specific Specifications | | | | | Development Boards |
|---|-------------------------------------|--------------------------|-----------|----------|------------|--------------------|------------------------------|------------------|----------------------------------|------------------|--------------------|-----------------------|-----------------------|---------------------------------|
| | | | | | | | | | Modulation | Data Rate (kbps) | Output Power (dBm) | Operating Voltage (V) | Frequency Range (MHz) | |
| rfPIC® Microcontrollers with UHF RF Transmitter, ICSP™ | | | | | | | | | | | | | | |
| rfPIC12C509AF | 1,536 OTP (1,024) | — | 41 | 6 | 20JW, 20SS | — | 1-8 bit Timer, WDT | 4 | FSK, ASK | 40 | 2 | 2.5-5.5 | 310-440 | |
| rfPIC12C509AG | 1,536 OTP (1,024) | — | 41 | 6 | 18JW, 18SO | — | 1-8 bit Timer, WDT | 4 | ASK | 40 | 2 | 2.5-5.5 | 310-440 | |
| rfPIC12F675F | 1,792 StdFI (1,024) | 128 | 64 | 6 | 20SS | 4x10-bit A/D, Comp | 1-8 bit, 1-16 bit Timer, WDT | 20 | FSK, ASK | 40 | 10 | 2.0-5.5 | 380-450 | DV164102 rfPIC® Development Kit |
| rfPIC12F675H | 1,792 StdFI (1,024) | 128 | 64 | 6 | 20SS | 4x10-bit A/D, Comp | 1-8 bit, 1-16 bit Timer, WDT | 20 | FSK, ASK | 40 | 10 | 2.0-5.5 | 850-930 | DV164102 rfPIC® Development Kit |
| rfPIC12F675K | 1,792 StdFI (1,024) | 128 | 64 | 6 | 20SS | 4x10-bit A/D, Comp | 1-8 bit, 1-16 bit Timer, WDT | 20 | FSK, ASK | 40 | 10 | 2.0-5.5 | 290-350 | DV164102 rfPIC® Development Kit |

| Product | Transmission Code Length Bits | Code Hopping Bits | Programmable Encryption Key Bits | Packages | Protocols | Function Codes | Tunable OSC | CRC | Function-Specific Specifications | | | | Development Boards |
|---|-------------------------------|-------------------|----------------------------------|----------|-----------------|----------------|-------------|-----|----------------------------------|--------------------|-----------------------|-----------------------|------------------------------------|
| | | | | | | | | | Modulation | Output Power (dBm) | Operating Voltage (V) | Frequency Range (MHz) | |
| rfHCS KEELoq® Encoders with UHF RF Transmitter | | | | | | | | | | | | | |
| rfHCS362F | 69 | 32 | 2 x 64 | 20SS | PWM, Manchester | 4 x 15 | ✓ | ✓ | FSK, ASK | 2 | 2.2-5.5 | 310-440 | DM303006 KEELoq® Evaluation Kit II |
| rfHCS362G | 69 | 32 | 2 x 64 | 18SO | PWM, Manchester | 4 x 15 | ✓ | ✓ | ASK | 2 | 2.2-5.5 | 310-440 | DM303006 KEELoq® Evaluation Kit II |

| Product | Modulation | Data Rate (kbps) | Frequency Range (MHz) | Sensitivity dBm (FSK) | IF Frequency Range (MHz) | Operating Voltage (V) | Package | Development Boards |
|------------------------|--------------|------------------|-----------------------|-----------------------|--------------------------|-----------------------|---------|--------------------------------|
| UHF RF Receiver | | | | | | | | |
| rRXD0420 | ASK, FSK, FM | 80 | 300-450 | -111 | 0.455-21.4 | 2.5-5.5 | 32LQ | DV164102 rPIC® Development Kit |
| rRXD0920 | ASK, FSK, FM | 80 | 800-930 | -109 | 0.455-21.4 | 2.5-5.5 | 32LQ | DV164102 rPIC® Development Kit |

Refer to Design pages on www.microchip.com for further details.
Abbreviations are found on the last page of the Selector Guide.

| Product | Carrier Frequency | Programming | Anticollision | Memory Type | Memory Size | Protocols | Packages | Other |
|--------------------------------------|-------------------|-----------------|---------------|-------------|-------------|---------------------|------------------------------|---|
| microID® RFID Tagging Devices | | | | | | | | |
| MCRF355 | 13.56 MHz | Contact/Factory | Yes | R/W | 154 bits | ASK Manchester | W, WF, S, WB, WFB, SB, P, SN | – |
| MCRF360 | 13.56 MHz | Contact/Factory | Yes | R/W | 154 bits | ASK Manchester | W, WF, S, WB, WFB, SB, P, SN | 100 pF res cap |
| MCRF450 | 13.56 MHz | Contactless | Yes | R/W | 1 Kbit | PPM, ASK Manchester | W, WF, S, WB, WFB, SB, P, SN | 32-bit unique ID user lock control by block |
| MCRF452 | 13.56 MHz | Contactless | Yes | R/W | 1 Kbit | PPM, ASK Manchester | W, WF, S, WB, WFB, SB, P, SN | Dual 50 pF res cap |

| Product | Program Memory Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog Peripherals | Digital Peripherals | Max. Speed MHz | ICD # of Breakpoints | LCD Function-Specific Features | | | | | Development Boards | |
|----------------------|-------------------------------------|--------------------------|-----------|----------|-----------------|-----------------------|----------------------|---------------------------------------|----------------------|--------------------------------|----------------|-----------------------------------|--------------|-------------------|------------------------|----------------------|
| | | | | | | | | | | COMxSegment = # Segments | Drive in Sleep | Software Configurable Driver Pins | Direct Drive | Intl. Charge Pump | | |
| LCD Solutions | | | | | | | | | | | | | | | | |
| PIC16C925 | 7,168 OTP (4,096) | — | 176 | 52 | 64PT, 68CL, 68L | ADC | I ² C/SPI | 20 | — | 4x29 (116) | Yes | No | Yes | Yes | DM163003 PICDEM™ 3 LCD | |
| PIC16C926 | 14,336 OTP (8,192) | — | 336 | 52 | 64PT, 68CL, 68L | ADC | I ² C/SPI | 20 | — | 4x29 (116) | Yes | No | Yes | Yes | DM163003 PICDEM™ 3 LCD | |
| NEW | PIC16F913 | 7,168 StdFI (4,096) | 256 | 256 | 25 | 28P, 28SO, 28SS, 28ML | ADC/Comp | AUSART, I ² C/SPI | 20 | 1 | 4x15 (60) | Yes | Yes | Yes | No | DS163028 PICDEM™ LCD |
| NEW | PIC16F914 | 7,168 StdFI (4,096) | 256 | 256 | 36 | 40P, 44PT, 44ML | ADC/Comp | AUSART, I ² C/SPI | 20 | 1 | 4x24 (96) | Yes | Yes | Yes | No | DS163028 PICDEM™ LCD |
| NEW | PIC16F916 | 14,336 StdFI (8,192) | 256 | 352 | 25 | 28P, 28SO, 28SS, 28ML | ADC/Comp | AUSART, I ² C/SPI | 20 | 1 | 4x15 (60) | Yes | Yes | Yes | No | DS163028 PICDEM™ LCD |
| NEW | PIC16F917 | 14,336 StdFI (8,192) | 256 | 352 | 36 | 40P, 44PT, 44ML | ADC/Comp | AUSART, I ² C/SPI | 20 | 1 | 4x24 (96) | Yes | Yes | Yes | No | DS163028 PICDEM™ LCD |
| NEW | PIC16F946 | 14,336 StdFI (8,192) | 256 | 336 | 53 | 64PT | ADC/Comp | AUSART, I ² C/SPI | 20 | 1 | 4x42 (168) | Yes | Yes | Yes | No | DS163028 PICDEM™ LCD |
| | PIC18F6390 | 8,192 StdFI (4,096) | — | 768 | 50 | 64PT | ADC/Comp | EUSART, AUSART, MI ² C/SPI | 40 | 3 | 4x32 (128) | Yes | Yes | Yes | No | DM163028 PICDEM™ LCD |
| NEW | PIC18F63J90* | 8,192 StdFI (4,096) | — | 1024 | 49 | 64PT | ADC/Comp | EUSART, AUSART, MI ² C/SPI | 40 | 3 | 4x32 (128) | Yes | Yes | Yes | Yes | |
| | PIC18F6490 | 1,6384 StdFI (8,192) | — | 768 | 50 | 64PT | ADC/Comp | EUSART, AUSART, MI ² C/SPI | 40 | 3 | 4x32 (128) | Yes | Yes | Yes | No | DM163028 PICDEM™ LCD |

*Contact Microchip Technology Inc. for availability.
Refer to LCD Design Center on www.microchip.com/lcd for further details.
Abbreviations are found on the last page of the Selector Guide.

| Product | Program Memory Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog Peripherals | Digital Peripherals | Max. Speed MHz | ICD # of Breakpoints | LCD Function-Specific Features | | | | | Development Boards | |
|----------------------------------|-------------------------------------|--------------------------|-----------|----------|----------|--------------------|---------------------|---------------------------------------|----------------------|--------------------------------|----------------|-----------------------------------|--------------|-------------------|--------------------|----------------------|
| | | | | | | | | | | COMxSegment = # Segments | Drive in Sleep | Software Configurable Driver Pins | Direct Drive | Intl. Charge Pump | | |
| LCD Solutions (continued) | | | | | | | | | | | | | | | | |
| NEW | PIC18F64J90* | 16,384 StdFl (8,192) | — | 1024 | 49 | 64PT | ADC/Comp | EUSART, AUSART, MI ² C/SPI | 40 | 3 | 4x32 (128) | Yes | Yes | Yes | Yes | |
| NEW | PIC18F65J90* | 32,768 StdFl (16,384) | — | 2048 | 49 | 64PT | ADC/Comp | EUSART, AUSART, MI ² C/SPI | 40 | 3 | 4x32 (128) | Yes | Yes | Yes | Yes | |
| | PIC18F8390 | 8,192 StdFl (4,096) | — | 768 | 66 | 80PT | ADC/Comp | EUSART, AUSART, MI ² C/SPI | 40 | 3 | 4x48 (192) | Yes | Yes | Yes | No | DM163028 PICDEM™ LCD |
| NEW | PIC18F83J90* | 8,192 StdFl (4096) | — | 1024 | 65 | 80PT | ADC/Comp | EUSART, AUSART, MI ² C/SPI | 40 | 3 | 4x48 (192) | Yes | Yes | Yes | Yes | |
| | PIC18F8490 | 16,384 StdFl (8,192) | — | 768 | 66 | 80PT | ADC/Comp | EUSART, AUSART, MI ² C/SPI | 40 | 3 | 4x48 (128) | Yes | Yes | Yes | No | DM163028 PICDEM™ LCD |
| NEW | PIC18F84J90* | 16,384 StdFl (8,192) | — | 1024 | 65 | 80PT | ADC/Comp | EUSART, AUSART, MI ² C/SPI | 40 | 3 | 4x48 (192) | Yes | Yes | Yes | Yes | |
| NEW | PIC18F85J90* | 32,768 StdFl (16,384) | — | 2048 | 65 | 80PT | ADC/Comp | EUSART, AUSART, MI ² C/SPI | 40 | 3 | 4x48 (192) | Yes | Yes | Yes | Yes | |

*Contact Microchip Technology Inc. for availability.
Refer to LCD Design Center on www.microchip.com/lcd for further details.
Abbreviations are found on the last page of the Selector Guide.

Display Solutions

| Part # | Display Type | Supply Voltage (V) | Resolution (Digits) | Resolution (Counts) | Power (mW) | Temp. Range (°C) | Features | Packages |
|---------|--------------|--------------------|---------------------|---------------------|------------|------------------|--|--|
| TC820 | LCD | 9 | 3¾ | ±4,000 | 10 | 0 to +70 | DMM plus frequency counter and logic probe | 40-Pin PDIP, 44-Pin PLCC, 44-Pin MQFP |
| TC7106 | LCD | 9 | 3½ | ±2,000 | 10 | -25 to +85 | For DMM, DPM, Data logger applications | 40-Pin PDIP, 44-Pin PLCC, 44-Pin MQFP, 40-Pin CerDIP |
| TC7106A | LCD | 9 | 3½ | ±2,000 | 10 | -25 to +85 | For DMM, DPM, Data logger applications | 40-Pin PDIP, 44-Pin PLCC, 44-Pin MQFP, 40-Pin CerDIP |
| TC7116 | LCD | 9 | 3½ | ±2,000 | 10 | -25 to +85 | Hold function | 40-Pin PDIP, 44-Pin PLCC, 44-Pin MQFP, 40-Pin CerDIP |
| TC7116A | LCD | 9 | 3½ | ±2,000 | 10 | -25 to +85 | Hold function | 40-Pin PDIP, 44-Pin PLCC, 44-Pin MQFP, 40-Pin CerDIP |
| TC7126 | LCD | 9 | 3½ | ±2,000 | 0.5 | -25 to +85 | Low-power TC7106 | 40-Pin PDIP, 44-Pin PLCC, 44-Pin MQFP, 40-Pin CerDIP |
| TC7126A | LCD | 9 | 3½ | ±2,000 | 0.5 | -25 to +85 | Low-power TC7106 | 40-Pin PDIP, 44-Pin PLCC, 44-Pin MQFP, 40-Pin CerDIP |
| TC7129 | LCD | 9 | 4½ | ±20,000 | 4.5 | 0 to +70 | Lowest noise ±3 mV sensitivity | 40-Pin PDIP, 44-Pin PLCC, 44-Pin MQFP |

| Product | Program Memory Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog Peripherals | Digital Peripherals | Max. Speed MHz | ICD # of Breakpoints | Function-Specific Features | | | | | Development Boards |
|--------------------------------|-------------------------------------|--------------------------|-----------|----------|------------------------|--------------------|------------------------------------|----------------|----------------------|----------------------------|---------------|---------------------|-------------------|--------------------|--|
| | | | | | | | | | | Timers | Input Capture | Output Comp/Std PWM | Motor Control PWM | Quadrature Encoder | |
| Motor Control Solutions | | | | | | | | | | | | | | | |
| PIC12F683 | 3,584 StdFI (2,048) | 256 | 128 | 6 | 8P, 8SN, 8MF | ADC/Comp | — | 20 | 1 | 1-16 bit, 2-8 bit, WDT | 1 | 1x10 bit | — | — | PICkit™ 1 |
| PIC16F684 | 3,584 EnhFI (2,048) | 256 | 128 | 12 | 14P, 14SL, 14ST | ADC/Comp | — | 20 | 1 | 1-16 bit, 2-8 bit, WDT | 1 | 4x10 bit | — | — | PICkit™ 1 |
| PIC16F716 | 3,584 StdFI (2,048) | — | 128 | 13 | 18P, 18SO, 20SS | ADC | — | 20 | 1 | 1-16 bit, 2-8 bit, WDT | 1 | 4x10 bit | — | — | DM163022 PICDEM™ 2 Plus |
| PIC16F737 | 7,168 StdFI (4,096) | — | 368 | 25 | 28SP, 28SO, 28SS, 28ML | ADC/Comp | USART, I ² C/SPI | 20 | 1 | 1-16 bit, 2-8 bit, WDT | 3 | 3x10 bit | — | — | DM163022 PICDEM™ 2 Plus |
| PIC16F747 | 7,168 StdFI (4,096) | — | 368 | 36 | 40P, 44PT, 44ML | ADC/Comp | USART, I ² C/SPI | 20 | 1 | 1-16 bit, 2-8 bit, WDT | 3 | 3x10 bit | — | — | DM163022 PICDEM™ 2 Plus |
| PIC16F767 | 14,336 StdFI (8,192) | — | 368 | 25 | 28SP, 28SO, 28SS, 28ML | ADC/Comp | USART, I ² C/SPI | 20 | 1 | 1-16 bit, 2-8 bit, WDT | 3 | 3x10 bit | — | — | DM163022 PICDEM™ 2 Plus |
| PIC16F777 | 14,336 StdFI (8,192) | — | 368 | 36 | 40P, 44PT, 44ML | ADC/Comp | USART, I ² C/SPI | 20 | 1 | 1-16 bit, 2-8 bit, WDT | 3 | 3x10 bit | — | — | DM163022 PICDEM™ 2 Plus |
| PIC18F1230* | 4,096 EnhFI (2,048) | 128 | 256 | 16 | 18P, 18SO, 20SS, 28ML | ADC/Comp | EUSART | 40 | 3 | 2-16 bit, 1-WDT | — | — | 6 | — | |
| PIC18F1330* | 8,192 EnhFI (4,096) | 128 | 256 | 16 | 18P, 18SO, 20SS, 28ML | ADC/Comp | EUSART | 40 | 3 | 2-16 bit, 1-WDT | — | — | 6 | — | |
| PIC18F2331 | 8,192 EnhFI (4,096) | 256 | 768 | 22 | 28SP, 28SO, 28MM | 200 ksps ADC | EUSART, I ² C/SPI | 40 | 1 | 3-16 bit, 1-8 bit, WDT | 3 | 2x10 bit | 6 | Yes | DM183011 PICDEM™ MC, DM183021 PICDEM™ MC LV, PIC18F4431 Plug-in Module |
| PIC18F2431 | 16,384 EnhFI (8,192) | 256 | 768 | 22 | 28SP, 28SO, 28MM | 200 ksps ADC | EUSART, I ² C/SPI | 40 | 1 | 3-16 bit, 1-8 bit, WDT | 3 | 2x10 bit | 6 | Yes | DM183011 PICDEM™ MC, DM183021 PICDEM™ MC LV, PIC18F4431 Plug-in Module |
| PIC18F4331 | 8,192 EnhFI (4,096) | 256 | 768 | 34 | 40P, 44PT, 44ML | 200 ksps ADC | EUSART, I ² C/SPI | 40 | 1 | 3-16 bit, 1-8 bit, WDT | 3 | 2x10 bit | 8 | Yes | DM183011 PICDEM™ MC, DM183021 PICDEM™ MC LV, PIC18F4431 Plug-in Module |
| PIC18F4431 | 16,384 EnhFI (8,192) | 256 | 768 | 34 | 40P, 44PT, 44ML | 200 ksps ADC | EUSART, I ² C/SPI | 40 | 1 | 3-16 bit, 1-8 bit, WDT | 3 | 2x10 bit | 8 | Yes | DM183011 PICDEM™ MC, DM183021 PICDEM™ MC LV, PIC18F4431 Plug-in Module |
| dsPIC30F2010 | 12,288 EnhFI (4,096) | 1024 | 512 | 20 | 28SO, 28SP, 28MM (6x6) | 1 msps ADC | UART, I ² C/SPI | 120 | 1 | 3-16 bit, WDT | 4 | 2 | 6 | Yes | DM300020*** |
| dsPIC30F3010 | 24,576 EnhFI (8,102) | 1024 | 1024 | 20 | 28SO, 28SP, 44ML (8x8) | 1 msps ADC | UART, I ² C/SPI | 120 | 2 | 5-16 bit, WDT | 4 | 2 | 6 | Yes | DM300020*** |
| dsPIC30F3011 | 24,576 EnhFI (8,102) | 1024 | 1024 | 30 | 40P, 44PT, 44ML (8x8) | 1 msps ADC | 2xUART, I ² C/SPI | 120 | 2 | 5-16 bit, WDT | 4 | 4 | 6 | Yes | DM300020*** |
| dsPIC30F4011 | 49,152 EnhFI (16,384) | 1024 | 2048 | 30 | 40P, 44PT, 44ML (8x8) | 1 msps ADC | 2xUART, I ² C/SPI, CAN | 120 | 1 | 5-16 bit, WDT | 4 | 4 | 6 | Yes | DM300020*** |
| dsPIC30F4012 | 49,152 EnhFI (16,384) | 1024 | 2048 | 20 | 28SO, 28SP, 44ML (8x8) | 1 msps ADC | UART, I ² C/SPI, CAN | 120 | 1 | 5-16 bit, WDT | 4 | 2 | 6 | Yes | DM300020*** |
| NEW dsPIC30F5015 | 65,536 EnhFI (21,845) | 1024 | 2048 | 52 | 64PT | 1 msps ADC | CAN, I ² C, UART, 2xSPI | 120 | 2 | 5-16 bit, WDT | 4 | 4 | 8 | Yes | DM300020*** |

*Contact Microchip Technology Inc. for availability.

***Refer to dsPIC® DSC Brochure for further details.

Refer to Motor Control Design Center on www.microchip.com/motor for further details.

Abbreviations are found on the last page of the Selector Guide.

| Product | Program Memory Bytes & Type (Words) | EEPROM Data Memory Bytes | RAM Bytes | I/O Pins | Packages | Analog Peripherals | Digital Peripherals | Max. Speed MHz | ICD # of Breakpoints | Function-Specific Features | | | | | Development Boards |
|--|-------------------------------------|--------------------------|-----------|----------|------------|--------------------|--|----------------|----------------------|----------------------------|---------------|---------------------|-------------------|--------------------|--------------------|
| | | | | | | | | | | Timers | Input Capture | Output Comp/Std PWM | Motor Control PWM | Quadrature Encoder | |
| Motor Control Solutions (continued) | | | | | | | | | | | | | | | |
| NEW dsPIC30F5016 | 65,536 EnhFI (21,845) | 1024 | 2048 | 68 | 80PT | 1 mspcs ADC | CAN, I ² C, UART, 2xSPI | 120 | 2 | 5-16 bit WDT | 4 | 4 | 8 | Yes | DM300020*** |
| dsPIC30F6010 | 147,456 EnhFI (49,152) | 4096 | 8192 | 68 | 80PF | 1 mspcs ADC | 2xCAN, 2xSPI, I ² C, 2xUART | 120 | 2 | 5-16 bit, WDT | 8 | 8 | 8 | Yes | DM300020*** |
| NEW dsPIC30F6010A | 144KB EnhFI (48KW) | 4096 | 8192 | 68 | 80PF, 80PT | 1 mspcs ADC | 2xCAN, 2xSPI, I ² C, 2xUART | 120 | 2 | 5-16 bit, WDT | 8 | 8 | 8 | Yes | DM300020*** |
| NEW dsPIC30F6015 | 144KB EnhFI (48KW) | 4096 | 8192 | 52 | 64PT | 1 mspcs ADC | 2xCAN, 2xSPI, I ² C, 2xUART | 120 | 2 | 5 16-bit, WDT | 8 | 8 | 8 | Yes | DM300020*** |

*Contact Microchip Technology Inc. for availability.

***Refer to dsPIC[®] DSC Brochure for further details.

Refer to Motor Control Design Center on www.microchip.com/motor for further details.

Abbreviations are found on the last page of the Selector Guide.

Motor Control Solutions - MOSFET Drivers

| Part # | Configuration | Operating Temperature Range (°C) | Peak Output Current (A) | Output Resistance (R _H /R _L) (Max. Ω @ 25°C) | Max. Supply Voltage (V) | Input/Output Delay (td1, td2) ⁽¹⁾ (ns) | Packages |
|--------|-----------------------------------|----------------------------------|-------------------------|---|-------------------------|---|--|
| TC1410 | Single, Inverting | -40 to +85 | 0.5 | 22/22 | 16 | 30/30 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| TC1411 | Single, Inverting | -40 to +85 | 1 | 11/11 | 16 | 30/30 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| TC1412 | Single, Inverting | -40 to +85 | 2 | 6/6 | 16 | 35/35 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| TC1413 | Single, Inverting | -40 to +85 | 3 | 4/4 | 16 | 35/35 | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| TC4421 | Single, Inverting | -40 to +125 | 9 | 1.4 (typ)/1.7 | 18 | 30/33 | 8-Pin PDIP, 5-Pin TO-220, 8-Pin DFN |
| TC4422 | Single, Non-inverting | -40 to +125 | 9 | 1.4 (typ)/1.7 | 18 | 30/33 | 8-Pin PDIP, 5-Pin TO-220, 8-Pin DFN |
| TC4423 | Dual, Inverting | -40 to +125 | 3 | 5/5 | 18 | 33/38 | 8-Pin PDIP, 16-Pin SOIC (W), 8-Pin DFN |
| TC4425 | Dual, Inverting and Non-inverting | -40 to +125 | 3 | 5/5 | 18 | 33/38 | 8-Pin PDIP, 16-Pin SOIC (W), 8-Pin DFN |

NOTE 1: *td1 = delay time from input low-to-high transition to output transition. td2 = delay time from input high-to-low transition to output transition.

Motor Control Solutions - LINEAR – Comparators

| Part # | # per Package | V _{REF} (V) | Typical Propagation Delay (μs) | I _Q Typical (μA) | V _{OS} Max (mV) | Operating Voltage (V) | Temp. Range (°C) | Features | Packages |
|--------|---------------|----------------------|--------------------------------|-----------------------------|--------------------------|-----------------------|------------------|--|---------------------------------------|
| TC1027 | 4 | 1.2 | 4 | 18 | 5 | 1.8 to 5.5 | -40 to +85 | On-board V _{REF} , Rail-to-Rail Input/Output | 16-Pin PDIP, 16-Pin QSOP, 16-Pin SOIC |
| TC1037 | 1 | — | 4 | 4 | 5 | 1.8 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output | 5-Pin SOT-23A ^(S) |
| TC1038 | 1 | — | 4 | 4 | 5 | 1.8 to 5.5 | -40 to +85 | Shutdown pin, Rail-to-Rail Input/Output | 6-Pin SOT-23A ^(S) |
| TC1039 | 1 | 1.2 | 4 | 6 | 5 | 1.8 to 5.5 | -40 to +85 | On-board V _{REF} , Rail-to-Rail Input/Output | 6-Pin SOT-23A ^(S) |
| TC1041 | 2 | 1.2 | 4 | 10 | 5 | 1.8 to 5.5 | -40 to +85 | On-board V _{REF} , Programmable hysteresis, Rail-to-Rail Input/Output | 8-Pin MSOP, 8-Pin SOIC |

Motor Control Solutions - LINEAR – Comparators (continued)

| Part # | # per Package | VREF (V) | Typical Propagation Delay (μs) | Iq Typical (μA) | Vos Max (mV) | Operating Voltage (V) | Temp. Range (°C) | Features | Packages |
|---------|---------------|----------|--------------------------------|-----------------|--------------|-----------------------|------------------|--|---|
| MCP6541 | 1 | — | 4 | 1 | 5 | 1.6 to 5.5 | -40 to +85 | Push-Pull, Rail-to-Rail Input/Output | 5-Pin SOT-23 ^(S,R) , 5-Pin SC-70 ^(S) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6542 | 2 | — | 4 | 1 | 5 | 1.6 to 5.5 | -40 to +85 | Push-Pull, Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6543 | 1 | — | 4 | 1 | 5 | 1.6 to 5.5 | -40 to +85 | Push-Pull, Rail-to-Rail Input/Output, Chip Select | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6544 | 4 | — | 4 | 1 | 5 | 1.6 to 5.5 | -40 to +85 | Push-Pull, Rail-to-Rail Input/Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP6546 | 1 | — | 4 | 1 | 5 | 1.6 to 5.5 | -40 to +85 | Open-drain, 9V, Rail-to-Rail Input/Output | 5-Pin SOT-23 ^(S,R) , 5-Pin SC-70 ^(S) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6547 | 2 | — | 4 | 1 | 5 | 1.6 to 5.5 | -40 to +85 | Open-drain, 9V, Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6548 | 1 | — | 4 | 1 | 5 | 1.6 to 5.5 | -40 to +85 | Open-drain, 9V, Rail-to-Rail Input/Output, Chip Select | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6549 | 4 | — | 4 | 1 | 5 | 1.6 to 5.5 | -40 to +85 | Open-drain, 9V, Rail-to-Rail Input/Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |

Legend: S = Standard Pinout; R = Reverse Pinout

| Part # | # per Package | GBWP | Iq Typical (μA) | Vos Max (mV) | Input Voltage Noise Density (nV/rtHz) | Operating Voltage (V) | Temp. Range (°C) | Features | Packages |
|---|---------------|---------|-----------------|--------------|---------------------------------------|-----------------------|------------------|---|---|
| Motor Control Solutions - LINEAR – Op Amps | | | | | | | | | |
| TC1034 | 1 | 90 kHz | 6 | 1.5 | 125 ⁽¹⁾ | 1.8 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output | 5-Pin SOT-23A ^(R) |
| TC1035 | 1 | 90 kHz | 6 | 1.5 | 125 ⁽¹⁾ | 1.8 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output, Shutdown pin | 6-Pin SOT-23A ^(R) |
| TC1029 | 2 | 90 kHz | 12 | 1.5 | 125 ⁽¹⁾ | 1.8 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin MSOP, 8-Pin SOIC |
| TC1030 | 4 | 90 kHz | 5 | 1.5 | 125 ⁽¹⁾ | 1.8 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output, Shutdown pins | 16-Pin QSOP |
| MCP6041 | 1 | 14 kHz | 0.6 | 3 | 170 ⁽¹⁾ | 1.4 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP, 5-Pin SOT-23 ^(S) |
| MCP6042 | 2 | 14 kHz | 0.6 | 3 | 170 ⁽¹⁾ | 1.4 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6043 | 1 | 14 kHz | 0.6 | 3 | 170 ⁽¹⁾ | 1.4 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output, Chip Select | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6044 | 4 | 14 kHz | 0.6 | 3 | 170 ⁽¹⁾ | 1.4 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP6141 | 1 | 100 kHz | 0.6 | 3 | 170 ⁽¹⁾ | 1.4 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output, G>10 stable | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6142 | 2 | 100 kHz | 0.6 | 3 | 170 ⁽¹⁾ | 1.4 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output, G>10 stable | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6143 | 1 | 100 kHz | 0.6 | 3 | 170 ⁽¹⁾ | 1.4 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output, G>10 stable, Chip Select | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6144 | 4 | 100 kHz | 0.6 | 3 | 170 ⁽¹⁾ | 1.4 to 5.5 | -40 to +85 | Rail-to-Rail Input/Output, G>10 stable | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP606 | 1 | 155 kHz | 19 | 0.25 | 38 ⁽¹⁾ | 2.5 to 5.5 | -40 to +85 | Rail-to-Rail Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP, 5-Pin SOT23 ^(S) |

Legend: S = Standard Pinout; R = Reverse Pinout; U = Alternative Pinout

NOTE 1: Values are typical at 1 kHz
 2: Values are typical at 10 kHz

| Part # | # per Package | GBWP | I _q Typical (μA) | V _{os} Max (mV) | Input Voltage Noise Density (nV/rtHz) | Operating Voltage (V) | Temp. Range (°C) | Features | Packages |
|---|---------------|---------|-----------------------------|--------------------------|---------------------------------------|-----------------------|------------------|--|---|
| Motor Control Solutions - LINEAR – Op Amps (continued) | | | | | | | | | |
| MCP607 | 2 | 155 kHz | 19 | 0.25 | 38 ⁽¹⁾ | 2.5 to 5.5 | -40 to +85 | Rail-to-Rail Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |
| MCP608 | 1 | 155 kHz | 19 | 0.25 | 38 ⁽¹⁾ | 2.5 to 5.5 | -40 to +85 | Rail-to-Rail Output, Chip Select | 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |
| MCP609 | 4 | 155 kHz | 19 | 0.25 | 38 ⁽¹⁾ | 2.5 to 5.5 | -40 to +85 | Rail-to-Rail Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP616 | 1 | 190 kHz | 19 | 0.15 | 32 ⁽¹⁾ | 2.3 to 5.5 | -40 to +85 | Rail-to-Rail Output, PNP Input | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP617 | 2 | 190 kHz | 19 | 0.15 | 32 ⁽¹⁾ | 2.3 to 5.5 | -40 to +85 | Rail-to-Rail Output, PNP | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP618 | 1 | 190 kHz | 19 | 0.15 | 32 ⁽¹⁾ | 2.3 to 5.5 | -40 to +85 | Rail-to-Rail Output, Chip Select, PNP Input | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP619 | 4 | 190 kHz | 19 | 0.15 | 32 ⁽¹⁾ | 2.3 to 5.5 | -40 to +85 | Rail-to-Rail Output, PNP Input | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP6231 | 1 | 300 kHz | 20 | 5 | 52 ⁽¹⁾ | 1.8 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 5-Pin SC-70 ^(U) , 5-Pin SOT-23 ^(S,R,U) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6232 | 2 | 300 kHz | 20 | 5 | 52 ⁽¹⁾ | 1.8 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6234 | 4 | 300 kHz | 20 | 5 | 52 ⁽¹⁾ | 1.8 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP6241 | 1 | 550 kHz | 50 | 5 | 45 ⁽¹⁾ | 1.8 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 5-Pin SC-70 ^(U) , 5-Pin SOT-23 ^(S,R,U) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6242 | 2 | 550 kHz | 50 | 5 | 45 ⁽¹⁾ | 1.8 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6244 | 4 | 550 kHz | 50 | 5 | 45 ⁽¹⁾ | 1.8 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP6001 | 1 | 1 MHz | 140 | 4.5 | 28 ⁽¹⁾ | 1.8 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 5-Pin SOT-23 ^(U) , 5-Pin SC-70 ^(S,R,U) |
| MCP6002 | 2 | 1 MHz | 140 | 4.5 | 28 ⁽¹⁾ | 1.8 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6004 | 4 | 1 MHz | 140 | 4.5 | 28 ⁽¹⁾ | 1.8 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP6271 | 1 | 2 MHz | 170 | 3 | 20 ⁽¹⁾ | 2.0 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 5-Pin SOT-23 ^(S,R) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6272 | 2 | 2 MHz | 170 | 3 | 20 ⁽¹⁾ | 2.0 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6273 | 1 | 2 MHz | 170 | 3 | 20 ⁽¹⁾ | 2.0 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output, Chip Select | 5-Pin SOT-23 ^(S) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6274 | 4 | 2 MHz | 170 | 3 | 20 ⁽¹⁾ | 2.0 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP6275 | 2 | 2 MHz | 150 | 3 | 20 ⁽¹⁾ | 2.0 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output, Dual connected, Chip Select | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP601 | 1 | 2.8 MHz | 230 | 2 | 29 ⁽¹⁾ | 2.7 to 5.5 | -40 to +125 | Rail-to-Rail Output | 5-Pin SOT-23 ^(S,R) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |
| MCP602 | 2 | 2.8 MHz | 230 | 2 | 29 ⁽¹⁾ | 2.7 to 5.5 | -40 to +125 | Rail-to-Rail Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |
| MCP603 | 1 | 2.8 MHz | 230 | 2 | 29 ⁽¹⁾ | 2.7 to 5.5 | -40 to +125 | Rail-to-Rail Output, Chip Select | 6-Pin SOT-23 ^(S) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |
| MCP604 | 4 | 2.8 MHz | 230 | 2 | 29 ⁽¹⁾ | 2.7 to 5.5 | -40 to +125 | Rail-to-Rail Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |

Legend: S = Standard Pinout; R = Reverse Pinout; U = Alternative Pinout

NOTE 1: Values are typical at 1 kHz

NOTE 2: Values are typical at 10 kHz

| Part # | # per Package | GBWP | I _Q Typical (μA) | V _{OS} Max (mV) | Input Voltage Noise Density (nV/rtHz) | Operating Voltage (V) | Temp. Range (°C) | Features | Packages |
|---|---------------|--------|-----------------------------|--------------------------|---------------------------------------|-----------------------|------------------|---|--|
| Motor Control Solutions - LINEAR – Op Amps (continued) | | | | | | | | | |
| MCP6281 | 1 | 5 MHz | 445 | 3 | 16 ⁽¹⁾ | 2.2 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 5-Pin SOT-23 ^(S,R) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6282 | 2 | 5 MHz | 445 | 3 | 16 ⁽¹⁾ | 2.2 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6283 | 1 | 5 MHz | 445 | 3 | 16 ⁽¹⁾ | 2.2 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output, Chip Select | 6-Pin SOT-23 ^(S,R) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6284 | 4 | 5 MHz | 445 | 3 | 16 ⁽¹⁾ | 2.2 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP6285 | 2 | 5 MHz | 400 | 3 | 16 ⁽¹⁾ | 2.2 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output, Dual connected, Chip Select | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6291 | 1 | 10 MHz | 1000 | 3 | 8.7 ⁽²⁾ | 2.4 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 5-Pin SOT-23 ^(S,R) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6292 | 2 | 10 MHz | 1000 | 3 | 8.7 ⁽²⁾ | 2.4 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6293 | 1 | 10 MHz | 1000 | 3 | 8.7 ⁽²⁾ | 2.4 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output, Chip Select | 6-Pin SOT-23 ^(S) , 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6294 | 4 | 10 MHz | 1000 | 3 | 8.7 ⁽²⁾ | 2.4 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |
| MCP6295 | 2 | 10 MHz | 1100 | 3 | 8.7 ⁽²⁾ | 2.4 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output, Dual connected, Chip Select | 8-Pin PDIP, 8-Pin SOIC, 8-Pin MSOP |
| MCP6021 | 1 | 10 MHz | 1000 | 0.5 | 8.7 ⁽²⁾ | 2.5 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output, 1/2 V _{CC} V _{REF} | 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |
| MCP6022 | 2 | 10 MHz | 1000 | 0.5 | 8.7 ⁽²⁾ | 2.5 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |
| MCP6023 | 1 | 10 MHz | 1000 | 0.5 | 8.7 ⁽²⁾ | 2.5 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output, Chip Select | 8-Pin PDIP, 8-Pin SOIC, 8-Pin TSSOP |
| MCP6024 | 4 | 10 MHz | 1000 | 0.5 | 8.7 ⁽²⁾ | 2.5 to 5.5 | -40 to +125 | Rail-to-Rail Input/Output | 14-Pin PDIP, 14-Pin SOIC, 14-Pin TSSOP |

Legend: S = Standard Pinout; R = Reverse Pinout; U = Alternative Pinout

NOTE 1: Values are typical at 1 kHz
 2: Values are typical at 10 kHz

| Part # | # per Package | GBWP | I _Q MAX (mA) | Typical V _{OS} (μV) | V _{OS} Drift Max (μV/°C) | Operating Voltage (V) | Temp. Range (°C) | Features | Packages |
|---|---------------|---------|-------------------------|------------------------------|-----------------------------------|-----------------------|------------------|-------------------------|------------------------|
| Motor Control Solutions - LINEAR – High Precision Operational Amplifiers | | | | | | | | | |
| TC913A/B | 2 | 1.5 MHz | 1.1 | 15 | 0.15/0.30 | 6.5 to 16 | 0 to 70 | Single and Split Supply | 8-Pin PDIP, 8-Pin SOIC |

| Product | Program Memory Bytes & Type (Words) | EEPROM Data Memory Bytes | SRAM Bytes | I/O Pins (max.) | Packages | A/D 12-bit 100 ksps (ch) | A/D 10-bit 500 ksps | Timer 16-bit | Input Cap | Output Comp/Std PWM | Motor Control PWM | Quad. Encoder | UART | SPI™ | I ² C™ |
|------------------------------------|-------------------------------------|--------------------------|------------|-----------------|------------------------|--------------------------|---------------------|--------------|-----------|---------------------|-------------------|---------------|------|------|-------------------|
| High-Speed Sensor Solutions | | | | | | | | | | | | | | | |
| dsPIC30F2011 | 12,288 EnhFI (4,096) | — | 1024 | 12 | 18SO, 18P, 28ML (6x6) | 8 | — | 3 | 2 | 2 | — | — | 1 | 1 | 1 |
| dsPIC30F3012 | 24,576 EnhFI (8,192) | 1024 | 2048 | 12 | 18SO, 18P, 44ML (8x8) | 8 | — | 3 | 2 | 2 | — | — | 1 | 1 | 1 |
| dsPIC30F2012 | 12,288 EnhFI (4,096) | — | 1024 | 20 | 28SO, 28SP, 28ML (6x6) | 10 | — | 3 | 2 | 2 | — | — | 1 | 1 | 1 |
| dsPIC30F3013 | 24,576 EnhFI (8,192) | 1024 | 2048 | 20 | 28SO, 28SP, 28ML (6x6) | 10 | — | 3 | 2 | 2 | — | — | 2 | 1 | 1 |

Abbreviations are found on the last page of the Selector Guide.

| Power-Managed Solutions Featuring nanoWatt Technology | | | |
|--|---|-------------------------------------|--------------------------|
| Minimum nanoWatt Feature Set (VDD = 2.0-5.5V) | 6-20 Pin | 28-44 Pin | 64-100 Pin |
| Internal Oscillator | PIC16F627A, PIC16F628A, PIC16F648A | | |
| Quick Start-up (4 MHz) | | | |
| Power-Managed Modes | | | |
| Sleep | | | |
| Low-Power Timer1 | | | |
| Low-Power Watchdog | | | |
| Additional Features to Minimum | 6-20 Pin | 28-44 Pin | 64-80 Pin |
| IntOSC: Quick Start-up (Two-Speed) and Clock Divide (8 MHz) BOR | PIC16F818, PIC16F819 | | |
| IntOSC: Quick Start-up (Two-Speed), Fail-Safe Clock Monitor and Clock Divide (8 MHz) Ultra Low-Power Wake-up | PIC12F683 PIC16F684, PIC16F688 | | |
| IntOSC: Quick Start-up (Two-Speed), Fail-Safe Clock Monitor and Clock Divide (8 MHz) Ultra Low-Power Wake-up Low-Power Watchdog – Enhanced Software Controlled BOR | PIC16F631, PIC16F677, PIC16F685, PIC16F687, PIC16F689, PIC16F785, PIC16F690, PIC16F88X, PIC16F946 | | |
| IntOSC: Quick Start-up (Two-Speed), Fail-Safe Clock Monitor and Clock Divide (8 MHz) Ultra Low-Power Wake-up Wake-up Reset Low-Power Watchdog – Enhanced PLVD Software Controlled BOR | PIC12F635 PIC16F636, PIC16F639 | | |
| IntOSC: Quick Start-up (Two-Speed), Fail-Safe Clock Monitor and Selectable Clock (31 kHz-8 MHz) Power-Managed Modes: RC Run Modes PLVD PBOR | PIC16F87, PIC16F88 | PIC16F7X7, PIC16F91X | PIC16F946 |
| Additional Features to Minimum | 6-20 Pin | 28-44 Pin | 64-80 Pin |
| IntOSC: Quick Start-up (Two-Speed), Fail-safe Clock Monitor and Selectable Clock (31 kHz) Power-Managed Modes: Multiple Idle Modes and RC Run Modes BOR | | PIC18F2XJXX, PIC18F4XJXX | PIC18F6XJXX, PIC18F8XJXX |
| IntOSC: Quick Start-up (Two-Speed), Fail-Safe Clock Monitor and Selectable Clock (31 kHz-8 MHz) Power-Managed Modes: Multiple Idle Modes and RC Run Modes PBOR | | | PIC24FJ |
| IntOSC: Quick Start-up (Two-Speed), Fail-Safe Clock Monitor and Selectable Clock (31 kHz-8 MHz) Power-Managed Modes: Multiple Idle Modes and RC Run Modes PLVD PBOR | PIC18F1X20, PIC18F1X30 | PIC18F2XXX, PIC18F4XXX, PIC18FXXK20 | PIC18F6XXX, PIC18F8XXX |

For additional details, please refer to device data sheets and design pages on www.microchip.com.

CURRENT SECURE DATA PRODUCTS

| KEELOQ® Encoder Devices | | | | | | | | | | | |
|-------------------------|-------------------------------|-------------------|----------------------------------|-------------|-----------------------|--------------|----------------|-----|------------------------------|--|--------------|
| Product | Transmission Code Length Bits | Code Hopping Bits | Programmable Encryption Key Bits | Seed Length | Operating Voltage (V) | Turnable OSC | Function Codes | CRC | Protocols | Other Features | Packages |
| HCS101 | 66 | — | — | — | 3.5 to 13.0 | ✓ | 7 | No | PWM | Fixed code support for non-secure applications, up to 28-bit serial numbers | 8P, 8SN |
| HCS200 | 66 | 32 | 64 | 32 | 3.5 to 13.0 | No | 7 | No | PWM | Entry level, Fixed code support, Battery-low indicator | 8P, 8SN |
| HCS201 | 66 | 32 | 64 | 32 | 3.5 to 13.0 | ✓ | 7 | No | PWM | Entry level, Fixed code support, Battery-low indicator, Step-up voltage operation | 8P, 8SN |
| HCS300 | 66 | 32 | 64 | 32 | 2.0 to 6.3 | No | 15 | No | PWM | LED Drive, Overflow bits, Time-out, Battery-low indicator | 8P, 8SN |
| HCS301 | 66 | 32 | 64 | 32 | 3.5 to 13.0 | No | 15 | No | PWM | LED Drive, Overflow bits, Time-out, Battery-low indicator | 8P, 8SN |
| HCS320 | 66 | 32 | 64 | 32 | 3.5 to 13.0 | No | 16 | No | PWM | Shift Operation, LED Drive, Overflow bits, Time-out, Battery-low indicator | 8P, 8SN |
| HCS360 | 67 | 32 | 64 | 48 | 2.0 to 6.3 | No | 15 | ✓ | IR Mode, PWM and Manchester | 2 independent counters | 8P, 8SN |
| HCS361 | 67 | 32 | 64 | 48 | 2.0 to 6.3 | No | 15 | ✓ | IR Mode, PWM and VPWM | 2 independent counters | 8P, 8SN |
| HCS362 | 69 | 32 | 2 x 64 | 60 | 2.0 to 6.3 | ✓ | 15 | ✓ | PWM and Manchester | Queue counter, PLL interface, Timer bits, Programmable time-out | 8P, 8SN, 8ST |
| HCS365 | 69 | 32 | 2 x 64 | 2 x 60 | 2.05 to 5.5 | Factory | 15 | ✓ | PWM, VPWM PPM and Manchester | Dual Encoder Operation, 4 inputs, Queue counter | 8P, 8SM |
| HCS370 | 69 | 32 | 2 x 64 | 2 x 60 | 2.05 to 5.5 | Factory | 15 | ✓ | PWM, VPWM PPM and Manchester | Step-up voltage regulation, Dual Encoder Operation, 6 inputs, Queue counter | 14P, 14SL |
| HCS410 | 69 | 32 | 2 x 64 | 60 | 2.0 to 6.6 | ✓ | 7 | ✓ | PWM and Manchester | Self-powered transponder and encoder, Bidirectional authentication, User EEPROM, Queue counter | 8P, 8SN, 8ST |

| KEELOQ® Decoder Devices | | | | | | | |
|-------------------------|-----------------------|--|------------------------|-----------------------|---|--|-----------|
| Product | Reception Length Bits | Encoders Supported** | Transmitters Supported | Operating Voltage (V) | Functions | Other Features | Packages |
| HCS500 | 66 | HCS200, HCS201, HCS300, HCS301, HCS320, HCS360, HCS361, HCS362, HCS365, HCS370, HCS410, HCS412, HCS473 | Up to 7 | 3.0 to 5.5 | S0, 15 Serial Functions | Full-featured decoder with serial interface to microcontrollers | 8P, 8SM |
| HCS512 | 66 | HCS200, HCS201, HCS300, HCS301, HCS320, HCS360, HCS361, HCS362, HCS365, HCS370, HCS410, HCS412, HCS473 | Up to 4 | 4.0 to 6.0 | S0, S1, S2, S3; VLow, 15 Serial Functions | Single chip decoder with secure learning | 18P, 18SO |
| HCS515 | 66 | HCS200, HCS201, HCS300, HCS301, HCS320, HCS360, HCS361, HCS362, HCS365, HCS370, HCS410, HCS412, HCS473 | Up to 7 | 4.5 to 5.5 | S0, S1, 15 Serial Functions | Full-featured decoder with serial and parallel interface. On-chip 1K transmitter and 1K user EEPROM. | 14P, 14SL |

| KEELOQ® Programmable Encoder/Decoder Flash Devices (x14), ICSP™ | | | | | | | | | | | | | | | |
|---|-------------------------------------|----------------------------|-----------|----------|--------------|-------------|--------------------------|------------|----------------|--------|---------------|----------------------|----|------------------------------|-----------------|
| Product | Program Memory Bytes & Type (Words) | EEPROM Data Memory (Bytes) | RAM Bytes | I/O Pins | Analog | | Digital | | Max. Speed MHz | IntOSC | BOR/PBOR/PLVD | ICD # of Breakpoints | nW | Other Features | Packages |
| | | | | | ADC Channels | Comparators | Timers/WDT | Serial I/O | | | | | | | |
| PIC12F635 | 1,792 StdFI (1,024) | 128 | 64 | 6 | — | 1 | 1-16 bit, 1-8 bit, 1-WDT | — | 20 | 8 MHz | BOR/PLVD | 1** | ✓ | | 8P, 8SN, 8MF |
| PIC16F636 | 3,584 StdFI (2,048) | 256 | 128 | 12 | — | 2 | 1-16 bit, 1-8 bit, 1-WDT | — | 20 | 8 MHz | BOR/PLVD | 1** | ✓ | | 14P, 14SL, 14ST |
| PIC16F639 | 3,584 StdFI (2,048) | 256 | 128 | 12 | — | 2 | 1-16 bit, 1-8 bit, 1-WDT | — | 20 | 8 MHz | BOR/PLVD | 1** | ✓ | Transponder Analog Front End | 20P, 20SO, 20SS |

** Requires ICD specific device with header module – refer to Development Tools. Abbreviations are found on the last page of the Selector Guide.

CURRENT SERIAL ELECTRICALLY ERASABLE PROMS (EEPROM)

| Product | E/W Cycles | Density (Organization) | Write Speed | Max. Clock Freq. | Operating Voltage (V) | Temps | Max. Standby Current | Unique Features | Packages ⁽¹⁾ |
|---|------------|------------------------|-------------|------------------|-----------------------|---------|----------------------|--|-----------------------------|
| Microwire Compatible Serial EEPROM Family – Automatic ERAL before WRAL, self-timed erase and write cycle, power on/off data protection circuitry, sequential read function and industry standard 3-wire serial I/O | | | | | | | | | |
| 93C46A | 1M | 1 Kbit (x8) | 2 ms | 2 MHz | 4.5 to 5.5 | C, I, E | 5 µA | 93Cx6A and 93Cx6B devices have no ORG pin. 93Cx6A parts have x8 organization; 93Cx6B parts are x16. Devices in this family include POR (VDD detect) feature. | P, SN, ST, MS, OT, X/SN, MC |
| 93C46B | 1M | 1 Kbit (x16) | 2 ms | 2 MHz | 4.5 to 5.5 | C, I, E | 5 µA | | P, SN, ST, MS, OT, X/SN, MC |
| 93C56A | 1M | 2 Kbits (x8) | 2 ms | 2 MHz | 4.5 to 5.5 | I, E | 5 µA | | P, SN, ST, MS, OT, MC |
| 93C56B | 1M | 2 Kbits (x16) | 2 ms | 2 MHz | 4.5 to 5.5 | I, E | 5 µA | | P, SN, ST, MS, OT, MC |
| 93C66A | 1M | 4 Kbits (x8) | 2 ms | 2 MHz | 4.5 to 5.5 | I, E | 5 µA | | P, SN, ST, MS, OT, MC |
| 93C66B | 1M | 4 Kbits (x16) | 2 ms | 2 MHz | 4.5 to 5.5 | I, E | 5 µA | | P, SN, ST, MS, OT, MC |
| 93C76A | 1M | 8 Kbits (x8) | 2 ms | 3 MHz | 4.5 to 5.5 | I, E | 5 µA | | OT |
| 93C76B | 1M | 8 Kbits (x16) | 2 ms | 3 MHz | 4.5 to 5.5 | I, E | 5 µA | | OT |
| 93C86A | 1M | 16 Kbits (x8) | 2 ms | 3 MHz | 4.5 to 5.5 | I, E | 5 µA | | OT |
| 93C86B | 1M | 16 Kbits (x16) | 2 ms | 3 MHz | 4.5 to 5.5 | I, E | 5 µA | | OT |
| 93LC46A | 1M | 1 Kbit (x8) | 6 ms | 2 MHz | 2.5 to 5.5 | C, I, E | 5 µA | 93LCx6A and 93LCx6B devices have no ORG pin. 93LCx6A parts have x8 organization; 93Cx6B parts are x16. | P, SN, ST, MS, OT, X/SN, MC |
| 93LC46B | 1M | 1 Kbit (x16) | 6 ms | 2 MHz | 2.5 to 5.5 | C, I, E | 5 µA | | P, SN, ST, MS, OT, X/SN, MC |
| 93LC56A | 1M | 2 Kbits (x8) | 6 ms | 2 MHz | 2.5 to 5.5 | C, I, E | 5 µA | | P, SN, ST, MS, OT, X/SN, MC |
| 93LC56B | 1M | 2 Kbits (x16) | 6 ms | 2 MHz | 2.5 to 5.5 | C, I, E | 5 µA | | P, SN, ST, MS, OT, X/SN, MC |
| 93LC66A | 1M | 4 Kbits (x8) | 6 ms | 2 MHz | 2.5 to 5.5 | C, I, E | 5 µA | | P, SN, ST, MS, OT, X/SN, MC |
| 93LC66B | 1M | 4 Kbits (x16) | 6 ms | 2 MHz | 2.5 to 5.5 | C, I, E | 5 µA | | P, SN, ST, MS, OT, X/SN, MC |
| 93LC76A | 1M | 8 Kbits (x8) | 6 ms | 3 MHz | 2.5 to 5.5 | I, E | 5 µA | | OT |
| 93LC76B | 1M | 8 Kbits (x16) | 6 ms | 3 MHz | 2.5 to 5.5 | I, E | 5 µA | | OT |
| 93LC86A | 1M | 16 Kbits (x8) | 6 ms | 3 MHz | 2.5 to 5.5 | I, E | 5 µA | | OT |
| 93LC86B | 1M | 16 Kbits (x16) | 6 ms | 3 MHz | 2.5 to 5.5 | I, E | 5 µA | | OT |
| 93AA46A | 1M | 1 Kbit (x8) | 6 ms | 2 MHz | 1.8 to 5.5 | I | 5 µA | 93AAx6A and 93AAx6B devices have no ORG pin. 93AAx6A parts have x8 organization; 93Cx6B parts are x16. | P, SN, ST, MS, OT, MC |
| 93AA46B | 1M | 1 Kbit (x16) | 6 ms | 2 MHz | 1.8 to 5.5 | I | 5 µA | | P, SN, ST, MS, OT, MC |
| 93AA56A | 1M | 2 Kbits (x8) | 6 ms | 2 MHz | 1.8 to 5.5 | I | 5 µA | | P, SN, ST, MS, OT, MC |
| 93AA56B | 1M | 2 Kbits (x16) | 6 ms | 2 MHz | 1.8 to 5.5 | I | 5 µA | | P, SN, ST, MS, OT, MC |
| 93AA66A | 1M | 4 Kbits (x8) | 6 ms | 2 MHz | 1.8 to 5.5 | I | 5 µA | | P, SN, ST, MS, OT, MC |
| 93AA66B | 1M | 4 Kbits (x16) | 6 ms | 2 MHz | 1.8 to 5.5 | I | 5 µA | | P, SN, ST, MS, OT, MC |
| 93AA76A | 1M | 8 Kbits (x8) | 6 ms | 3 MHz | 1.8 to 5.5 | I | 5 µA | | OT |
| 93AA76B | 1M | 8 Kbits (x16) | 6 ms | 3 MHz | 1.8 to 5.5 | I | 5 µA | | OT |
| 93AA86A | 1M | 16 Kbits (x8) | 6 ms | 3 MHz | 1.8 to 5.5 | I | 5 µA | | OT |
| 93AA86B | 1M | 16 Kbits (x16) | 6 ms | 3 MHz | 1.8 to 5.5 | I | 5 µA | | OT |
| 93C46C | 1M | 1 Kbit (x8 or x16) | 2 ms | 3 MHz | 4.5 to 5.5 | I, E | 5 µA | 93Cx6C devices can be used in either x8 or x16 organization via the ORG pin. Devices in this family include POR (VDD detect) feature. | P, SN, ST, MS, MC |
| 93C56C | 1M | 2 Kbits (x8 or x16) | 2 ms | 3 MHz | 4.5 to 5.5 | I, E | 5 µA | | P, SN, ST, MS, MC |
| 93C66C | 1M | 4 Kbits (x8 or x16) | 2 ms | 3 MHz | 4.5 to 5.5 | I, E | 5 µA | | P, SN, ST, MS, MC |
| 93C76C | 1M | 8 Kbits (x8 or x16) | 2 ms | 3 MHz | 4.5 to 5.5 | I, E | 5 µA | | P, SN, ST, MS, MC |
| 93C86C | 1M | 16 Kbits (x8 or x16) | 2 ms | 3 MHz | 4.5 to 5.5 | I, E | 5 µA | | P, SN, ST, MS, MC |
| 93LC46C | 1M | 1 Kbit (x8 or x16) | 6 ms | 3 MHz | 2.5 to 5.5 | I, E | 5 µA | 93LCx6C devices can be used in either x8 or x16 organization via the ORG pin. | P, SN, ST, MS, X/SN, MC |
| 93LC56C | 1M | 2 Kbits (x8 or x16) | 6 ms | 3 MHz | 2.5 to 5.5 | I, E | 5 µA | | P, SN, ST, MS, X/SN, MC |
| 93LC66C | 1M | 4 Kbits (x8 or x16) | 6 ms | 3 MHz | 2.5 to 5.5 | I, E | 5 µA | | P, SN, ST, MS, X/SN, MC |
| 93LC76C | 1M | 8 Kbits (x8 or x16) | 6 ms | 3 MHz | 2.5 to 5.5 | I, E | 5 µA | | P, SN, ST, MS, MC |
| 93LC86C | 1M | 16 Kbits (x8 or x16) | 6 ms | 3 MHz | 2.5 to 5.5 | I, E | 5 µA | | P, SN, ST, MS, MC |
| 93AA46C | 1M | 1 Kbit (x8 or x16) | 6 ms | 3 MHz | 1.8 to 5.5 | I | 5 µA | 93AAx6C devices can be used in either x8 or x16 organization via the ORG pin. | P, SN, ST, MS, X/SN, MC |
| 93AA56C | 1M | 2 Kbits (x8 or x16) | 6 ms | 3 MHz | 1.8 to 5.5 | I | 5 µA | | P, SN, ST, MS, X/SN, MC |
| 93AA66C | 1M | 4 Kbits (x8 or x16) | 6 ms | 3 MHz | 1.8 to 5.5 | I | 5 µA | | P, SN, ST, MS, X/SN, MC |
| 93AA76C | 1M | 8 Kbits (x8 or x16) | 6 ms | 3 MHz | 1.8 to 5.5 | I | 5 µA | | P, SN, ST, MS, MC |
| 93AA86C | 1M | 16 Kbits (x8 or x16) | 6 ms | 3 MHz | 1.8 to 5.5 | I | 5 µA | | P, SN, ST, MS, MC |

NOTE 1. X/SN package code denotes rotated pinouts.

| Product | E/W Cycles | Density (Organization) | Write Speed | Max. Clock Frequency | Operating Voltage (V) | Temps | Unique Features | Packages |
|--|------------|------------------------|-------------|----------------------|-----------------------|---------|---|--|
| 2-Wire I²C™ Compatible Serial EEPROM Family – Self-timed write cycle and Page Write mode | | | | | | | | |
| 24C00 | 1M | 128 bits (x8) | 4 ms | 400 kHz | 4.5 to 5.5 | C, I, E | 100 kHz operation for voltages from 1.8V to 4.5V. | P, SN, ST, OT, MC |
| 24LC00 | 1M | 128 bits (x8) | 4 ms | 400 kHz | 2.5 to 6.0 | C, I | | P, SN, ST, OT, MC |
| 24AA00 | 1M | 128 bits (x8) | 4 ms | 400 kHz | 1.8 to 6.0 | C, I | | P, SN, ST, OT, MC |
| 24C01C | 1M | 1 Kbit (x8) | 1 ms | 400 kHz | 4.5 to 5.5 | C, I, E | The 24C01C and 24C02C are for applications which require fast byte write and/or extended temperature. Three address pins. | P, SN, ST, MS, MC |
| 24C02C | 1M | 2 Kbits (x8) | 1 ms | 400 kHz | 4.5 to 5.5 | C, I, E | | P, SN, ST, MS, MC |
| 24LC014 | 1M | 1 Kbit (x8) | 10 ms | 400 MHz | 2.5 to 5.5 | I | Three address pins. | P, SN, ST, MS, MC |
| 24AA014 | 1M | 1 Kbit (x8) | 10 ms | 400 MHz | 1.8 to 5.5 | I | | P, SN, ST, MS, MC |
| 24LC01B | 1M | 1 Kbit (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | I, E | Hardware write protect. Schmitt trigger inputs. 2.5V operation @ extended temperatures. 100 kHz operation @ extended temperatures. B version on 2-wire devices designates that address pins A0, A1, A2 are no-connect. | P, SN, ST, MS, OT, MC |
| 24LC02B | 1M | 2 Kbits (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | I, E | | P, SN, ST, MS, OT, MC |
| 24LC04B | 1M | 4 Kbits (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | I, E | | P, SN, ST, MS, OT, MC |
| 24LC08B | 1M | 8 Kbits (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | I, E | | P, SN, ST, MS, OT, MC |
| 24LC16B | 1M | 16 Kbits (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | I, E | | P, SN, ST, MS, OT, MC |
| 24AA01 | 1M | 1 Kbit (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | I | | Hardware write protect. Schmitt trigger inputs. 100 kHz operation for voltages from 1.8V to 2.5V. For all devices in this section (24AA01 through 24AA16), pins A0, A1, A2 are no-connect. |
| 24AA02 | 1M | 2 Kbits (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | I | P, SN, ST, MS, OT, MC | |
| 24AA04 | 1M | 4 Kbits (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | I | P, SN, ST, MS, OT, MC | |
| 24AA08 | 1M | 8 Kbits (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | I | P, SN, ST, MS, OT, MC | |
| 24AA16 | 1M | 16 Kbits (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | I | P, SN, ST, MS, OT, MC | |
| 24LC32A | 1M | 32 Kbits (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | I, E | 100 kHz operation for voltages from 1.8V to 2.5V. | |
| 24AA32A | 1M | 32 Kbits (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | I | | P, SN, SM, ST, MS, MC |
| 24LC64 | 1M | 64 Kbits (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | I, E | 32-byte page. 100 kHz operation for voltages from 1.8V to 2.5V. | P, SN, SM, ST, MS, MC |
| 24AA64 | 1M | 64 Kbits (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | I | | P, SN, SM, ST, MS, MC |
| 24LC65 | 1 M/10 M | 64 Kbits (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | C, I | 8-byte page, 64-byte input buffer, high-endurance block, write protectable in 4K blocks. Smart Serial™ EEPROM. | P, SM |
| 24AA65 | 1 M/10 M | 64 Kbits (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | C | | P, SM |
| 24C65 | 1 M/10 M | 64 Kbits (x8) | 5 ms | 400 kHz | 4.5 to 5.5 | C, I, E | | P, SM |
| 24LC128 | 1M | 128 Kbits (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | I, E | 64-byte page. 100 kHz operation for voltages from 1.8V to 2.5V. | P, SN, SM, ST, MS, MF |
| 24AA128 | 1M | 128 Kbits (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | I | | P, SN, SM, ST, MS, MF |
| 24FC128 | 1M | 128 Kbits (x8) | 5 ms | 1 MHz | 2.5 to 5.5 | I | | P, SN, SM, ST, MS, MF |
| 24LC256 | 1M | 256 Kbits (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | I, E | 64-byte page. 100 kHz operation for voltages from 1.8V to 2.5V. | P, SM, SN, ST, MS, MF |
| 24AA256 | 1M | 256 Kbits (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | I | | P, SM, SN, ST, MS, MF |
| 24FC256 | 1M | 256 Kbits (x8) | 5 ms | 1 MHz | 2.5 to 5.5 | I | | P, SN, SM, ST, MS, MF |
| 24LC512 | 1M | 512 Kbits (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | I, E | 128-byte page, cascadeable up to 8 devices (4 Mbits). 100 kHz operation for voltages from 1.8 to 2.5V. 400 kHz operation for voltages below 4.5V. (24FC512). | P, MF, ST14, SM |
| 24AA512 | 1M | 512 Kbits (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | I | | P, MF, ST14, SM |
| 24FC512 | 1M | 512 Kbits (x8) | 5 ms | 1 MHz | 2.5 to 5.5 | I | | P, MF, ST14, SM |
| 24LC515 | 1M | 512 Kbits (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | I | Cascadeable up to 4 devices (2 Mbits). 100 kHz operation for voltages from 1.8V to 2.5V. | P, SM |
| 24AA515 | 1M | 512 Kbits (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | I | | P, SM |
| 24FC515 | 1M | 512 Kbits (x8) | 5 ms | 1 MHz | 2.5 to 5.5 | I | | P, SM |

**Memory
Family Products**

| Product | E/W Cycles | Density (Organization) | Write Speed | Max. Clock Frequency | Operating Voltage (V) | Temps | Unique Features | Packages |
|--|------------|------------------------|-------------|----------------------|-----------------------|-------|-----------------|----------|
| ISO Smart Card Family – Self-timed write cycle and Page Write mode. All devices meet ISO7816 pinout requirements. | | | | | | | | |
| 24LC01SC | 1M | 1 Kbit (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | C, I | | S, W, WF |
| 24LC02SC | 1M | 2 Kbits (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | C, I | | S, W, WF |
| 24LC04SC | 1M | 4 Kbits (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | C, I | | S, W, WF |
| 24LC08SC | 1M | 8 Kbits (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | C, I | | S, W, WF |
| 24LC16SC | 1M | 16 Kbits (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | C, I | | S, W, WF |
| 24LC32ASC | 1M | 32 Kbits (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | C, I | | S, W, WF |
| 24LC64SC | 1M | 64 Kbits (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | C, I | | S, W, WF |
| 24LC128SC | 1M | 128 Kbits (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | C, I | | S, W, WF |
| 24LC256SC | 1M | 256 Kbits (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | C, I | | S, W, WF |
| 24LC512SC | 1M | 512 Kbits (x8) | 5 ms | 400 kHz | 2.5 to 5.5 | C, I | | S, W, WF |
| 24AA01SC | 1M | 1 Kbit (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | C | | S, W, WF |
| 24AA02SC | 1M | 2 Kbits (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | C | | S, W, WF |
| 24AA04SC | 1M | 4 Kbits (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | C | | S, W, WF |
| 24AA08SC | 1M | 8 Kbits (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | C | | S, W, WF |
| 24AA16SC | 1M | 16 Kbits (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | C | | S, W, WF |
| 24AA32ASC | 1M | 32 Kbits (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | C | | S, W, WF |
| 24AA64SC | 1M | 64 Kbits (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | C | | S, W, WF |
| 24AA128SC | 1M | 128 Kbits (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | C | | S, W, WF |
| 24AA256SC | 1M | 256 Kbits (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | C | | S, W, WF |
| 24AA512SC | 1M | 512 Kbits (x8) | 5 ms | 400 kHz | 1.8 to 5.5 | C | | S, W, WF |

| Product | E/W Cycles | Density (Organization) | Page Size | Write Speed | Max. Clock Frequency | Operating Voltage (V) | Temps | Unique Features | Packages ⁽¹⁾ |
|--|------------|------------------------|-----------|-------------|----------------------|-----------------------|-------|-----------------|-------------------------|
| SPI™ Compatible Serial EEPROM Family – Page Write mode, HOLD pin, software enabled block write protection and hardware write-protect pin. Supports SPI™ modes 0, 3. | | | | | | | | | |
| 25C040 | 1M | 4 Kbits (x8) | 16B | 5 ms | 3 MHz | 4.5 to 5.5 | I, E | | P, SN, X/ST |
| 25LC040 | 1M | 4 Kbits (x8) | 16B | 5 ms | 2 MHz | 2.5 to 5.5 | I | | P, SN, X/ST |
| 25AA040 | 1M | 4 Kbits (x8) | 16B | 5 ms | 1 MHz | 1.8 to 5.5 | I | | P, SN, X/ST |
| 25LC080A | 1M | 8 Kbits (x8) | 16B | 5 ms | 10 MHz | 2.5 to 5.5 | I, E | | P, SN, ST, MS |
| 25AA080A | 1M | 8 Kbits (x8) | 16B | 5 ms | 10 MHz | 1.8 to 5.5 | I | | P, SN, ST, MS |
| 25LC080B | 1M | 8 Kbits (x8) | 32B | 5 ms | 10 MHz | 2.5 to 5.5 | I, E | | P, SN, ST, MS |
| 25AA080B | 1M | 8 Kbits (x8) | 32B | 5 ms | 10 MHz | 1.8 to 5.5 | I | | P, SN, ST, MS |

NOTE 1. X/ST package code denotes rotated pinout.

| Product | E/W Cycles | Density (Organization) | Page Size | Write Speed | Max. Clock Frequency | Operating Voltage (V) | Temps | Unique Features | Packages ⁽¹⁾ |
|--|------------|------------------------|-----------|-------------|----------------------|-----------------------|-------|-----------------|-------------------------|
| SPI™ Compatible Serial EEPROM Family – Page Write mode, HOLD pin, software enabled block write protection and hardware write-protect pin. Supports SPI™ modes 0, 3. (continued) | | | | | | | | | |
| 25LC160A | 1M | 16 Kbits (x8) | 16B | 5 ms | 10 MHz | 2.5 to 5.5 | I, E | | P, SN, ST, MS |
| 25AA160A | 1M | 16 Kbits (x8) | 16B | 5 ms | 10 MHz | 1.8 to 5.5 | I | | P, SN, ST, MS |
| 25LC160B | 1M | 16 Kbits (x8) | 32B | 5 ms | 10 MHz | 2.5 to 5.5 | I, E | | P, SN, ST, MS |
| 25AA160B | 1M | 16 Kbits (x8) | 32B | 5 ms | 10 MHz | 1.8 to 5.5 | I | | P, SN, ST, MS |
| 25C320 | 100K | 32 Kbits (x8) | 32B | 5 ms | 3 MHz | 4.5 to 5.5 | I, E | | P, SN |
| 25LC320 | 1M | 32 Kbits (x8) | 32B | 5 ms | 2 MHz | 2.5 to 5.5 | I, E | | P, SN, X/ST |
| 25AA320 | 1M | 32 Kbits (x8) | 32B | 5 ms | 1 MHz | 1.8 to 5.5 | I | | P, SN, X/ST |
| 25LC640 | 1M | 64 Kbits (x8) | 32B | 5 ms | 3 MHz | 2.5 to 5.5 | I, E | | P, SN, X/ST |
| 25AA640 | 1M | 64 Kbits (x8) | 32B | 5 ms | 1 MHz | 1.8 to 5.5 | I | | P, SN, X/ST |
| 25LC256 | 1M | 256 Kbits (x8) | 64B | 5 ms | 10 MHz | 2.5 to 5.5 | I, E | | P, SN, ST, MF |
| 25AA256 | 1M | 256 Kbits (x8) | 64B | 5 ms | 10 MHz | 1.8 to 5.5 | I | | P, SN, ST, MF |

NOTE 1. X/ST package code denotes rotated pinout.

| Product | E/W Cycles | Density (Organization) | Write Speed | Max. Clock Frequency | Operating Voltage (V) | Temps | Unique Features | Packages |
|--|------------|------------------------|-------------|----------------------|-----------------------|-------|---|---------------|
| Identification Products (Application-Specific Products for Monitors, DRAM Modules, ACR Risers and Other Plug-And-Play Applications) | | | | | | | | |
| 24LC21 | 1M | 1 Kbit (x8) | 10 ms | 400 kHz | 2.5 to 5.5 | C, I | Completely implements DDC1™/DDC2™ interface for VESA monitor identification. Improved noise filter. Write protection pin. Not recommended for new designs. Use 24LC21A or 24LCS21A. | P, SN |
| 24LCS21 | 1M | 1 Kbit (x8) | 10 ms | 400 kHz | 2.5 to 5.5 | C, I | Same as 24LC21 plus software enabled write-protect pin. Not recommended for new designs. Use 24LC21A or 24LCS21A. | P, SN |
| 24LC21A | 1M | 1 Kbit (x8) | 10 ms | 400 kHz | 2.5 to 5.5 | C, I | Same features as 24LC21 plus "return to DDC1" feature. | P, SN |
| 24LCS21A | 1M | 1 Kbit (x8) | 10 ms | 400 kHz | 2.5 to 5.5 | C, I | Same features as 24LC21A plus software enabled write-protect pin. | P, SN |
| 24LCS22A | 1M | 2 Kbits (x8) | 10 ms | 400 kHz | 2.5 to 5.5 | I | Implements VESA E-EDID 1.3 for flat panels and projectors. Includes "return to DDC1" feature and software - enabled write protect pin. | P, SN |
| 24LC024 | 1M | 2 Kbits (x8) | 10 ms | 400 kHz | 2.5 to 5.5 | C, I | Addressable, hardware write protection for DRAM DIMM modules and other applications. | P, SN, ST, MS |
| 24LC025 | 1M | 2 Kbits (x8) | 10 ms | 400 kHz | 2.5 to 5.5 | C, I | Addressable. No write-protect. | P, SN, ST, MS |
| 24AA52 | 1M | 2 Kbits (x8) | 10 ms | 400 kHz | 1.8 to 5.5 | I | Addressable, hardware write protection and software write protection for lower half of the array. Designed for DRAM DIMM modules. | P, SN, ST, MS |
| 24LCS52 | 1M | 2 Kbits (x8) | 10 ms | 400 kHz | 2.5 to 5.5 | I | | P, SN, ST, MS |

FUTURE SERIAL ELECTRICALLY ERASABLE PROMS (EEPROM)

| Part # | E/W Cycles | Density (Organization) | Page Size | Write Speed | Max. Clock Freq. | Operating Voltage (V) | Temps | Unique Features | Packages |
|---|------------|---------------------------|-----------|-------------|------------------|--------------------------|-------|--|-----------------------|
| SPI™ Compatible Serial EEPROM Family – Page Write mode, HOLD pin, software enabled block write protection and hardware write-protect pin | | | | | | | | | |
| 25LC010A | 1M | 1 Kbit (x8) | 16B | 5 ms | 10 MHz | 2.5 to 5.5 | I, E | | P, SN, ST, MS, MC, OT |
| 25AA010A | 1M | 1 Kbit (x8) | 16B | 5 ms | 10 MHz | 1.8 to 5.5 | I | | P, SN, ST, MS, MC, OT |
| 25LC020A | 1M | 2 Kbits (x8) | 16B | 5 ms | 10 MHz | 2.5 to 5.5 | I, E | | P, SN, ST, MS, MC, OT |
| 25AA020A | 1M | 2 Kbits (x8) | 16B | 5 ms | 10 MHz | 1.8 to 5.5 | I | | P, SN, ST, MS, MC, OT |
| 25LC040A | 1M | 4 Kbits (x8) | 16B | 5 ms | 10 MHz | 2.5 to 5.5 | I, E | | P, SN, ST, MS, MC, OT |
| 25AA040A | 1M | 4 Kbits (x8) | 16B | 5 ms | 10 MHz | 1.8 to 5.5 | I | | P, SN, ST, MS, MC, OT |
| 25LC320A | 1M | 32 Kbits (x8) | 32B | 5 ms | 10 MHz | 2.5 to 5.5 | I, E | | P, SN, ST, MS |
| 25AA320A | 1M | 32 Kbits (x8) | 32B | 5 ms | 10 MHz | 1.8 to 5.5 | I, E | | P, SN, ST, MS |
| 25LC640A | 1M | 64 Kbits (x8) | 32B | 5 ms | 10 MHz | 2.5 to 5.5 | I, E | | P, SN, ST, MS |
| 25AA640A | 1M | 64 Kbits (x8) | 32B | 5 ms | 10 MHz | 1.8 to 5.5 | I | | P, SN, ST, MS |
| 25LC128 | 1M | 128 Kbits (x8) | 64B | 5 ms | 10 MHz | 2.5 to 5.5 | I, E | | P, SN, ST, MS |
| 25AA128 | 1M | 128 Kbits (x8) | 64B | 5 ms | 10 MHz | 1.8 to 5.5 | I | | P, SN, ST, MS |
| 25LC1024 | 1M | 1 Mbit (x8) | 256B | 5 ms | 20 MHz | 2.5 to 5.5 | I, E | | P, SM, MF |
| 25AA1024 | 1M | 1 Mbit (x8) | 256B | 5 ms | 20 MHz | 1.8 to 5.5 | I | | P, SM, MF |
| I²C™ Compatible Serial EEPROM Family | | | | | | | | | |
| 24LC1025 | 1M | 1 Mbit (x8) | — | 5 ms | 400 kHz | 2.5 to 5.5 | I, E | Cascade up to 4 devices | P, SM |
| 24AA1025 | 1M | 1 Mbit (x8) | — | 5 ms | 400 kHz | 1.8 to 5.5 | I | Cascade up to 4 devices, 100 kHz @ 1.8V-2.5V | P, SM |

DEVELOPMENT SYSTEMS

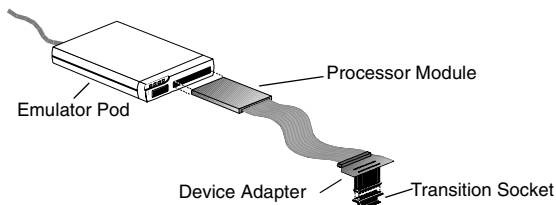
MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems

Ordering MPLAB® ICE is as easy as 1, 2, and 3!

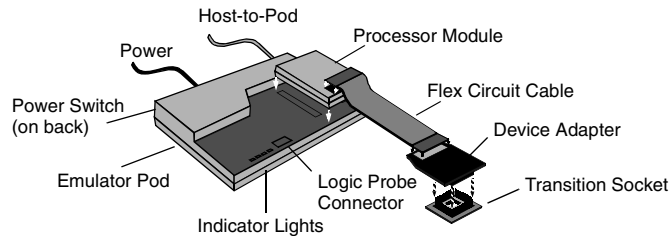
- NOTE 1:** Choose your PICmicro® MCU.
2: Choose your PICmicro® MCU package.
3: Find the right line on the next few pages for MPLAB® ICE part numbers. You're ready to order.

MPLAB® ICE is a modular emulator system with interchangeable components allowing the system to be easily configured to emulate different PICmicro® MCUs. Since this emulator supports package-specific emulation, customers need to know which device and package they intend to emulate. Then, the customer can use the *Cross Reference Parts List* on the following pages to identify the part numbers required to complete an MPLAB® ICE system. A complete system consists of:

- NOTE 1:** An emulator pod (including among other things the host-to-pod parallel cable and power supply)
2: A processor module
3: A device adapter
4: A transition socket



MPLAB® ICE 2000 Emulator



MPLAB® ICE 4000 Emulator

An MPLAB® ICE emulator system is ordered as separate components. Knowing the terms will make it easy to order and use the MPLAB® ICE emulator system. Read more about each component:

1. Emulator Pod

The MPLAB® ICE 2000 and MPLAB® ICE 4000 are full-featured emulator pods containing a main board with an additional board for expanded trace memory and complex control logic. The pods come with a standard parallel interface cable that connects the pods to the parallel port of the PC and a power supply. MPLAB® ICE 4000 also includes a USB interface cable that connects the pod to the USB port.

2. Processor Module

The processor module is a PICmicro®, device-specific module that is inserted into the emulator pod. The processor module contains the emulator chip, logic, and low-voltage circuitry. A flex cable extends from the processor module and is connected to the device adapter at the target application.

3. Device Adapter

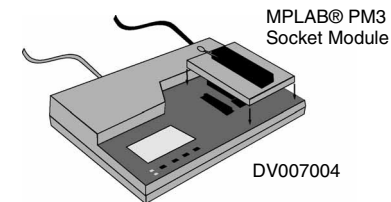
The device adapter provides a common interface for the PICmicro® MCU being emulated. This adapter contains a special device that provides an oscillator clock allowing the user to accurately emulate the RC characteristics of the PICmicro® MCU. The device adapter provides emulation support for standard DIP and PLCC styles. For emulation support of other packages, a transition socket is needed along with the device adapter.

4. Transition Socket

The transition sockets are available in various styles to allow the common device adapter to be translated to support surface-mount packages, such as SOIC, SSOP, PQFP, TQFP and MLF.

MPLAB® PM3 Programmers

MPLAB® PM3 Programmer (DV007004) is Microchip's production-rated programmer, which can be operated stand-alone or with a PC using MPLAB® IDE (included free). It comes complete with accessories needed to connect to a host system, including a power supply and cables, giving the developer complete control over the programming session. The programmer requires a socket module (to be purchased separately), which can be selected from the following chart by identifying the devices for programming and then picking the appropriate part number from their respective columns. MPLAB® PM3 has built-in ICSP™ programming capability.



In-Circuit Debuggers: MPLAB® ICD 2

MPLAB® ICD 2 is a low cost, flash-based development tool that connects between the PC and the designer's target board allowing direct in-circuit debugging of the PICmicro® target microcontroller. Programs can be executed in real time or single step, watch variables established, break points set, memory read/writes accomplished and more. The MPLAB® ICD 2 can also be used as a development programmer for the microcontrollers.

Development Systems Products

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|----------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|-----------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| Analog Interface Development Tools | | | | | | | | | | | | | |
| MCP2120 | 14P | | | | | | | | | | | | DM163008 |
| MCP2150 | 18P | | | | | | | | | | | | DM163008 |
| MCP25020 | 14P | | | | | | | | AC164301 | | | | DV250501 |
| MCP25020 | 14SO | | | | | | | | AC164302 | | | | DV250501 |
| MCP25025 | 14P | | | | | | | | AC164301 | | | | DV250501 |
| MCP25025 | 14SO | | | | | | | | AC164302 | | | | DV250501 |
| MCP25050 | 14P | | | | | | | | AC164301 | | | | DV250501 |
| MCP25050 | 14SO | | | | | | | | AC164302 | | | | DV250501 |
| MCP25055 | 14P | | | | | | | | AC164301 | | | | DV250501 |
| MCP25055 | 14SO | | | | | | | | AC164302 | | | | DV250501 |
| MCP2510 | 18P | | | | | | | | | | | | DV251001 |
| MCP2515 | 18P | | | | | | | | | | | | DV251001 |
| PICmicro® Microcontroller Development Tools | | | | | | | | | | | | | |
| PIC10F200 | 60T | | | | | | | AC164037 | AC164321 | AC163020 | AC162059 +XLT06SOT | | DV164101 or DV164120 +AC163020 |
| PIC10F200 | 8P | | | | | | | AC164037 | AC164301 | ✓ | AC162059 | | DV164101, DV164120 |
| PIC10F202 | 60T | | | | | | | AC164037 | AC164321 | AC163020 | AC162059 +XLT06SOT | | DV164101 or DV164120 +AC163020 |
| PIC10F202 | 8P | | | | | | | AC164037 | AC164301 | ✓ | AC162059 | | DV164101, DV164120 |
| PIC10F204 | 60T | | | | | | | AC164037 | AC164321 | AC163020 | AC162059 +XLT06SOT | | DV164101 or DV164120 +AC163020 |
| PIC10F204 | 8P | | | | | | | AC164037 | AC164301 | ✓ | AC162059 | | DV164101, DV164120 |
| PIC10F206 | 60T | | | | | | | AC164037 | AC164321 | AC163020 | AC162059 +XLT06SOT | | DV164101 or DV164120 +AC163020 |
| PIC10F206 | 8P | | | | | | | AC164037 | AC164301 | ✓ | AC162059 | | DV164101, DV164120 |

NOTE: See complete list of notes on page 94.

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|--------------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|------------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC10F220 | 6OT | | | | | | | AC164037* | AC164321* | AC163020* | AC162059* +XLT06SOT | | DV164101 or DV164120 +AC163020 |
| PIC10F220 | 8P | | | | | | | AC164037* | AC164301* | ✓* | AC162059* | | DV164101, DV164120 |
| PIC10F222 | 6OT | | | | | | | AC164037* | AC164321* | AC163020* | AC162059* +XLT06SOT | | DV164101 or DV164120 +AC163020 |
| PIC10F222 | 8P | | | | | | | AC164037* | AC164301* | ✓* | AC162059* | | DV164101, DV164120 |
| PIC12C508 | 8P, 8JW | PCM16XA0 | DVA12XP080 | | | | | AC124001 | AC164301 | ✓ | | | DM163001, DVMCPA |
| PIC12C508 | 8SM | PCM16XA0 | DVA12XP080 | XLT08SO | | | | AC124001 | AC164312 | | | | |
| PIC12C508A | 8P, 8JW | PCM16XA0 | DVA12XP080 | | | | | AC124001 | AC164301 | ✓ | | | DM163001, DVMCPA |
| PIC12C508A | 8SM | PCM16XA0 | DVA12XP080 | XLT08SO | | | | AC124001 | AC164312 | | | | |
| PIC12C508A | 8SN | PCM16XA0 | DVA12XP080 | XLT08SO | | | | AC164026 | AC164302 | | | | |
| PIC12C508A | 8MF | PCM16XA0 | DVA12XP080 | XLT08DFN or XLT08DFN2 | | | | AC124001 +AC164032 | AC164324** | AC164032 | | | |
| PIC12C509 | 8P, 8JW | PCM16XA0 | DVA12XP080 | | | | | AC124001 | AC164301 | ✓ | | | DM163001, DVMCPA |
| PIC12C509 | 8SM | PCM16XA0 | DVA12XP080 | XLT08SO | | | | AC124001 | AC164312 | | | | |
| PIC12C509A | 8P, 8JW | PCM16XA0 | DVA12XP080 | | | | | AC124001 | AC164301 | ✓ | | | DM163001, DVMCPA |
| PIC12C509A | 8SM | PCM16XA0 | DVA12XP080 | XLT08SO | | | | AC124001 | AC164312 | | | | |
| PIC12C509A | 8SN | PCM16XA0 | DVA12XP080 | XLT08SO | | | | AC164026 | AC164302 | | | | |
| PIC12C509A | 8MF | PCM16XA0 | DVA12XP080 | XLT08DFN or XLT08DFN2 | | | | AC124001 +AC164032 | AC164324** | AC164032 | | | |
| PIC12C671 | 8P, 8JW | PCM12XA0 | DVA12XP081 | | | | | AC124001 | AC164301 | ✓ | | | |
| PIC12C671 | 8SM | PCM12XA0 | DVA12XP081 | XLT08SO | | | | AC124001 | AC164312 | | | | |
| PIC12C671 | 8MF | PCM12XA0 | DVA12XP081 | XLT08DFN or XLT08DFN2 | | | | AC124001 +AC164032 | AC164324** | AC164032 | | | |
| PIC12C672 | 8P, 8JW | PCM12XA0 | DVA12XP081 | | | | | AC124001 | AC164301 | ✓ | | | |
| PIC12C672 | 8SM | PCM12XA0 | DVA12XP081 | XLT08SO | | | | AC124001 | AC164312 | | | | |
| PIC12C672 | 8MF | PCM12XA0 | DVA12XP081 | XLT08DFN or XLT08DFN2 | | | | AC124001 +AC164032 | AC164324** | AC164032 | | | |

NOTE: See complete list of notes on page 94.

**Development
Systems Products**

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|----------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|----------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC12CE518 | 8P, 8JW | PCM16XA0 | DVA12XP080 | | | | | AC124001 | AC164301 | ✓ | | | |
| PIC12CE518 | 8SM | PCM16XA0 | DVA12XP080 | XLT08SO | | | | AC124001 | AC164312 | | | | |
| PIC12CE518 | 8SN | PCM16XA0 | DVA12XP080 | XLT08SO | | | | AC164026 | AC164302 | | | | |
| PIC12CE519 | 8P, 8JW | PCM16XA0 | DVA12XP080 | | | | | AC124001 | AC164301 | ✓ | | | |
| PIC12CE519 | 8SM | PCM16XA0 | DVA12XP080 | XLT08SO | | | | AC124001 | AC164312 | | | | |
| PIC12CE519 | 8SN | PCM16XA0 | DVA12XP080 | XLT08SO | | | | AC164026 | AC164302 | | | | |
| PIC12CE673 | 8P, 8JW | PCM12XA0 | DVA12XP081 | | | | | AC124001 | AC164301 | ✓ | | | |
| PIC12CE674 | 8P, 8JW | PCM12XA0 | DVA12XP081 | | | | | AC124001 | AC164301 | ✓ | | | |
| PIC12F508 | 8P | PCM16XA0 | DVA12XP080 | | | | | AC124001 | AC164301 | ✓ | AC162059 | | DV164101, DM163014, DV164120, DM163029 |
| PIC12F508 | 8SN | PCM16XA0 | DVA12XP080 | XLT08SO | | | | AC164026 | AC164302 | | AC162059 +XLT08SO | | |
| PIC12F508 | 8ST | PCM16XA0 | DVA12XP080 | | | | | | AC164306 | | | | |
| PIC12F508 | 8MS | PCM16XA0 | DVA12XP080 | | | | | | AC164325** | | | | |
| PIC12F509 | 8P | PCM16XA0 | DVA12XP080 | | | | | AC124001 | AC164301 | ✓ | AC162059 | | DM163014, DV164101, DV164120, DM163029 |
| PIC12F509 | 8SN | PCM16XA0 | DVA12XP080 | XLT08SO | | | | AC164026 | AC164302 | | AC162059 +XLT08SO | | |
| PIC12F509 | 8ST | PCM16XA0 | DVA12XP080 | | | | | | AC164306 | | | | |
| PIC12F509 | 8MS | PCM16XA0 | DVA12XP080 | | | | | | AC164325** | | | | |
| PIC12F510 | 8P | | | | | | | AC124001* | AC164301* | | AC162070* | | DV164101*, DV164120, DM163029 |
| PIC12F510 | 8SN | | | | | | | AC164026* | AC164302* | | | | |
| PIC12F510 | 8MS | | | | | | | | AC164325** | | | | |
| PIC12F510 | 8MF | | | | | | | | AC164324** | | | | |

NOTE: See complete list of notes on page 94.

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|--------------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|---------------------------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC12F629 | 8P | PCM12XB0 | DVA12XP081 | | | | | AC124001 | AC164301 | ✓ | AC162050 | | DM163014, DV164101, DV164120, DM163029 |
| PIC12F629 | 8SN | PCM12XB0 | DVA12XP081 | XLT08SO | | | | AC164026 | AC164302 | | AC162050 +XLT08SO | | |
| PIC12F629 | 8MF | PCM12XB0 | DVA12XP081 | XLT08DFN or XLT08DFN2 | | | | AC124001 +AC164032 | AC164324** | AC164032 | AC162050 +XLT08DFN or XLT08DFN2 | | |
| PIC12F635 | 8P | PCM16YM0 | DVA1002 | ACICE0201 | | | | AC124001 | AC164301 | ✓ | AC162057 | | DM163014, DV164101, DV164120, DM163029 |
| PIC12F635 | 8SN | PCM16YM0 | DVA1002 | XLT08SO | | | | AC164026 | AC164302 | | AC162057 +XLT08SO | | |
| PIC12F635 | 8MF | PCM16YM0 | DVA1002 | XLT08DFN or XLT08DFN2 | | | | AC124001 +AC164032 | AC164324** | AC164032 | AC162050 +XLT08DFN or XLT08DFN2 | | |
| PIC12F675 | 8P | PCM12XB0 | DVA12XP081 | | | | | AC124001 | AC164301 | ✓ | AC162050 | | DM163014, DV164101, DV164120, DM163029 |
| PIC12F675 | 8SN | PCM12XB0 | DVA12XP081 | XLT08SO | | | | AC164026 | AC164302 | | AC162050 +XLT08SO | | |
| PIC12F675 | 8MF | PCM12XB0 | DVA12XP081 | XLT08DFN or XLT08DFN2 | | | | AC124001 +AC164032 | AC164324** | AC164032 | AC162050 +XLT08DFN or XLT08DFN2 | | |
| PIC12F683 | 8P | PCM12XC0 | DVA1002 | ACICE0201 | | | | AC124001 | AC164301 | ✓ | AC162058 | | DM163014, DV164101, DV164120, DM163029 |
| PIC12F683 | 8SN | PCM12XC0 | DVA1002 | XLT08SO | | | | AC164026 | AC164302 | | AC162058 +XLT08SO | | |
| PIC12F683 | 8MF | PCM12XC0 | DVA1002 | XLT08DFN or XLT08DFN2 | | | | AC124001 +AC164032 | AC164324** | AC164032 | AC162058 +XLT08DFN or XLT08DFN2 | | |
| PIC14000 | 28SP, 28JW | PCM14XA0 | DVA14XP280 | | | | | AC144001 | | ✓ | | | |
| PIC14000 | 28SO | PCM14XA0 | DVA14XP280 | XLT28SO | | | | AC144002 | | | | | |
| PIC14000 | 28SS | PCM14XA0 | DVA14XP280 | XLT28SS | | | | AC144002 | | | | | |
| PIC16C52 | 18P | PCM16XA0 | DVA16XP180 | | | | | AC164001 | AC164301 | ✓ | | | DM163001 |
| PIC16C52 | 18SO | PCM16XA0 | DVA16XP180 | XLT18SO | | | | AC164002 | AC164302 | | | | |

NOTE: See complete list of notes on page 94.

**Development
Systems Products**

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|----------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|---------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC16C54/54A/54C | 18P, 18JW | PCM16XA0 | DVA16XP180 | | | | | AC164001 | AC164301 | ✓ | | | DM163001 |
| PIC16C54/54A/54C | 18SO | PCM16XA0 | DVA16XP180 | XLT18SO | | | | AC164002 | AC164302 | | | | |
| PIC16C54/54A/54C | 20SS | PCM16XA0 | DVA16XP180 | XLT20SS | | | | AC164015 | AC164307 | | | | |
| PIC16C55/55A | 28P, 28JW | PCM16XA0 | DVA16XP280 | XLT28XP | | | | AC164001 | AC164301 | ✓ | | | DM163001 |
| PIC16C55/55A | 28SP | PCM16XA0 | DVA16XP280 | | | | | AC164001 | AC164301 | ✓ | | | DM163001 |
| PIC16C55/55A | 28SO | PCM16XA0 | DVA16XP280 | XLT28SO | | | | AC164002 | AC164302 | | | | |
| PIC16C55/55A | 28SS | PCM16XA0 | DVA16XP280 | XLT28SS2 | | | | AC164015 | AC164307 | | | | |
| PIC16C56/56A | 18P, 18JW | PCM16XA0 | DVA16XP180 | | | | | AC164001 | AC164301 | ✓ | | | DM163001 |
| PIC16C56/56A | 18SO | PCM16XA0 | DVA16XP180 | XLT18SO | | | | AC164002 | AC164302 | | | | |
| PIC16C56/56A | 20SS | PCM16XA0 | DVA16XP180 | XLT20SS | | | | AC164015 | AC164307 | | | | |
| PIC16C57/57C | 28P, 28JW | PCM16XA0 | DVA16XP280 | XLT28XP | | | | AC164001 | AC164301 | ✓ | | | DM163001 |
| PIC16C57/57C | 28SP | PCM16XA0 | DVA16XP280 | | | | | AC164001 | AC164301 | ✓ | | | DM163001 |
| PIC16C57/57C | 28SO | PCM16XA0 | DVA16XP280 | XLT28SO | | | | AC164002 | AC164302 | | | | |
| PIC16C57/57C | 28SS | PCM16XA0 | DVA16XP280 | XLT28SS2 | | | | AC164015 | AC164307 | | | | |
| PIC16C58A/58B | 18P, 18JW | PCM16XA0 | DVA16XP180 | | | | | AC164001 | AC164301 | ✓ | | | DM163001 |
| PIC16C58A/58B | 18SO | PCM16XA0 | DVA16XP180 | XLT18SO | | | | AC164002 | AC164302 | | | | |
| PIC16C58A/58B | 20SS | PCM16XA0 | DVA16XP180 | XLT20SS | | | | AC164015 | AC164307 | | | | |
| PIC16C62A | 28P, 28JW | PCM16XB1 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | | | DM163022 |
| PIC16C62A | 28SO | PCM16XB1 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | | | |
| PIC16C62A | 28SS | PCM16XB1 | DVA16XP282 | XLT28SS | | | | AC164021 | AC164307 | | | | |
| PIC16C62B | 28SP, 28JW | PCM16XE1 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | | | DM163022 |
| PIC16C62B | 28ML | PCM16XE1 | DVA16XP282 | XLT28QFN4 | | | | AC164012 +AC164031 | AC164322 | AC164031 | | | |
| PIC16C62B | 28SO | PCM16XE1 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | | | |
| PIC16C62B | 28SS | PCM16XE1 | DVA16XP282 | XLT28SS | | | | AC164021 | AC164307 | | | | |
| PIC16C63 | 28SP, 28JW | PCM16XB1 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | | | DM163022, DVMCPA |
| PIC16C63 | 28SO | PCM16XB1 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | | | |
| PIC16C63A | 28SP, 28JW | PCM16XE1 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | | | DM163022 |
| PIC16C63A | 28ML | PCM16XE1 | DVA16XP282 | XLT28QFN4 | | | | AC164012 +AC164031 | AC164322 | AC164031 | | | |
| PIC16C63A | 28SO | PCM16XE1 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | | | |
| PIC16C63A | 28SS | PCM16XE1 | DVA16XP282 | XLT28SS | | | | AC164021 | AC164307 | | | | |

NOTE: See complete list of notes on page 94.

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|------------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|---------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC16C64A | 40P, 40JW | PCM16XB1 | DVA16XP401 | | | | | AC164012 | AC164301 | ✓ | | | DM163022 |
| PIC16C64A | 44L | PCM16XB1 | DVA16XL441 | | | | | AC164013 | AC164309 | | | | |
| PIC16C64A | 44PQ | PCM16XB1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164014 | AC164311 | | | | |
| PIC16C64A | 44PT | PCM16XB1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | | | |
| PIC16C65A | 40P, 40JW | PCM16XB1 | DVA16XP401 | | | | | AC164012 | AC164301 | ✓ | | | DM163022 |
| PIC16C65A | 44L | PCM16XB1 | DVA16XL441 | | | | | AC164013 | AC164309 | | | | |
| PIC16C65A | 44PQ | PCM16XB1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164014 | AC164311 | | | | |
| PIC16C65A | 44PT | PCM16XB1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | | | |
| PIC16C65B | 40P, 40JW | PCM16XE1 | DVA16XP401 | | | | | AC164012 | AC164301 | ✓ | | | DM163022 |
| PIC16C65B | 44L | PCM16XE1 | DVA16XL441 | | | | | AC164013 | AC164309 | | | | |
| PIC16C65B | 44PQ | PCM16XE1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164014 | AC164311 | | | | |
| PIC16C65B | 44PT | PCM16XE1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | | | |
| PIC16C66 | 28SP, 28JW | PCM16XE1 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | | | DM163022 |
| PIC16C66 | 28SO | PCM16XE1 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | | | |
| PIC16C67 | 40P, 40JW | PCM16XE1 | DVA16XP401 | | | | | AC164012 | AC164301 | ✓ | | | DM163022 |
| PIC16C67 | 44L | PCM16XE1 | DVA16XL441 | | | | | AC164013 | AC164309 | | | | |
| PIC16C67 | 44PQ | PCM16XE1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164014 | AC164311 | | | | |
| PIC16C67 | 44PT | PCM16XE1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | | | |
| PIC16C71 | 18P, 18JW | PCM16XF0 | DVA16XP180 | | | | | AC164010 | AC164301 | ✓ | | | DM163001 |
| PIC16C71 | 18SO | PCM16XF0 | DVA16XP180 | XLT18SO | | | | AC164010 | AC164302 | | | | |
| PIC16C72 | 28SP, 28JW | PCM16XB1 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | | | DM163022 |
| PIC16C72 | 28SO | PCM16XB1 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | | | |
| PIC16C72 | 28SS | PCM16XB1 | DVA16XP282 | XLT28SS | | | | AC164021 | AC164307 | | | | |

NOTE: See complete list of notes on page 94.

**Development
Systems Products**

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|------------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|---------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC16C72A | 28SP, 28JW | PCM16XE1 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | | | DM163022 |
| PIC16C72A | 28ML | PCM16XE1 | DVA16XP282 | XLT28QFN4 | | | | AC164012 +AC164031 | AC164322 | AC164031 | | | |
| PIC16C72A | 28SO | PCM16XE1 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | | | |
| PIC16C72A | 28SS | PCM16XE1 | DVA16XP282 | XLT28SS | | | | AC164021 | AC164307 | | | | |
| PIC16C73A | 28SP, 28JW | PCM16XB1 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | | | DM163022 |
| PIC16C73A | 28SO | PCM16XB1 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | | | |
| PIC16C73B | 28SP, 28JW | PCM16XE1 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | | | DM163022 |
| PIC16C73B | 28ML | PCM16XE1 | DVA16XP282 | XLT28QFN4 | | | | AC164012 +AC164031 | AC164322 | AC164031 | | | |
| PIC16C73B | 28SO | PCM16XE1 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | | | |
| PIC16C73B | 28SS | PCM16XE1 | DVA16XP282 | XLT28SS | | | | AC164021 | AC164307 | | | | |
| PIC16C74A | 40P, 40JW | PCM16XB1 | DVA16XP401 | | | | | AC164012 | AC164301 | ✓ | | | DM163022 |
| PIC16C74A | 44L | PCM16XB1 | DVA16XL441 | | | | | AC164013 | AC164309 | | | | |
| PIC16C74A | 44PQ | PCM16XB1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164014 | AC164311 | | | | |
| PIC16C74A | 44PT | PCM16XB1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | | | |
| PIC16C74B | 40P, 40JW | PCM16XE1 | DVA16XP401 | | | | | AC164012 | AC164301 | ✓ | | | DM163022 |
| PIC16C74B | 44L | PCM16XE1 | DVA16XL441 | | | | | AC164013 | AC164309 | | | | |
| PIC16C74B | 44PQ | PCM16XE1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164014 | AC164311 | | | | |
| PIC16C74B | 44PT | PCM16XE1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | | | |
| PIC16C76 | 28SP, 28JW | PCM16XE1 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | | | DM163022 |
| PIC16C76 | 28SO | PCM16XE1 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | | | |
| PIC16C77 | 40P, 40JW | PCM16XE1 | DVA16XP401 | | | | | AC164012 | AC164301 | ✓ | | | DM163022 |
| PIC16C77 | 44L | PCM16XE1 | DVA16XL441 | | | | | AC164013 | AC164309 | | | | |
| PIC16C77 | 44PQ | PCM16XE1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164014 | AC164311 | | | | |
| PIC16C77 | 44PT | PCM16XE1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | | | |
| PIC16C432 | 20P, 20JW | PCM16YB0 | DVA16XP201 | | | | | AC164029 | AC164301 | | | | DM163005 |
| PIC16C432 | 20SS | PCM16YB0 | DVA16XP201 | XLT20SS1 | | | | AC164029 | AC164307 | | | | DM163007, DM163011 |

NOTE: See complete list of notes on page 94.

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|----------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|---------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC16C433 | 18P, 18JW | PCM16YC0 | DVA16XP185 | | | | | AC164030 | AC164301 | | | | DM163005 |
| PIC16C433 | 18SO | PCM16YC0 | DVA16XP185 | XLT18SO | | | | AC164030 | AC164307 | | | | |
| PIC16C505 | 14P, 14JW | PCM16XA0 | DVA16XP140 | | | | | AC124001 | AC164301 | ✓ | | | |
| PIC16C505 | 14SL | PCM16XA0 | DVA16XP140 | XLT14SO | | | | AC164026 | AC164302 | | | | |
| PIC16C554 | 18P, 18JW | PCM16XC0 | DVA16XP180 | | | | | AC164010 | AC164301 | ✓ | | | DM163001 |
| PIC16C554 | 18SO | PCM16XC0 | DVA16XP180 | XLT18SO | | | | AC164010 | AC164302 | | | | |
| PIC16C554 | 20SS | PCM16XC0 | DVA16XP180 | XLT20SS | | | | AC164018 | AC164307 | | | | |
| PIC16C557 | 28P | | | | | | | AC164001 | AC164301 | | | | |
| PIC16C557 | 28SO | | | | | | | AC164002 | AC164302 | | | | |
| PIC16C558 | 18P, 18JW | PCM16XC0 | DVA16XP180 | | | | | AC164010 | AC164301 | ✓ | | | DM163001 |
| PIC16C558 | 18SO | PCM16XC0 | DVA16XP180 | XLT18SO | | | | AC164010 | AC164302 | | | | |
| PIC16C558 | 20SS | PCM16XC0 | DVA16XP180 | XLT20SS | | | | AC164018 | AC164307 | | | | |
| PIC16C620/620A | 18P, 18JW | PCM16XC0 | DVA16XP180 | | | | | AC164010 | AC164301 | ✓ | | | DM163001 |
| PIC16C620/620A | 18SO | PCM16XC0 | DVA16XP180 | XLT18SO | | | | AC164010 | AC164302 | | | | |
| PIC16C620/620A | 20SS | PCM16XC0 | DVA16XP180 | XLT20SS | | | | AC164018 | AC164307 | | | | |
| PIC16C621/621A | 18P, 18JW | PCM16XC0 | DVA16XP180 | | | | | AC164010 | AC164301 | ✓ | | | DM163001 |
| PIC16C621/621A | 18SO | PCM16XC0 | DVA16XP180 | XLT18SO | | | | AC164010 | AC164302 | | | | |
| PIC16C621/621A | 20SS | PCM16XC0 | DVA16XP180 | XLT20SS | | | | AC164018 | AC164307 | | | | |
| PIC16C622/622A | 18P, 18JW | PCM16XC0 | DVA16XP180 | | | | | AC164010 | AC164301 | ✓ | | | DM163001 |
| PIC16C622/622A | 18SO | PCM16XC0 | DVA16XP180 | XLT18SO | | | | AC164010 | AC164302 | | | | |
| PIC16C622/622A | 20SS | PCM16XC0 | DVA16XP180 | XLT20SS | | | | AC164018 | AC164307 | | | | |
| PIC16C642 | 28SP, 28JW | PCM16XD0 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | | | DM163022 |
| PIC16C642 | 28SO | PCM16XD0 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | | | |

NOTE: See complete list of notes on page 94.

**Development
Systems Products**

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|------------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|---------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC16C662 | 40P, 40JW | PCM16XD0 | DVA16XP401 | | | | | AC164012 | AC164301 | ✓ | | | DM163022 |
| PIC16C662 | 44L | PCM16XD0 | DVA16XL441 | | | | | AC164013 | AC164309 | | | | |
| PIC16C662 | 44PQ | PCM16XD0 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164014 | AC164311 | | | | |
| PIC16C662 | 44PT | PCM16XD0 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | | | |
| PIC16C710 | 18P, 18JW | PCM16XF0 | DVA16XP180 | | | | | AC164010 | AC164301 | ✓ | | | DM163001 |
| PIC16C710 | 18SO | PCM16XF0 | DVA16XP180 | XLT18SO | | | | AC164010 | AC164302 | | | | |
| PIC16C710 | 20SS | PCM16XF0 | DVA16XP180 | XLT20SS | | | | AC164018 | AC164307 | | | | |
| PIC16C711 | 18P, 18JW | PCM16XF0 | DVA16XP180 | | | | | AC164010 | AC164301 | ✓ | | | DM163001 |
| PIC16C711 | 18SO | PCM16XF0 | DVA16XP180 | XLT18SO | | | | AC164010 | AC164302 | | | | |
| PIC16C711 | 20SS | PCM16XF0 | DVA16XP180 | XLT20SS | | | | AC164018 | AC164307 | | | | |
| PIC16C712 | 18P, 18JW | PCM16XE1 | DVA16XP182 | | | | | AC164010 | AC164301 | ✓ | | | DM163001 |
| PIC16C712 | 18SO | PCM16XE1 | DVA16XP182 | XLT18SO | | | | AC164010 | AC164302 | | | | |
| PIC16C712 | 20SS | PCM16XE1 | DVA16XP182 | XLT20SS | | | | AC164018 | AC164307 | | | | |
| PIC16C715 | 18P, 18JW | PCM16XG0 | DVA16XP180 | | | | | AC164010 | AC164301 | ✓ | | | DM163001 |
| PIC16C715 | 18SO | PCM16XG0 | DVA16XP180 | XLT18SO | | | | AC164010 | AC164302 | | | | |
| PIC16C715 | 20SS | PCM16XG0 | DVA16XP180 | XLT20SS | | | | AC164018 | AC164307 | | | | |
| PIC16C716 | 18P, 18JW | PCM16XE1 | DVA16XP182 | | | | | AC164010 | AC164301 | ✓ | | | DM163001 |
| PIC16C716 | 18SO | PCM16XE1 | DVA16XP182 | XLT18SO | | | | AC164010 | AC164302 | | | | |
| PIC16C716 | 20SS | PCM16XE1 | DVA16XP182 | XLT20SS | | | | AC164018 | AC164307 | | | | |
| PIC16C717 | 18P, 18JW | PCM16XN1 | DVA18XP180 | | | | | AC164010 | AC164301 | ✓ | | | DM163001 |
| PIC16C717 | 18SO | PCM16XN1 | DVA18XP180 | XLT18SO | | | | AC164010 | AC164302 | | | | |
| PIC16C717 | 20SS | PCM16XN1 | DVA18XP180 | XLT20SS | | | | AC164018 | AC164307 | | | | |
| PIC16C745 | 28SP, 28JW | PCM16XQ1 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | | | DM163010 |
| PIC16C745 | 28SO | PCM16XQ1 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | | | |
| PIC16C765 | 40P, 40JW | PCM16XQ1 | DVA16XP401 | | | | | AC164012 | AC164301 | ✓ | | | DM163010 |
| PIC16C765 | 44L | PCM16XQ1 | DVA16XL441 | | | | | AC164013 | AC164309 | | | | |
| PIC16C765 | 44PT | PCM16XQ1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | | | |

NOTE: See complete list of notes on page 94.

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|------------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|---------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC16C770 | 20P, 20JW | PCM16XN1 | DVA16XP200 | | | | | AC164028 | AC164301 | ✓ | | | DM163001 |
| PIC16C770 | 20SO | PCM16XN1 | DVA16XP200 | XLT20SO1 | | | | AC164028 | AC164302 | | | | |
| PIC16C770 | 20SS | PCM16XN1 | DVA16XP200 | XLT20SS1 | | | | AC164018 | AC164307 | | | | |
| PIC16C771 | 20P, 20JW | PCM16XN1 | DVA16XP200 | | | | | AC164028 | AC164301 | ✓ | | | DM163001 |
| PIC16C771 | 20SO | PCM16XN1 | DVA16XP200 | XLT20SO1 | | | | AC164028 | AC164302 | | | | |
| PIC16C771 | 20SS | PCM16XN1 | DVA16XP200 | XLT20SS1 | | | | AC164018 | AC164307 | | | | |
| PIC16C773 | 28SP, 28JW | PCM16XL0 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | | | DM163022 |
| PIC16C773 | 28SO | PCM16XL0 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | | | |
| PIC16C773 | 28SS | PCM16XL0 | DVA16XP282 | XLT28SS | | | | AC164021 | AC164307 | | | | |
| PIC16C774 | 40P, 40JW | PCM16XL0 | DVA16XP401 | | | | | AC164012 | AC164301 | ✓ | | | DM163022 |
| PIC16C774 | 44L | PCM16XL0 | DVA16XL441 | | | | | AC164013 | AC164309 | | | | |
| PIC16C774 | 44PQ | PCM16XL0 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164014 | AC164311 | | | | |
| PIC16C774 | 44PT | PCM16XL0 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | | | |
| PIC16C781 | 20P, 20JW | PCM16XW0 | DVA16XP202 | | | | | AC164028 | AC164301 | ✓ | | | DM163012 |
| PIC16C781 | 20SO | PCM16XW0 | DVA16XP202 | XLT20SO1 | | | | AC164028 | AC164302 | | | | |
| PIC16C781 | 20SS | PCM16XW0 | DVA16XP202 | XLT20SS1 | | | | AC164018 | AC164307 | | | | |
| PIC16C782 | 20P, 20JW | PCM16XW0 | DVA16XP202 | | | | | AC164028 | AC164301 | ✓ | | | DM163012 |
| PIC16C782 | 20SO | PCM16XW0 | DVA16XP202 | XLT20SO1 | | | | AC164028 | AC164302 | | | | |
| PIC16C782 | 20SS | PCM16XW0 | DVA16XP202 | XLT20SS1 | | | | AC164018 | AC164307 | | | | |
| PIC16C923 | 64SP | PCM16XJ0 | DVA16XP640 | | | | | AC164025 | | | | | |
| PIC16C923 | 64PT | PCM16XJ0 | DVA16PQ640 | XLT64PT1 | | | | AC164023 | AC164319 | | | | |
| PIC16C923 | 68L, 68CL | PCM16XJ0 | DVA16XL680 | | | | | AC164022 | AC164308 | AC164024 | | | DM163003 |
| PIC16C924 | 64SP | PCM16XJ0 | DVA16XP640 | | | | | AC164025 | | | | | |
| PIC16C924 | 64PT | PCM16XJ0 | DVA16PQ640 | XLT64PT1 | | | | AC164023 | AC164319 | | | | |
| PIC16C924 | 68L, 68CL | PCM16XJ0 | DVA16XL680 | | | | | AC164022 | AC164308 | AC164024 | | | DM163003 |
| PIC16C925 | 64PT | PCM16XT0 | DVA16PQ640 | XLT64PT1 | | | | AC164023 | AC164319 | | | | |
| PIC16C925 | 68L, 68CL | PCM16XT0 | DVA16XL680 | | | | | AC164022 | AC164308 | AC164024 | | | DM163003 |
| PIC16C926 | 64PT | PCM16XT0 | DVA16PQ640 | XLT64PT1 | | | | AC164023 | AC164319 | | | | |
| PIC16C926 | 68L, 68CL | PCM16XT0 | DVA16XL680 | | | | | AC164022 | AC164308 | AC164024 | | | DM163003 |

NOTE: See complete list of notes on page 94.

**Development
Systems Products**

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|----------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|---------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC16CE623 | 18P, 18JW | PCM16XC0 | DVA16XP180 | | | | | AC164010 | AC164301 | ✓ | | | DM163001 |
| PIC16CE623 | 18SO | PCM16XC0 | DVA16XP180 | XLT18SO | | | | AC164010 | AC164302 | | | | |
| PIC16CE623 | 20SS | PCM16XC0 | DVA16XP180 | XLT20SS | | | | AC164018 | AC164307 | | | | |
| PIC16CE624 | 18P, 18JW | PCM16XC0 | DVA16XP180 | | | | | AC164010 | AC164301 | ✓ | | | DM163001 |
| PIC16CE624 | 18SO | PCM16XC0 | DVA16XP180 | XLT18SO | | | | AC164010 | AC164302 | | | | |
| PIC16CE624 | 20SS | PCM16XC0 | DVA16XP180 | XLT20SS | | | | AC164018 | AC164307 | | | | |
| PIC16CE625 | 18P, 18JW | PCM16XC0 | DVA16XP180 | | | | | AC164010 | AC164301 | ✓ | | | DM163001 |
| PIC16CE625 | 18SO | PCM16XC0 | DVA16XP180 | XLT18SO | | | | AC164010 | AC164302 | | | | |
| PIC16CE625 | 20SS | PCM16XC0 | DVA16XP180 | XLT20SS | | | | AC164018 | AC164307 | | | | |
| PIC16F54 | 18P | PCM16XA0 | DVA16XP180 | | | | | AC164001 | AC164301 | ✓ | | | DV164101, DM163001, DV164120 |
| PIC16F54 | 18SO | PCM16XA0 | DVA16XP180 | XLT18SO | | | | AC164002 | AC164302 | | | | |
| PIC16F54 | 20SS | PCM16XA0 | DVA16XP180 | XLT20SS | | | | AC164015 | AC164307 | | | | |
| PIC16F57 | 28P | PCM16XA0 | DVA16XP280 | XLT28XP | | | | AC164001 | AC164301 | | | | |
| PIC16F57 | 28SP | PCM16XA0 | DVA16XP280 | | | | | AC164001 | AC164301 | ✓ | | | DV164101, DM163001, DV164120 |
| PIC16F57 | 28SO | PCM16XA0 | DVA16XP280 | XLT28SO | | | | AC164002 | AC164302 | | | | |
| PIC16F57 | 28SS | PCM16XA0 | DVA16XP280 | XLT28SS2 | | | | AC164015 | AC164307 | | | | |
| PIC16F59 | 40P | | | | | | | AC164038 | AC164301 | | ✓* | | DV164101, DV164120 |
| PIC16F59 | 44PT | | | | | | | AC164020 | AC164305 | | ✓* | | |
| PIC16F72 | 28SP, 28JW | PCM16XS2 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | | | DM163022 |
| PIC16F72 | 28SO | PCM16XS2 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | | | |
| PIC16F72 | 28SS | PCM16XS2 | DVA16XP282 | XLT28SS | | | | AC164021 | AC164307 | | | | |
| PIC16F72 | 28ML | PCM16XS2 | DVA16XP282 | XLT28QFN4 | | | | AC164012 +AC164031 | AC164322 | AC164031 | | | |
| PIC16F73 | 28SP, 28JW | PCM16XS2 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | ✓* | | DM163022 |
| PIC16F73 | 28ML | PCM16XS2 | DVA16XP282 | XLT28QFN4 | | | | AC164012 +AC164031 | AC164322 | AC164031 | ✓* | | |
| PIC16F73 | 28SO | PCM16XS2 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | ✓* | | |
| PIC16F73 | 28SS | PCM16XS2 | DVA16XP282 | XLT28SS | | | | AC164021 | AC164307 | | ✓* | | |

NOTE: See complete list of notes on page 94.

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|------------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|---------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC16F74 | 40P | PCM16XS2 | DVA16XP401 | | | | | AC164012 | AC164301 | ✓ | ✓* | | DM163022 |
| PIC16F74 | 44L | PCM16XS2 | DVA16XL441 | | | | | AC164013 | AC164309 | | ✓* | | |
| PIC16F74 | 44PT | PCM16XS2 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | ✓* | | |
| PIC16F74 | 44ML | PCM16XS2 | DVA16XL441 | XLT44QFN2 | | | | AC164012 +AC164034 | AC164322 | AC164034 | ✓* | | |
| PIC16F76 | 28SP, 28JW | PCM16XS2 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | ✓* | | DM163022 |
| PIC16F76 | 28ML | PCM16XS2 | DVA16XP282 | XLT28QFN4 | | | | AC164012 +AC164031 | AC164322 | AC164031 | ✓* | | |
| PIC16F76 | 28SO | PCM16XS2 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | ✓* | | |
| PIC16F76 | 28SS | PCM16XS2 | DVA16XP282 | XLT28SS | | | | AC164021 | AC164307 | | ✓* | | |
| PIC16F77 | 40P, 40JW | PCM16XS2 | DVA16XP401 | | | | | AC164012 | AC164301 | ✓ | ✓* | | DM163022 |
| PIC16F77 | 44L | PCM16XS2 | DVA16XL441 | | | | | AC164013 | AC164309 | | ✓* | | |
| PIC16F77 | 44ML | PCM16XS2 | DVA16XL441 | XLT44QFN2 | | | | AC164012 +AC164034 | AC164322 | AC164034 | ✓* | | |
| PIC16F77 | 44PT | PCM16XS2 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | ✓* | | |
| PIC16F83 | 18P | PCM16XH1 | DVA16XP180 | | | | | AC164010 | AC164301 | ✓ | | | DM163001 |
| PIC16F83 | 18SO | PCM16XH1 | DVA16XP180 | XLT18SO | | | | AC164010 | AC164302 | | | | |
| PIC16F84 | 18P | PCM16XH1 | DVA16XP180 | | | | | AC164010 | AC164301 | ✓ | | | DM163001 |
| PIC16F84 | 18SO | PCM16XH1 | DVA16XP180 | XLT18SO | | | | AC164010 | AC164302 | | | | |
| PIC16F84A | 18P | PCM16XH1 | DVA16XP180 | | | | | AC164010 | AC164301 | ✓ | | | DM163001 |
| PIC16F84A | 18SO | PCM16XH1 | DVA16XP180 | XLT18SO | | | | AC164010 | AC164302 | | | | |
| PIC16F84A | 20SS | PCM16XH1 | DVA16XP180 | XLT20SS | | | | AC164018 | AC164307 | | | | |
| PIC16F87 | 18P | PCM16YG0 | DVA16XP186 | | | | | AC164010 | AC164301 | ✓ | ✓ | | DM163014 |
| PIC16F87 | 18SO | PCM16YG0 | DVA16XP186 | XLT18SO | | | | AC164010 | AC164302 | | ✓ | | |
| PIC16F87 | 20SS | PCM16YG0 | DVA16XP186 | XLT20SS | | | | AC164018 | AC164307 | | ✓ | | |
| PIC16F87 | 28ML | PCM16YG0 | DVA16XP186 | XLT28QFN3 | | | | AC164010 +AC164033 | AC164322 | AC164033 | ✓ | | |
| PIC16F88 | 18P | PCM16YG0 | DVA16XP186 | | | | | AC164010 | AC164301 | ✓ | ✓ | | DM163014 |
| PIC16F88 | 18SO | PCM16YG0 | DVA16XP186 | XLT18SO | | | | AC164010 | AC164302 | | ✓ | | |
| PIC16F88 | 20SS | PCM16YG0 | DVA16XP186 | XLT20SS | | | | AC164018 | AC164307 | | ✓ | | |
| PIC16F88 | 28ML | PCM16YG0 | DVA16XP186 | XLT28QFN3 | | | | AC164010 +AC164033 | AC164322 | AC164033 | ✓ | | |

NOTE: See complete list of notes on page 94.

Development Systems Products

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|----------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|------------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC16F505 | 14P, 14JW | PCM16XA0 | DVA16XP140 | | | | | AC124001 | AC164301 | ✓ | AC162059 | | DM163014, DV164101, DV164120, DM163029 |
| PIC16F505 | 14SL | PCM16XA0 | DVA16XP140 | XLT14SO | | | | AC164026 | AC164302 | | AC162059 +XLT14SO | | |
| PIC16F505 | 14ST | PCM16XA0 | DVA16XP140 | | | | | | AC164306 | | | | |
| PIC16F506 | 14P | | | | | | | AC124001* | AC164301* | | AC162070** | | DV164101*, DV164120, DM163029 |
| PIC16F506 | 14SO | | | | | | | AC164026* | AC164302* | | | | |
| PIC16F506 | 14ST | | | | | | | | AC164306* | | | | |
| PIC16F506 | 16ML | | | | | | | | AC164324** | | | | |
| PIC16F627 | 18P, 18JW | PCM16XP0 | DVA16XP183 | | | | | AC164010 | AC164301 | ✓ | | | DM163001 |
| PIC16F627 | 18SO | PCM16XP0 | DVA16XP183 | XLT18SO | | | | AC164010 | AC164302 | | | | |
| PIC16F627 | 20SS | PCM16XP0 | DVA16XP183 | XLT20SS | | | | AC164018 | AC164307 | | | | |
| PIC16F627A | 18P | PCM16YF0 | DVA16XP186 | | | | | AC164010 | AC164301 | ✓ | AC162053 | | DM163014 |
| PIC16F627A | 18SO | PCM16YF0 | DVA16XP186 | XLT18SO | | | | AC164010 | AC164302 | | AC162053 +XLT18SO | | |
| PIC16F627A | 20SS | PCM16YF0 | DVA16XP186 | XLT20SS | | | | AC164018 | AC164307 | | AC162053 +XLT20SS | | |
| PIC16F627A | 28ML | PCM16YF0 | DVA16XP186 | XLT28QFN3 | | | | AC164010 +AC164033 | AC164322 | AC164033 | AC162053 +XLT28QFN3 | | |
| PIC16F628 | 18P, 18JW | PCM16XP0 | DVA16XP183 | | | | | AC164010 | AC164301 | ✓ | | | DM163001 |
| PIC16F628 | 18SO | PCM16XP0 | DVA16XP183 | XLT18SO | | | | AC164010 | AC164302 | | | | |
| PIC16F628 | 20SS | PCM16XP0 | DVA16XP183 | XLT20SS | | | | AC164018 | AC164307 | | | | |
| PIC16F628A | 18P | PCM16YF0 | DVA16XP186 | | | | | AC164010 | AC164301 | ✓ | AC162053 | | DM163014 |
| PIC16F628A | 18SO | PCM16YF0 | DVA16XP186 | XLT18SO | | | | AC164010 | AC164302 | | AC162053 +XLT18SO | | |
| PIC16F628A | 20SS | PCM16YF0 | DVA16XP186 | XLT20SS | | | | AC164018 | AC164307 | | AC162053 +XLT20SS | | |
| PIC16F628A | 28ML | PCM16YF0 | DVA16XP186 | XLT28QFN3 | | | | AC164010 +AC164033 | AC164322 | AC164033 | AC162053 +XLT28QFN3 | | |

NOTE: See complete list of notes on page 94.

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|----------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|-------------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC16F630 | 14P | PCM16YD0 | DVA16XP141 | | | | | AC124001 | AC164301 | ✓ | AC162052 | | DM163014, DV164101, DV164120, DM163029 |
| PIC16F630 | 14SL | PCM16YD0 | DVA16XP141 | XLT14SO | | | | AC164026 | AC164302 | | AC162052 +XLT14SO | | |
| PIC16F630 | 14ST | PCM16YD0 | DVA16XP141 | XLT14SS | | | | AC164026 | AC164306 | | AC162052 +XLT14SS | | |
| PIC16F636 | 14P | PCM16YM0 | DVA1002 | ACICE0207 | | | | AC124001 | AC164301 | ✓ | AC162057 | | DV164120, DM163029 |
| PIC16F636 | 14SL | PCM16YM0 | DVA1002 | XLT14SO | | | | AC164026 | AC164302 | | AC162057 +XLT14SO | | |
| PIC16F636 | 14ST | PCM16YM0 | DVA1002 | XLT14SS | | | | AC164026 | AC164306 | | AC162057 +XLT14SS | | |
| PIC16F639 | 20P | PCM16YM0* | DVA1002 | ACICE0203 | | | | AC164039 | AC164301 | ✓* | AC162066** | | DV164101*, DM163014, DM163029 |
| PIC16F639 | 20SO | PCM16YM0* | DVA1002 | XLT20SO1 | | | | AC164039 | AC164302 | | AC162066** +XLT20SO1 | | |
| PIC16F639 | 20SS | PCM16YM0* | DVA1002 | XLT20SS1 | | | | | AC164307 | | AC162066** +XLT20SS1 | | |
| PIC16F648A | 18P | PCM16YF0 | DVA16XP186 | | | | | AC164010 | AC164301 | ✓ | AC162053 | | DM163014 |
| PIC16F648A | 18SO | PCM16YF0 | DVA16XP186 | XLT18SO | | | | AC164010 | AC164302 | | AC162053 +XLT18SO | | |
| PIC16F648A | 20SS | PCM16YF0 | DVA16XP186 | XLT20SS | | | | AC164018 | AC164307 | | AC162053 +XLT20SS | | |
| PIC16F648A | 28ML | PCM16YF0 | DVA16XP186 | XLT28QFN3 | | | | AC164010 +AC164033 | AC164322 | AC164033 | AC162053 +XLT28QFN3 | | |
| PIC16F676 | 14P | PCM16YD0 | DVA16XP141 | | | | | AC124001 | AC164301 | ✓ | AC162052 | | DM163014, DV164101, DV164120, DM163029 |
| PIC16F676 | 14SL | PCM16YD0 | DVA16XP141 | XLT14SO | | | | AC164026 | AC164302 | | AC162052 +XLT14SO | | |
| PIC16F676 | 14ST | PCM16YD0 | DVA16XP141 | XLT14SS | | | | AC164026 | AC164306 | | AC162052 +XLT14SS | | |

NOTE: See complete list of notes on page 94.

**Development
Systems Products**

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|----------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|-------------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC16F684 | 14P | PCM16YK0 | DVA1002 | ACICE0207 | | | | AC124001 | AC164301 | ✓ | AC162055 | | DV164101, DV164120, DM163029 |
| PIC16F684 | 14SL | PCM16YK0 | DVA1002 | XLT14SO | | | | AC164026 | AC164302 | | AC162055 +XLT14SO | | |
| PIC16F684 | 14ST | PCM16YK0 | DVA1002 | XLT14SS | | | | AC164026 | AC164306 | | AC162055 +XLT14SS | | |
| PIC16F685 | 20P | PCM16YQ0** | DVA1004** | ACICE0203 | | | | AC164039* | AC164301* | ✓* | AC162061** | | DV164120, DM163029 |
| PIC16F685 | 20SO | PCM16YQ0** | DVA1004** | XLT20SO1 | | | | AC164039* | AC164302* | | AC162061** +XLT20SO1 | | |
| PIC16F685 | 20SS | PCM16YQ0** | DVA1004** | XLT20SS1 | | | | | AC164307* | | AC162061** +XLT20SS1 | | |
| PIC16F687 | 20P | PCM16YQ0** | DVA1004** | ACICE0203 | | | | AC164039* | AC164301* | ✓* | AC162061** | | DV164120, DM163029 |
| PIC16F687 | 20SO | PCM16YQ0** | DVA1004** | XLT20SO1 | | | | AC164039* | AC164302* | | AC162061** +XLT20SO1 | | |
| PIC16F687 | 20SS | PCM16YQ0** | DVA1004** | XLT20SS1 | | | | | AC164307* | | AC162061** +XLT20SS1 | | |
| PIC16F688 | 14P | PCM16YL0 | DVA1002 | ACICE0207 | | | | AC124001 | AC164301 | ✓ | AC162056 | | DV164101, DV164120, DM163029 |
| PIC16F688 | 14SL | PCM16YL0 | DVA1002 | XLT14SO | | | | AC164026 | AC164302 | | AC162056 +XLT14SO | | |
| PIC16F688 | 14ST | PCM16YL0 | DVA1002 | XLT14SS | | | | AC164026 | AC164306 | | AC162056 +XLT14SS | | |
| PIC16F689 | 20P | PCM16YQ0** | DVA1004** | ACICE0203 | | | | AC164039* | AC164301* | | AC162061** | | DV164120, DM163029 |
| PIC16F689 | 20SO | PCM16YQ0** | DVA1004** | XLT20SO1 | | | | AC164039* | AC164302* | | AC162061** +XLT20SO1 | | |
| PIC16F689 | 20SS | PCM16YQ0* | DVA1004* | XLT20SS1 | | | | | AC164307* | | AC162061** +XLT20SS1 | | |

NOTE: See complete list of notes on page 94.

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|------------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|-------------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC16F690 | 20P | PCM16YQ0** | DVA1004** | ACICE0203 | | | | AC164039* | AC164301* | | AC162061** | | DV164120, DM163029 |
| PIC16F690 | 20SO | PCM16YQ0** | DVA1004** | XLT20SO1 | | | | AC164039* | AC164302* | | AC162061** +XLT20SO1 | | |
| PIC16F690 | 20SS | PCM16YQ0** | DVA1004** | XLT20SS1 | | | | | AC164307* | | AC162061** +XLT20SS1 | | |
| PIC16F716 | 18P | PCM16YJ0 | DVA16XP187 | | | | | AC164010 | AC164301 | ✓ | AC162054 | | DM163001 |
| PIC16F716 | 18SO | PCM16YJ0 | DVA16XP187 | XLT18SO | | | | AC164010 | AC164302 | | AC162054 +XLT18SO | | |
| PIC16F716 | 20SS | PCM16YJ0 | DVA16XP187 | XLT20SS | | | | AC164018 | AC164307 | | AC162054 +XLT20SS | | |
| PIC16F737 | 28SP | PCM16YH0 | DVA18XP280 | | | | | AC164012 | AC164301 | ✓ | ✓ | | |
| PIC16F737 | 28SO | PCM16YH0 | DVA18XP280 | XLT28SO | | | | AC164017 | AC164302 | | ✓ | | |
| PIC16F737 | 28SS | PCM16YH0 | DVA18XP280 | XLT28SS | | | | AC164021 | AC164307 | | ✓ | | |
| PIC16F737 | 28ML | PCM16YH0 | DVA18XP280 | XLT28QFN4 | | | | AC164012 +AC164031 | AC164322 | AC164031 | ✓ | | |
| PIC16F747 | 40P | PCM16YH0 | DVA18XP400 | | | | | AC164012 | AC164301 | ✓ | ✓ | | |
| PIC16F747 | 44PT | PCM16YH0 | DVA18PQ440 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | ✓ | | |
| PIC16F747 | 44ML | PCM16YH0 | DVA18XP400 | XLT44QFN2 | | | | AC164012 +AC164034 | AC164322 | AC164034 | ✓ | | |
| PIC16F767 | 28P | PCM16YH0 | DVA18XP280 | | | | | AC164012 | AC164301 | ✓ | ✓ | | |
| PIC16F767 | 28SO | PCM16YH0 | DVA18XP280 | XLT28SO | | | | AC164017 | AC164302 | | ✓ | | |
| PIC16F767 | 28SS | PCM16YH0 | DVA18XP280 | XLT28SS | | | | AC164021 | AC164307 | | ✓ | | |
| PIC16F767 | 28ML | PCM16YH0 | DVA18XP280 | XLT28QFN4 | | | | AC164012 +AC164031 | AC164322 | AC164031 | ✓ | | |
| PIC16F777 | 40P | PCM16YH0 | DVA18XP400 | | | | | AC164012 | AC164301 | ✓ | ✓ | | |
| PIC16F777 | 44PT | PCM16YH0 | DVA18PQ440 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | ✓ | | |
| PIC16F777 | 44ML | PCM16YH0 | DVA18XP400 | XLT44QFN2 | | | | AC164012 +AC164034 | AC164322 | AC164034 | ✓ | | |
| PIC16F785 | 20P | PCM16YN0** | DVA1004** | ACICE0203 | | | | AC164039 | AC164301 | ✓* | AC162060** | | DV164120, DM163029 |
| PIC16F785 | 20SO | PCM16YN0** | DVA1004** | XLT20SO1 | | | | AC164039 | AC164302 | | AC162060** +XLT20SO1 | | |
| PIC16F785 | 20SS | PCM16YN0** | DVA1004** | XLT20SS1 | | | | | AC164307 | | AC162060** +XLT20SS1 | | |

NOTE: See complete list of notes on page 94.

**Development
Systems Products**

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|------------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|---------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC16F818 | 18P | PCM16YE0 | DVA16XP186 | | | | | AC164010 | AC164301 | ✓ | ✓ | | DM163014 |
| PIC16F818 | 18SO | PCM16YE0 | DVA16XP186 | XLT18SO | | | | AC164010 | AC164302 | | ✓ | | |
| PIC16F818 | 20SS | PCM16YE0 | DVA16XP186 | XLT20SS | | | | AC164018 | AC164307 | | ✓ | | |
| PIC16F818 | 28ML | PCM16YE0 | DVA16XP186 | XLT28QFN3 | | | | AC164010 +AC164033 | AC164322 | AC164033 | ✓ | | |
| PIC16F819 | 18P | PCM16YE0 | DVA16XP186 | | | | | AC164010 | AC164301 | ✓ | ✓ | | DM163014 |
| PIC16F819 | 18SO | PCM16YE0 | DVA16XP186 | XLT18SO | | | | AC164010 | AC164302 | | ✓ | | |
| PIC16F819 | 20SS | PCM16YE0 | DVA16XP186 | XLT20SS | | | | AC164018 | AC164307 | | ✓ | | |
| PIC16F819 | 28ML | PCM16YE0 | DVA16XP186 | XLT28QFN3 | | | | AC164010 +AC164033 | AC164322 | AC164033 | ✓ | | |
| PIC16F870 | 28SP, 28JW | PCM16XR1 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | ✓ | | DM163022 |
| PIC16F870 | 28SO | PCM16XR1 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | ✓ | | |
| PIC16F870 | 28SS | PCM16XR1 | DVA16XP282 | XLT28SS | | | | AC164021 | AC164307 | | ✓ | | |
| PIC16F871 | 40P | PCM16XR1 | DVA16XP401 | | | | | AC164012 | AC164301 | ✓ | ✓ | | DM163022 |
| PIC16F871 | 44L | PCM16XR1 | DVA16XL441 | | | | | AC164013 | AC164309 | | ✓ | | |
| PIC16F871 | 44PT | PCM16XR1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | ✓ | | |
| PIC16F872 | 28SP | PCM16XK1 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | ✓ | | DM163022 |
| PIC16F872 | 28SO | PCM16XK1 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | ✓ | | |
| PIC16F872 | 28SS | PCM16XK1 | DVA16XP282 | XLT28SS | | | | AC164021 | AC164307 | | ✓ | | |
| PIC16F873 | 28SP | PCM16XK1 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | ✓ | | DM163022 |
| PIC16F873 | 28SO | PCM16XK1 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | ✓ | | |
| PIC16F873A | 28SP | PCM16XV0 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | ✓ | | DM163022 |
| PIC16F873A | 28SO | PCM16XV0 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | ✓ | | |
| PIC16F873A | 28SS | PCM16XV0 | DVA16XP282 | XLT28SS | | | | AC164021 | AC164307 | | ✓ | | |
| PIC16F873A | 28ML | PCM16XV0 | DVA16XP282 | XLT28QFN4 | | | | AC164012 +AC164031 | AC164322 | AC164031 | ✓ | | |
| PIC16F874 | 40P | PCM16XK1 | DVA16XP401 | | | | | AC164012 | AC164301 | ✓ | ✓ | | DM163022 |
| PIC16F874 | 44L | PCM16XK1 | DVA16XL441 | | | | | AC164013 | AC164309 | | ✓ | | |
| PIC16F874 | 44PQ | PCM16XK1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164014 | AC164311 | | ✓ | | |
| PIC16F874 | 44PT | PCM16XK1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | ✓ | | |

NOTE: See complete list of notes on page 94.

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|------------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|---------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC16F874A | 40P | PCM16XV0 | DVA16XP401 | | | | | AC164012 | AC164301 | ✓ | ✓ | | DM163022 |
| PIC16F874A | 44L | PCM16XV0 | DVA16XL441 | | | | | AC164013 | AC164309 | | ✓ | | |
| PIC16F874A | 44PT | PCM16XV0 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | ✓ | | |
| PIC16F874A | 44ML | PCM16XV0 | DVA16XP401 | XLT44QFN2 | | | | AC164012 +AC164034 | AC164322 | AC164034 | ✓ | | |
| PIC16F876 | 28SP | PCM16XK1 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | ✓ | | DM163022 |
| PIC16F876 | 28SO | PCM16XK1 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | ✓ | | |
| PIC16F876A | 28SP | PCM16XV0 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | ✓ | | DM163022 |
| PIC16F876A | 28SO | PCM16XV0 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | ✓ | | |
| PIC16F876A | 28SS | PCM16XV0 | DVA16XP282 | XLT28SS | | | | AC164021 | AC164307 | | ✓ | | |
| PIC16F876A | 28ML | PCM16XV0 | DVA16XP282 | XLT28QFN4 | | | | AC164012 +AC164031 | AC164322 | AC164031 | ✓ | | |
| PIC16F877 | 40P | PCM16XK1 | DVA16XP401 | | | | | AC164012 | AC164301 | ✓ | ✓ | | DM163022 |
| PIC16F877 | 44L | PCM16XK1 | DVA16XL441 | | | | | AC164013 | AC164309 | | ✓ | | |
| PIC16F877 | 44PQ | PCM16XK1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164014 | AC164311 | | ✓ | | |
| PIC16F877 | 44PT | PCM16XK1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | ✓ | | |
| PIC16F877A | 40P | PCM16XV0 | DVA16XP401 | | | | | AC164012 | AC164301 | ✓ | ✓ | | DM163022 |
| PIC16F877A | 44L | PCM16XV0 | DVA16XL441 | | | | | AC164013 | AC164309 | | ✓ | | |
| PIC16F877A | 44PT | PCM16XV0 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | ✓ | | |
| PIC16F877A | 44ML | PCM16XV0 | DVA16XP401 | XLT44QFN2 | | | | AC164012 +AC164034 | AC164322 | AC164034 | ✓ | | |
| PIC16F913 | 28P | PCM16YP0** | DVA18XP280 | | | | | AC164012 | AC164301 | ✓* | ✓ | | DV164120 |
| PIC16F913 | 28SO | PCM16YP0** | DVA18XP280 | XLT28SO | | | | AC164017 | AC164302 | | ✓ | | |
| PIC16F913 | 28SS | PCM16YP0** | DVA18XP280 | XLT28SS | | | | AC164021 | AC164307 | | ✓ | | |
| PIC16F913 | 28ML | PCM16YP0** | DVA18XP280 | XLT28QFN4 | | | | AC164012 +AC164031 | AC164322 | AC164031* | ✓ | | |

NOTE: See complete list of notes on page 94.

**Development
Systems Products**

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|------------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|---------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC16F914 | 40P | PCM16YP0** | DVA18XP400 | | | | | AC164012 | AC164301 | ✓* | ✓ | | DV164120, DM163029 |
| PIC16F914 | 44PT | PCM16YP0** | DVA18PQ440 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | ✓ | | |
| PIC16F914 | 44ML | PCM16YP0** | DVA18XP400 | XLT44QFN2 | | | | AC164012 +AC164034 | AC164322 | AC164034* | ✓ | | |
| PIC16F916 | 28P | PCM16YP0** | DVA18XP280 | | | | | AC164012 | AC164301 | ✓* | ✓ | | DV164120 |
| PIC16F916 | 28SO | PCM16YP0** | DVA18XP280 | XLT28SO | | | | AC164017 | AC164302 | | ✓ | | |
| PIC16F916 | 28SS | PCM16YP0** | DVA18XP280 | XLT28SS | | | | AC164021 | AC164307 | | ✓ | | |
| PIC16F916 | 28ML | PCM16YP0** | DVA18XP280 | XLT28QFN4 | | | | AC164012 +AC164031 | AC164322 | AC164031* | ✓ | | |
| PIC16F917 | 40P | PCM16YP0** | DVA18XP400 | | | | | AC164012 | AC164301 | ✓* | ✓ | | DV164120, DM163029 |
| PIC16F917 | 44PT | PCM16YP0** | DVA18PQ440 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | ✓ | | |
| PIC16F917 | 44ML | PCM16YP0** | DVA18XP400 | XLT44QFN2 | | | | AC164012 +AC164034 | AC164322 | AC164034* | ✓ | | |
| PIC16F946 | 64PT | PCM16YP0** | DVA1005** | XLT64PT5 | | | | TBD | AC164303* | | ✓* | | |
| PIC16HV540 | 18P, 18JW | | | | | | | AC164001 | AC164301 | ✓ | | | |
| PIC16HV540 | 18SO | | | | | | | AC164002 | AC164302 | | | | |
| PIC16HV540 | 20SS | | | | | | | AC164015 | AC164307 | | | | |
| PIC17C42A | 40P, 40JW | PCM17XA0 | DVA17XP401 | | | | | AC174001 | AC164301 | ✓ | | | DM163001 |
| PIC17C42A | 44L | PCM17XA0 | DVA17XL441 | | | | | AC174002 | AC164317 | | | | |
| PIC17C42A | 44PQ | PCM17XA0 | DVA17PQ441 | XLT44PT or XLT44PT3 | | | | AC174004 | AC164316 | | | | |
| PIC17C42A | 44PT | PCM17XA0 | DVA17PQ441 | XLT44PT or XLT44PT3 | | | | AC174005 | AC164315 | | | | |
| PIC17C43 | 40P, 40JW | PCM17XA0 | DVA17XP401 | | | | | AC174001 | AC164301 | ✓ | | | DM163001 |
| PIC17C43 | 44L | PCM17XA0 | DVA17XL441 | | | | | AC174002 | AC164317 | | | | |
| PIC17C43 | 44PQ | PCM17XA0 | DVA17PQ441 | XLT44PT or XLT44PT3 | | | | AC174004 | AC164316 | | | | |
| PIC17C43 | 44PT | PCM17XA0 | DVA17PQ441 | XLT44PT or XLT44PT3 | | | | AC174005 | AC164315 | | | | |

NOTE: See complete list of notes on page 94.

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|-------------------------|----------------------------|--------------------|-------------------------|--|------------------------------------|-----------------------|---------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC17C44 | 40P, 40JW | PCM17XA0 | DVA17XP401 | | | | | AC174001 | AC164301 | ✓ | | | DM163001 |
| PIC17C44 | 44L | PCM17XA0 | DVA17XL441 | | | | | AC174002 | AC164317 | | | | |
| PIC17C44 | 44PQ | PCM17XA0 | DVA17PQ441 | XLT44PT or XLT44PT3 | | | | AC174004 | AC164316 | | | | |
| PIC17C44 | 44PT | PCM17XA0 | DVA17PQ441 | XLT44PT or XLT44PT3 | | | | AC174005 | AC164315 | | | | |
| PIC17C752 | 68L | PCM17XA0 | DVA17XL681 | | | | | AC174007 | AC164308 | AC164024 | | | DM173001 |
| PIC17C752 | 64PT | PCM17XA0 | DVA17PQ641 | XLT64PT2 or XLT64PT5 | | | | AC174008 | AC164319 | | | | |
| PIC17C756/756A | 68L, 68CL | PCM17XA0 | DVA17XL681 | | | | | AC174007 | AC164308 | AC164024 | | | DM173001 |
| PIC17C756/756A | 64PT | PCM17XA0 | DVA17PQ641 | XLT64PT2 or XLT64PT5 | | | | AC174008 | AC164319 | | | | |
| PIC17C762 | 84L | PCM17XA0 | DVA17XL841 | | | | | AC174012 | AC164318 | AC164027 | | | DM173001 |
| PIC17C762 | 80PT | PCM17XA0 | DVA17PQ801 | XLT80PT or XLT80PT3 | | | | AC174011 | AC164320 | | | | |
| PIC17C766 | 84L, 84CL | PCM17XA0 | DVA17XL841 | | | | | AC174012 | AC164318 | AC164027 | | | DM173001 |
| PIC17C766 | 80PT | PCM17XA0 | DVA17PQ801 | XLT80PT or XLT80PT3 | | | | AC174011 | AC164320 | | | | |
| PIC18C242 | 28SP, 28JW | PCM18XA0 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | | SW006011 | DM163022 |
| PIC18C242 | 28SO | PCM18XA0 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | | SW006011 | |
| PIC18C252 | 28SP | PCM18XA0 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | | SW006011 | DM163022 |
| PIC18C252 | 28JW | PCM18XA0 | DVA16XP282 | XLT28XP | | | | AC164012 | AC164301 | | | SW006011 | DM163022 |
| PIC18C252 | 28SO | PCM18XA0 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | | SW006011 | |
| PIC18C442 | 40P, 40JW | PCM18XA0 | DVA16XP401 | | | | | AC164012 | AC164301 | ✓ | | SW006011 | DM163022 |
| PIC18C442 | 44L | PCM18XA0 | DVA16XL441 | | | | | AC164013 | AC164309 | | | SW006011 | |
| PIC18C442 | 44PT | PCM18XA0 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | | SW006011 | |
| PIC18C452 | 40P, 40JW | PCM18XA0 | DVA16XP401 | | | | | AC164012 | AC164301 | ✓ | | SW006011 | DM163022 |
| PIC18C452 | 44L | PCM18XA0 | DVA16XL441 | | | | | AC164013 | AC164309 | | | SW006011 | |
| PIC18C452 | 44PT | PCM18XA0 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | | SW006011 | |
| PIC18C601 | 68L | | | | PMF18WB1 | DAF18-1 | XLT68L1 | AC174007 | AC164308 | | ✓ | SW006011 | DM163006 |
| PIC18C601 | 64PT | | | | PMF18WB1 | DAF18-1 | XLT64PT2 or XLT64PT5 | AC174008 | AC164303 | | ✓ | SW006011 | |

NOTE: See complete list of notes on page 94.

**Development
Systems Products**

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|-----------------------------|-------------------------|----------------------------|--------------------|------------------------|--|------------------------------------|-----------------------|---------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC18C658 | 68L | PCM18XB0 | DVA18XL680 | | | | | AC174007 | AC164308 | ✓ (7) | | SW006011 | DM163007 |
| PIC18C658 | 64PT | PCM18XB0 | DVA18PQ640 | XLT64PT2 or XLT64PT5 | | | | AC174008 | AC164303 | | | SW006011 | |
| PIC18C801 | 80PT | | | | PMF18WB1 | DAF18-1 | XLT80PT or XLT80PT3 | AC174011 | AC164304 | | ✓ | SW006011 | |
| PIC18C801 | 84L | | | | PMF18WB1 | DAF18-1 | XLT84L1 | AC174012 | AC164310 | | ✓ | SW006011 | DM163006 |
| PIC18C858 | 84L | PCM18XB0 | DVA18XL840 | | | | | AC174012 | AC164310 | ✓ (7) | | SW006011 | DM163007 |
| PIC18C858 | 80PT | PCM18XB0 | DVA18PQ800 | XLT80PT or XLT80PT3 | | | | AC174011 | AC164304 | | | SW006011 | |
| PIC18F242 | 28SP | PCM18XH2 | DVA16XP282 or DVA18XP280 | | PMF18WC1 | DAF18-2 | ACICE0204 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | DM163022 |
| PIC18F242 | 28SO | PCM18XH2 | DVA16XP282 or DVA18XP280 | XLT28SO | PMF18WC1 | DAF18-2 | XLT28SO | AC164017 | AC164302 | | ✓ | SW006011 | |
| PIC18F248 | 28SP | PCM18XD1 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | ✓ | SW006011 | DM163011 |
| PIC18F248 | 28SO | PCM18XD1 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | ✓ | SW006011 | |
| PIC18F252 | 28SP | PCM18XH2 | DVA16XP282 or DVA18XP280 | | PMF18WC1 | DAF18-2 | ACICE0204 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | DM163022 |
| PIC18F252 | 28SO | PCM18XH2 | DVA16XP282 or DVA18XP280 | XLT28SO | PMF18WC1 | DAF18-2 | XLT28SO | AC164017 | AC164302 | | ✓ | SW006011 | |
| PIC18F258 | 28SP | PCM18XD1 | DVA16XP282 | | | | | AC164012 | AC164301 | ✓ | ✓ | SW006011 | DM163011 |
| PIC18F258 | 28SO | PCM18XD1 | DVA16XP282 | XLT28SO | | | | AC164017 | AC164302 | | ✓ | SW006011 | |
| PIC18F442 | 40P | PCM18XH2 | DVA16XP401 or DVA18XP400 | | PMF18WC1 | DAF18-2 | ACICE0206 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | DM163022 |
| PIC18F442 | 44L | PCM18XH2 | DVA16XL441 | | PMF18WC1 | DAF18-3 | XLT44L2 | AC164013 | AC164309 | | ✓ | SW006011 | |
| PIC18F442 | 44PT | PCM18XH2 | DVA16PQ441 or DVA18PQ440 | XLT44PT or XLT44PT3 | PMF18WC1 | DAF18-3 | XLT44PT or XLT44PT3 | AC164020 | AC164305 | | ✓ | SW006011 | |
| PIC18F448 | 40P | PCM18XD1 | DVA16XP401 | | | | | AC164012 | AC164301 | ✓ | ✓ | SW006011 | DM163011 |
| PIC18F448 | 44L | PCM18XD1 | DVA16XL441 | | | | | AC164013 | AC164309 | | ✓ | SW006011 | |
| PIC18F448 | 44PT | PCM18XD1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | ✓ | SW006011 | |
| PIC18F452 | 40P | PCM18XH2 | DVA16XP401 | | PMF18WC1 | DAF18-2 | ACICE0206 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | DM163022 |
| PIC18F452 | 44L | PCM18XH2 | DVA16XL441 | | PMF18WC1 | DAF18-3 | XLT44L2 | AC164013 | AC164309 | | ✓ | SW006011 | |
| PIC18F452 | 44PT | PCM18XH2 | DVA16PQ441 | XLT44PT or XLT44PT3 | PMF18WC1 | DAF18-3 | XLT44PT or XLT44PT3 | AC164020 | AC164305 | | ✓ | SW006011 | |

NOTE: See complete list of notes on page 94.

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|------------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|---------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC18F458 | 40P | PCM18XD1 | DVA16XP401 | | | | | AC164012 | AC164301 | ✓ | ✓ | SW006011 | DM163011 |
| PIC18F458 | 44L | PCM18XD1 | DVA16XL441 | | | | | AC164013 | AC164309 | | ✓ | SW006011 | |
| PIC18F458 | 44PT | PCM18XD1 | DVA16PQ441 | XLT44PT or XLT44PT3 | | | | AC164020 | AC164305 | | ✓ | SW006011 | |
| PIC18F1220 | 18P | PCM18XJ0 | DVA18XP180 | | PMF18WD0 | DAF18-2 | ACICE0202 | AC164010 | AC164301 | ✓* | ✓ | SW006011 | DM163014 |
| PIC18F1220 | 18SO | PCM18XJ0 | DVA18XP180 | XLT18SO | PMF18WD0 | DAF18-2 | XLT18SO | AC164010 | AC164302 | | ✓ | SW006011 | |
| PIC18F1220 | 20SS | PCM18XJ0 | DVA18XP180 | XLT20SS | PMF18WD0 | DAF18-2 | XLT20SS | AC164018 | AC164307 | | ✓ | SW006011 | |
| PIC18F1220 | 28ML | PCM18XJ0 | DVA18XP180 | XLT28QFN3 | PMF18WD0 | DAF18-2 | XLT28QFN3 | AC164010 +AC164033 | AC164322 | AC164033* | ✓ | SW006011 | |
| PIC18F1230 | 18P | | | | | | | TBD | AC164301* | | ✓* | SW006011* | |
| PIC18F1230 | 18SO | | | | | | | TBD | AC164302* | | ✓* | SW006011* | |
| PIC18F1230 | 20SS | | | | | | | TBD | AC164307* | | ✓* | SW006011* | |
| PIC18F1230 | 28ML | | | | | | | TBD | AC164322* | | ✓* | SW006011* | |
| PIC18F1231 | 18P | | | | | | | TBD | AC164301* | | ✓* | SW006011* | |
| PIC18F1231 | 18SO | | | | | | | TBD | AC164302* | | ✓* | SW006011* | |
| PIC18F1231 | 20SS | | | | | | | TBD | AC164307* | | ✓* | SW006011* | |
| PIC18F1231 | 28ML | | | | | | | TBD | AC164322* | | ✓* | SW006011* | |
| PIC18F1320 | 18P | PCM18XJ0 | DVA18XP180 | | PMF18WD0 | DAF18-2 | ACICE0202 | AC164010 | AC164301 | ✓* | ✓ | SW006011 | DM163014 |
| PIC18F1320 | 18SO | PCM18XJ0 | DVA18XP180 | XLT18SO | PMF18WD0 | DAF18-2 | XLT18SO | AC164010 | AC164302 | | ✓ | SW006011 | |
| PIC18F1320 | 20SS | PCM18XJ0 | DVA18XP180 | XLT20SS | PMF18WD0 | DAF18-2 | XLT20SS | AC164018 | AC164307 | | ✓ | SW006011 | |
| PIC18F1320 | 28ML | PCM18XJ0 | DVA18XP180 | XLT28QFN3 | PMF18WD0 | DAF18-2 | XLT28QFN3 | AC164010 +AC164033 | AC164322 | AC164033* | ✓ | SW006011 | |
| PIC18F1330 | 18P | | | | | | | TBD | AC164301* | | ✓* | SW006011* | |
| PIC18F1330 | 18SO | | | | | | | TBD | AC164302* | | ✓* | SW006011* | |
| PIC18F1330 | 20SS | | | | | | | TBD | AC164307* | | ✓* | SW006011* | |
| PIC18F1330 | 28ML | | | | | | | TBD | AC164322* | | ✓* | SW006011* | |
| PIC18F1331 | 18P | | | | | | | TBD | AC164301* | | ✓* | SW006011* | |
| PIC18F1331 | 18SO | | | | | | | TBD | AC164302* | | ✓* | SW006011* | |
| PIC18F1331 | 20SS | | | | | | | TBD | AC164307* | | ✓* | SW006011* | |
| PIC18F1331 | 28ML | | | | | | | TBD | AC164322* | | ✓* | SW006011* | |
| PIC18F2220 | 28SP | PCM18XH2 | DVA18XP280 | | PMF18WC1 | DAF18-2 | ACICE0204 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | |
| PIC18F2220 | 28SO | PCM18XH2 | DVA18XP280 | XLT28SO | PMF18WC1 | DAF18-2 | XLT28SO | AC164017 | AC164302 | | ✓ | SW006011 | |

NOTE: See complete list of notes on page 94.

**Development
Systems Products**

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|----------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|------------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC18F2221 | 28SP | PCM18XN0* | DVA18XP280 | | PMF18WH0* | DAF18-4 | ACICE0204 | AC164012* | AC164301* | | ✓* | SW006011* | |
| PIC18F2221 | 28SO | PCM18XN0* | DVA18XP280 | XLT28SO | PMF18WH0* | DAF18-4 | XLT28SO | AC164017* | AC164302* | | ✓* | SW006011* | |
| PIC18F2221 | 28ML | PCM18XN0* | DVA18XP280 | XLT28QFN4 | PMF18WH0* | DAF18-4 | XLT28QFN4 | | AC164322* | | ✓* | SW006011* | |
| PIC18F2320 | 28SP | PCM18XH2 | DVA18XP280 | | PMF18WC1 | DAF18-2 | ACICE0204 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | |
| PIC18F2320 | 28SO | PCM18XH2 | DVA18XP280 | XLT28SO | PMF18WC1 | DAF18-2 | XLT28SO | AC164017 | AC164302 | | ✓ | SW006011 | |
| PIC18F2321 | 28SP | PCM18XN0* | DVA18XP280 | | PMF18WH0* | DAF18-4 | ACICE0204 | AC164012* | AC164301* | | ✓* | SW006011* | |
| PIC18F2321 | 28SO | PCM18XN0* | DVA18XP280 | XLT28SO | PMF18WH0* | DAF18-4 | XLT28SO | AC164017* | AC164302* | | ✓* | SW006011* | |
| PIC18F2321 | 28ML | PCM18XN0* | DVA18XP280 | XLT28QFN4 | PMF18WH0* | DAF18-4 | XLT28QFN4 | | AC164322* | | ✓* | SW006011* | |
| PIC18F2331 | 28SP | PCM18XL0 | DVA18XP280 | | PMF18WF0 | DAF18-4 | ACICE0204 | AC164035 | AC164301 | ✓* | ✓ | SW006011 | DM183011, DM183021 |
| PIC18F2331 | 28SO | PCM18XL0 | DVA18XP280 | XLT28SO | PMF18WF0 | DAF18-4 | XLT28SO | AC164036 | AC164302 | | ✓ | SW006011 | |
| PIC18F2331 | 28MM | PCM18XL0 | DVA18XP280 | XLT28QFN4 | PMF18WF0 | DAF18-4 | XLT28QFN4 | AC164035 +AC164031 | AC164322 | AC164031* | ✓ | SW006011 | |
| PIC18F2410 | 28SP | PCM18XN0 | DVA18XP280 | | PCM18WH0 | DAF18-4 | ACICE0204 | AC164035 | AC164301 | ✓ | ✓ | SW006011 | |
| PIC18F2410 | 28SO | PCM18XN0 | DVA18XP280 | XLT28SO | PCM18WH0 | DAF18-4 | XLT28SO | AC164036 | AC164302 | | ✓ | SW006011 | |
| PIC18F2410 | 28ML | PCM18XN0 | DVA18XP280 | XLT28QFN4 | PCM18WH0 | DAF18-4 | XLT28QFN4 | AC164035 +AC164031 | AC164322 | AC164031 | ✓ | SW006011 | |
| PIC18F2420 | 28SP | PCM18XN0 | DVA18XP280 | | PCM18WH0 | DAF18-4 | ACICE0204 | AC164035 | AC164301 | ✓ | ✓ | SW006011 | |
| PIC18F2420 | 28SO | PCM18XN0 | DVA18XP280 | XLT28SO | PCM18WH0 | DAF18-4 | XLT28SO | AC164036 | AC164302 | | ✓ | SW006011 | |
| PIC18F2420 | 28ML | PCM18XN0 | DVA18XP280 | XLT28QFN4 | PCM18WH0 | DAF18-4 | XLT28QFN4 | AC164035 +AC164031 | AC164322 | AC164031 | ✓ | SW006011 | |
| PIC18F2431 | 28SP | PCM18XL0 | DVA18XP280 | | PMF18WF0 | DAF18-4 | ACICE0204 | AC164035 | AC164301 | ✓* | ✓ | SW006011 | DM183011, DM183021 |
| PIC18F2431 | 28SO | PCM18XL0 | DVA18XP280 | XLT28SO | PMF18WF0 | DAF18-4 | XLT28SO | AC164036 | AC164302 | | ✓ | SW006011 | |
| PIC18F2431 | 28MM | PCM18XL0 | DVA18XP280 | XLT28QFN4 | PMF18WF0 | DAF18-4 | XLT28QFN4 | AC164035 +AC164031 | AC164322 | AC164031* | ✓ | SW006011 | |
| PIC18F2439 | 28P | | | | | | | AC164012 | | | ✓ | SW006011 | |
| PIC18F2439 | 28SO | | | | | | | AC164017 | | | ✓ | SW006011 | |
| PIC18F2455 | 28SP | PCM18XR0 | DVA18XP280 | | PMF18WL0 | DAF18-4 | ACICE0204 | AC164012 | AC164301 | ✓ | AC162063** | SW006011 | DM163025 |
| PIC18F2455 | 28SO | PCM18XR0 | DVA18XP280 | XLT28SO | PMF18WL0 | DAF18-4 | XLT28SO | AC164036 | AC164302 | | AC162063** +XLT28SO | SW006011 | DM163025 |

NOTE: See complete list of notes on page 94.

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|----------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|------------------------|------------------------|---|--|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits | |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | | |
| PIC18F2480 | 28SP | PCM18XP0 | DVA18XP280 | | PMF18WJ0 | DAF18-4 | ACICE0204 | AC164012 | AC164301 | ✓* | ✓ | SW006011 | DM163011 | |
| PIC18F2480 | 28SO | PCM18XP0 | DVA18XP280 | XLT28SO | PMF18WJ0 | DAF18-4 | XLT28SO | AC164017 | AC164302 | | ✓ | SW006011 | | |
| PIC18F2480 | 28MM | PCM18XP0 | DVA18XP280 | XLT28QFN4 | PMF18WJ0 | DAF18-4 | XLT28QFN4 | AC164012 +AC164031 | AC164322 | AC164031* | ✓ | SW006011 | | |
| PIC18F24J10 | 28SP | | | | | | | | AC164301* | | AC162067** | SW006011 | | |
| PIC18F24J10 | 28SO | | | | | | | | AC164302* | | AC162067** +XLT28SO | SW006011 | | |
| PIC18F24J10 | 28SS | | | | | | | | AC164307* | | AC162067** +XLT28SS | SW006011 | | |
| PIC18F2510 | 28SP | PCM18XN0 | DVA18XP280 | | PMF18WH0 | DAF18-4 | ACICE0204 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | DM163022 | |
| PIC18F2510 | 28SO | PCM18XN0 | DVA18XP280 | XLT28SO | PMF18WH0 | DAF18-4 | XLT28SO | AC164017 | AC164302 | | ✓ | SW006011 | | |
| PIC18F2510 | 28ML | PCM18XN0 | DVA18XP280 | XLT28QFN4 | PMF18WH0 | DAF18-4 | XLT28QFN4 | AC164012 +AC164031 | AC164322 | AC164031 | ✓ | SW006011 | | |
| PIC18F2515 | 28SP | PCM18XN0 | DVA18XP280 | | PMF18WH0 | DAF18-4 | ACICE0204 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | | |
| PIC18F2515 | 28SO | PCM18XN0 | DVA18CP280 | XLT28SO | PMF18WH0 | DAF18-4 | XLT28SO | AC164017 | AC164302 | | ✓ | SW006011 | | |
| PIC18F2520 | 28SP | PCM18XN0 | DVA18XP280 | | PMF18WH0 | DAF18-4 | ACICE0204 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | DM163022 | |
| PIC18F2520 | 28SO | PCM18XN0 | DVA18XP280 | XLT28SO | PMF18WH0 | DAF18-4 | XLT28SO | AC164017 | AC164302 | | ✓ | SW006011 | | |
| PIC18F2520 | 28ML | PCM18XN0 | DVA18XP280 | XLT28QFN4 | PMF18WH0 | DAF18-4 | XLT28QFN4 | AC164012 +AC164031 | AC164322 | AC164031 | ✓ | SW006011 | | |
| PIC18F2525 | 28SP | PCM18XN0 | DVA18XP280 | | PMF18WH0 | DAF18-4 | ACICE0204 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | | |
| PIC18F2525 | 28SO | PCM18XN0 | DVA18XP280 | XLT28SO | PMF18WH0 | DAF18-4 | XLT28SO | AC164017 | AC164302 | | ✓ | SW006011 | | |
| PIC18F2539 | 28P | | | | | | | AC164012 | | | ✓ | SW006011 | | |
| PIC18F2539 | 28SO | | | | | | | AC164017 | | | ✓ | SW006011 | | |
| PIC18F2550 | 28SP | PCM18XR0 | DVA18XP280 | | PMF18WL0 | DAF18-4 | ACICE0204 | AC164012 | AC164301 | ✓* | AC162063** | SW006011 | DM163025 | |
| PIC18F2550 | 28SO | PCM18XR0 | DVA18XP280 | XLT28SO | PMF18WL0 | DAF18-4 | XLT28SO | AC164036 | AC164302 | | AC162063** +XLT28SO | SW006011 | DM163025 | |
| PIC18F2580 | 28SP | PCM18XP0 | DVA18XP280 | | PMF18WJ0 | DAF18-4 | ACICE0204 | AC164012 | AC164301 | ✓* | ✓ | SW006011 | DM163011 | |
| PIC18F2580 | 28SO | PCM18XP0 | DVA18XP280 | XLT28SO | PMF18WJ0 | DAF18-4 | XLT28SO | AC164017 | AC164302 | | ✓ | SW006011 | | |
| PIC18F2580 | 28MM | PCM18XP0 | DVA18XP280 | XLT28QFN4 | PMF18WJ0 | DAF18-4 | XLT28QFN4 | AC164012 +AC164031 | AC164322 | AC164031* | ✓ | SW006011 | | |
| PIC18F2585 | 28SP | PCM18XP0 | DVA18XP280 | | PMF18WJ0 | DAF18-4 | ACICE0204 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | DM163011 | |
| PIC18F2585 | 28SO | PCM18XP0 | DVA18XP280 | XLT28SO | PMF18WJ0 | DAF18-4 | XLT28SO | AC164017 | AC164302 | | ✓ | SW006011 | | |

NOTE: See complete list of notes on page 94.

Development Systems Products

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|------------------------|----------------------------|--------------------|------------------------|--|------------------------------------|-----------------------|------------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC18F25J10 | 28SP | | | | | | | | AC164301* | | AC162067** | SW006011 | |
| PIC18F25J10 | 28SO | | | | | | | | AC164302* | | AC162067** +XLT28SO | SW006011 | |
| PIC18F25J10 | 28SS | | | | | | | | AC164307* | | AC162067** +XLT28SS | SW006011 | |
| PIC18F2610 | 28SP | PCM18XN0 | DVA18XP280 | | PMF18WH0 | DAF18-4 | ACICE0204 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | |
| PIC18F2610 | 28SO | PCM18XN0 | DVA18XP280 | XLT28SO | PMF18WH0 | DAF18-4 | XLT28SO | AC164017 | AC164302 | | ✓ | SW006011 | |
| PIC18F2620 | 28SP | PCM18XN0 | DVA18XP280 | | PMF18WH0 | DAF18-4 | ACICE0204 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | |
| PIC18F2620 | 28SO | PCM18XN0 | DVA18XP280 | XLT28SO | PMF18WH0 | DAF18-4 | XLT28SO | AC164017 | AC164302 | | ✓ | SW006011 | |
| PIC18F2680 | 28SP | PCM18XP0 | DVA18XP280 | | PMF18WJ0 | DAF18-4 | ACICE0204 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | DM163011 |
| PIC18F2680 | 28SO | PCM18XP0 | DVA18XP280 | XLT28SO | PMF18WJ0 | DAF18-4 | XLT28SO | AC164017 | AC164302 | | ✓ | SW006011 | |
| PIC18F4220 | 40P | PCM18XH2 | DVA18XP400 | | PMF18WC1 | DAF18-2 | ACICE0206 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | |
| PIC18F4220 | 44ML | PCM18XH2 | DVA18XP400 | XLT44QFN2 | PMF18WC1 | DAF18-2 | XLT44QFN2 | AC164012 +AC164034 | AC164322 | AC164034 | ✓ | SW006011 | |
| PIC18F4220 | 44PT | PCM18XH2 | DVA18PQ440 | XLT44PT or XLT44PT3 | PMF18WC1 | DAF18-3 | XLT44PT or XLT44PT3 | AC164020 | AC164305 | | ✓ | SW006011 | |
| PIC18F4221 | 40P | PCM18XN0* | DVA18XP400 | | PMF18WH0* | DAF18-4 | ACICE0206 | AC164012* | AC164301* | | ✓* | SW006011* | |
| PIC18F4221 | 44PT | PCM18XN0* | DVA18PQ440 | XLT44PT or XLT44PT3 | PMF18WH0* | DAF18-5 | XLT44PT or XLT44PT3 | AC164020* | AC164305* | | ✓* | SW006011* | |
| PIC18F4221 | 44ML | PCM18XN0* | DVA18XP400 | XLT44QFN2 | PMF18WH0* | DAF18-4 | XLT44QFN2 | | AC164322* | | ✓* | SW006011* | |
| PIC18F4320 | 40P | PCM18XH2 | DVA18XP400 | | PMF18WC1 | DAF18-2 | ACICE0206 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | |
| PIC18F4320 | 44ML | PCM18XH2 | DVA18XP400 | XLT44QFN2 | PMF18WC1 | DAF18-2 | XLT44QFN2 | AC164012 +AC164034 | AC164322 | AC164034 | ✓ | SW006011 | |
| PIC18F4320 | 44PT | PCM18XH2 | DVA18PQ440 | XLT44PT or XLT44PT3 | PMF18WC1 | DAF18-3 | XLT44PT or XLT44PT3 | AC164020 | AC164305 | | ✓ | SW006011 | |
| PIC18F4321 | 40P | PCM18XN0* | DVA18XP400 | | PMF18WH0* | DAF18-4 | ACICE0206 | AC164012* | AC164301* | | ✓* | SW006011* | |
| PIC18F4321 | 44PT | PCM18XN0* | DVA18PQ440 | XLT44PT or XLT44PT3 | PMF18WH0* | DAF18-5 | XLT44PT or XLT44PT3 | AC164020* | AC164305* | | ✓* | SW006011* | |
| PIC18F4321 | 44ML | PCM18XN0* | DVA18XP400 | XLT44QFN2 | PMF18WH0* | DAF18-4 | XLT44QFN2 | | AC164322* | | ✓* | SW006011* | |

NOTE: See complete list of notes on page 94.

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|------------------------|----------------------------|--------------------|------------------------|--|------------------------------------|-----------------------|---------------------------------------|------------------------|---|--|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits | |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | | |
| PIC18F4331 | 40P | PCM18XL0 | DVA18XP400 | | PMF18WF0 | DAF18-4 | ACICE0206 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | DM183011 | |
| PIC18F4331 | 44PT | PCM18XL0 | DVA18PQ440 | XLT44PT or XLT44PT3 | PMF18WF0 | DAF18-5 | XLT44PT or XLT44PT3 | AC164020 | AC164305 | | ✓ | SW006011 | | |
| PIC18F4331 | 44ML | PCM18XL0 | DVA18XP400 | XLT44QFN2 | PMF18WF0 | DAF18-4 | XLT44QFN2 | AC164012 +AC164034 | AC164322 | AC164034 | ✓ | SW006011 | | |
| PIC18F4410 | 40P | PCM18XN0 | DVA18XP400 | | PCM18WH0 | DAF18-4 | ACICE0206 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | | |
| PIC18F4410 | 44PT | PCM18XN0 | DVA18PQ440 | XLT44PT or XLT44PT3 | PCM18WH0 | DAF18-5 | XLT44PT or XLT44PT3 | AC164020 | AC164305 | | ✓ | SW006011 | | |
| PIC18F4410 | 44ML | PCM18XN0 | DVA18XP400 | XLT44QFN2 | PCM18WH0 | DAF18-4 | XLT44QFN2 | AC164012 +AC164034 | AC164322 | AC164034 | ✓ | SW006011 | | |
| PIC18F4420 | 40P | PCM18XN0 | DVA18XP400 | | PCM18WH0 | DAF18-4 | ACICE0206 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | | |
| PIC18F4420 | 44PT | PCM18XN0 | DVA18PQ440 | XLT44PT or XLT44PT3 | PCM18WH0 | DAF18-5 | XLT44PT or XLT44PT3 | AC164020 | AC164305 | | ✓ | SW006011 | | |
| PIC18F4420 | 44ML | PCM18XN0 | DVA18XP400 | XLT44QFN2 | PCM18WH0 | DAF18-4 | XLT44QFN2 | AC164012 +AC164034 | AC164322 | AC164034 | ✓ | SW006011 | | |
| PIC18F4431 | 40P | PCM18XL0 | DVA18XP400 | | PMF18WF0 | DAF18-4 | ACICE0206 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | DM183011 | |
| PIC18F4431 | 44PT | PCM18XL0 | DVA18PQ440 | XLT44PT or XLT44PT3 | PMF18WF0 | DAF18-5 | XLT44PT or XLT44PT3 | AC164020 | AC164305 | | ✓ | SW006011 | | |
| PIC18F4431 | 44ML | PCM18XL0 | DVA18XP400 | XLT44QFN2 | PMF18WF0 | DAF18-4 | XLT44QFN2 | AC164012 +AC164034 | AC164322 | AC164034 | ✓ | SW006011 | | |
| PIC18F4439 | 40P | | | | | | | AC164012 | | | ✓ | SW006011 | | |
| PIC18F4439 | 44ML | | | | | | | AC164012 +AC164034 | | | ✓ | SW006011 | | |
| PIC18F4439 | 44PT | | | | | | | AC164020 | | | ✓ | SW006011 | | |
| PIC18F4455 | 40P | PCM18XR0 | DVA18XP400 | | PMF18WL0 | DAF18-4 | ACICE0206 | AC164012 | AC164301 | ✓ | AC162063** | SW006011 | DM163025 | |
| PIC18F4455 | 44ML | PCM18XR0 | DVA18XP400 | XLT44QFN2 | PMF18WL0 | DAF18-4 | XLT44QFN2 | AC164012 +AC164034 | AC164322 | AC164034 | AC162063** +XLT44QFN2 | SW006011 | DM163025 | |
| PIC18F4455 | 44PT | PCM18XR0 | DVA18PQ440 | XLT44PT or XLT44PT3 | PMF18WL0 | DAF18-5 | XLT44PT or XLT44PT3 | AC164020 | AC164305 | | AC162063** +XLT44PT or XLT44PT3 | SW006011 | DM163025 | |
| PIC18F4480 | 40P | PCM18XP0 | DVA18XP400 | | PMF18WJ0 | DAF18-4 | ACICE0206 | AC164012 | AC164301 | ✓* | ✓ | SW006011 | DM163011 | |
| PIC18F4480 | 44PT | PCM18XP0 | DVA18PQ440 | XLT44PT or XLT44PT3 | PMF18WJ0 | DAF18-5 | XLT44PT or XLT44PT3 | AC164020 | AC164305 | | ✓ | SW006011 | | |
| PIC18F4480 | 44ML | PCM18XP0 | DVA18XP400 | XLT44QFN2 | PMF18WJ0 | DAF18-4 | XLT44QFN2 | AC164012 +AC164034 | AC164322 | AC164034* | ✓ | SW006011 | | |

NOTE: See complete list of notes on page 94.

**Development
Systems Products**

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|------------------------|----------------------------|--------------------|------------------------|--|------------------------------------|-----------------------|---------------------------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC18F44J10 | 40P | | | | | | | | AC164301* | | AC162067** | SW006011 | |
| PIC18F44J10 | 44PT | | | | | | | | AC164305* | | AC162067** +XLT44PT or XLT44PT3 | SW006011 | |
| PIC18F44J10 | 44ML | | | | | | | | AC164322* | | AC162067** +XLT44QFN2 | SW006011 | |
| PIC18F4510 | 40P | PCM18XN0 | DVA18XP400 | | PMF18WH0 | DAF18-4 | ACICE0206 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | DM163022 |
| PIC18F4510 | 44PT | PCM18XN0 | DVA18PQ440 | XLT44PT or XLT44PT3 | PMF18WH0 | DAF18-5 | XLT44PT or XLT44PT3 | AC164020 | AC164305 | | ✓ | SW006011 | |
| PIC18F4510 | 44ML | PCM18XN0 | DVA18XP400 | XLT44QFN2 | PMF18WH0 | DAF18-4 | XLT44QFN2 | AC164012 +AC164034 | AC164322 | AC164034 | ✓ | SW006011 | |
| PIC18F4515 | 40P | PCM18XN0 | DVA18XP400 | | PMF18WH0 | DAF18-4 | ACICE0206 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | |
| PIC18F4515 | 44PT | PCM18XN0 | DVA18PQ440 | XLT44PT or XLT44PT3 | PMF18WH0 | DAF18-5 | XLT44PT or XLT44PT3 | AC164020 | AC164305 | | ✓ | SW006011 | |
| PIC18F4515 | 44ML | PCM18XN0 | DVA18XP400 | XLT44QFN2 | PMF18WH0 | DAF18-4 | XLT44QFN2 | AC164012 +AC164034 | AC164322 | AC164034 | ✓ | SW006011 | |
| PIC18F4520 | 40P | PCM18XN0 | DVA18XP400 | | PMF18WH0 | DAF18-4 | ACICE0206 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | DM163022 |
| PIC18F4520 | 44PT | PCM18XN0 | DVA18PQ440 | XLT44PT or XLT44PT3 | PMF18WH0 | DAF18-5 | XLT44PT or XLT44PT3 | AC164020 | AC164305 | | ✓ | SW006011 | |
| PIC18F4520 | 44ML | PCM18XN0 | DVA18XP400 | XLT44QFN2 | PMF18WH0 | DAF18-4 | XLT44QFN2 | AC164012 +AC164034 | AC164322 | AC164034 | ✓ | SW006011 | |
| PIC18F4525 | 40P | PCM18XN0 | DVA18XP400 | | PMF18WH0 | DAF18-4 | ACICE0206 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | |
| PIC18F4525 | 44PT | PCM18XN0 | DVA18PQ440 | XLT44PT or XLT44PT3 | PMF18WH0 | DAF18-5 | XLT44PT or XLT44PT3 | AC164020 | AC164305 | | ✓ | SW006011 | |
| PIC18F4525 | 44ML | PCM18XN0 | DVA18XP400 | XLT44QFN2 | PMF18WH0 | DAF18-4 | XLT44QFN2 | AC164012 +AC164034 | AC164322 | AC164034 | ✓ | SW006011 | |
| PIC18F4539 | 40P | | | | | | | AC164012 | | | ✓ | SW006011 | |
| PIC18F4539 | 44ML | | | | | | | AC164012 +AC164034 | | | ✓ | SW006011 | |
| PIC18F4539 | 44PT | | | | | | | AC164020 | | | ✓ | SW006011 | |
| PIC18F4550 | 40P | PCM18XR0 | DVA18XP400 | | PMF18WL0 | DAF18-4 | ACICE0206 | AC164012 | AC164301 | ✓* | AC162063** | SW006011 | DM163025 |
| PIC18F4550 | 44ML | PCM18XR0 | DVA18XP400 | XLT44QFN2 | PMF18WL0 | DAF18-4 | XLT44QFN2 | AC164012 +AC164034 | AC164322 | AC164034* | AC162063** +XLT44QFN2 | SW006011 | DM163025 |
| PIC18F4550 | 44PT | PCM18XR0 | DVA18PQ440 | XLT44PT or XLT44PT3 | PMF18WL0 | DAF18-5 | XLT44PT or XLT44PT3 | AC164020 | AC164305 | | AC162063** +XLT44PT or XLT44PT3 | SW006011 | DM163025 |

NOTE: See complete list of notes on page 94.

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|-------------------------|----------------------------|--------------------|-------------------------|--|------------------------------------|-----------------------|---------------------------------------|------------------------|---|--|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits | |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | | |
| PIC18F4580 | 40P | PCM18XP0 | DVA18XP400 | | PMF18WJ0 | DAF18-4 | ACICE0206 | AC164012 | AC164301 | ✓* | ✓ | SW006011 | DM163011 | |
| PIC18F4580 | 44PT | PCM18XP0 | DVA18PQ440 | XLT44PT or XLT44PT3 | PMF18WJ0 | DAF18-5 | XLT44PT or XLT44PT3 | AC164020 | AC164305 | | ✓ | SW006011 | | |
| PIC18F4580 | 44ML | PCM18XP0 | DVA18XP400 | XLT44QFN2 | PMF18WJ0 | DAF18-4 | XLT44QFN2 | AC164012 +AC164034 | AC164322 | AC164034* | ✓ | SW006011 | | |
| PIC18F4585 | 40P | PCM18XP0 | DVA18XP400 | | PMF18WJ0 | DAF18-4 | ACICE0206 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | DM163011 | |
| PIC18F4585 | 44PT | PCM18XP0 | DVA18PQ440 | XLT44PT or XLT44PT3 | PMF18WJ0 | DAF18-5 | XLT44PT or XLT44PT3 | AC164020 | AC164305 | | ✓ | SW006011 | | |
| PIC18F4585 | 44ML | PCM18XP0 | DVA18XP400 | XLT44QFN2 | PMF18WJ0 | DAF18-4 | XLT44QFN2 | AC164012 +AC164034 | AC164322 | AC164034 | ✓ | SW006011 | | |
| PIC18F45J10 | 40P | | | | | | | | AC164301* | | AC162067** | SW006011 | | |
| PIC18F45J10 | 44PT | | | | | | | | AC164305* | | AC162067** +XLT44PT or XLT44PT3 | SW006011 | | |
| PIC18F45J10 | 44ML | | | | | | | | AC164322* | | AC162067** +XLT44QFN2 | SW006011 | | |
| PIC18F4610 | 40P | PCM18XN0 | DVA18XP400 | | PMF18WH0 | DAF18-4 | ACICE0206 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | | |
| PIC18F4610 | 44PT | PCM18XN0 | DVA18PQ440 | XLT44PT or XLT44PT3 | PMF18WH0 | DAF18-5 | XLT44PT or XLT44PT3 | AC164020 | AC164305 | | ✓ | SW006011 | | |
| PIC18F4610 | 44ML | PCM18XN0 | DVA18XP400 | XLT44QFN2 | PMF18WH0 | DAF18-4 | XLT44QFN2 | AC164012 +AC164034 | AC164322 | AC164034 | ✓ | SW006011 | | |
| PIC18F4620 | 40P | PCM18XN0 | DVA18XP400 | | PMF18WH0 | DAF18-4 | ACICE0206 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | DM163026, DM163027-2 | |
| PIC18F4620 | 44PT | PCM18XN0 | DVA18PQ440 | XLT44PT or XLT44PT3 | PMF18WH0 | DAF18-5 | XLT44PT or XLT44PT3 | AC164020 | AC164305 | | ✓ | SW006011 | | |
| PIC18F4620 | 44ML | PCM18XN0 | DVA18XP400 | XLT44QFN2 | PMF18WH0 | DAF18-4 | XLT44QFN2 | AC164012 +AC164034 | AC164322 | AC164034 | ✓ | SW006011 | | |
| PIC18F4680 | 40P | PCM18XP0 | DVA18XP400 | | PMF18WJ0 | DAF18-4 | ACICE0206 | AC164012 | AC164301 | ✓ | ✓ | SW006011 | DM163011 | |
| PIC18F4680 | 44PT | PCM18XP0 | DVA18PQ440 | XLT44PT or XLT44PT3 | PMF18WJ0 | DAF18-5 | XLT44PT or XLT44PT3 | AC164020 | AC164305 | | ✓ | SW006011 | | |
| PIC18F4680 | 44ML | PCM18XP0 | DVA18XP400 | XLT44QFN2 | PMF18WJ0 | DAF18-4 | XLT44QFN2 | AC164012 +AC164034 | AC164322 | AC164034 | ✓ | SW006011 | | |
| PIC18F6310 | 64PT | PCM18XQ0 | DVA1003 | XLT64PT2 or XLT64PT5 | PMF18WK0 | DAF18-6 | XLT64PT2 or XLT64PT5 | AC174008 | AC164303 | | ✓ | SW006011 | | |
| PIC18F6390 | 64PT | PCM18XQ0 | DVA1003 | XLT64PT2 or XLT64PT5 | PMF18WK0 | DAF18-6 | XLT64PT2 or XLT64PT5 | AC174008 | AC164303 | | ✓ | SW006011 | DM163028 | |
| PIC18F6410 | 64PT | PCM18XQ0 | DVA1003 | XLT64PT2 or XLT64PT5 | PMF18WK0 | DAF18-6 | XLT64PT2 or XLT64PT5 | AC174008 | AC164303 | | ✓ | SW006011 | | |

NOTE: See complete list of notes on page 94.

**Development
Systems Products**

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|-------------------------|----------------------------|--------------------|-------------------------|--|------------------------------------|-----------------------|---------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC18F6490 | 64PT | PCM18XQ0 | DVA1003 | XLT64PT2 or XLT64PT5 | PMF18WK0 | DAF18-6 | XLT64PT2 or XLT64PT5 | AC174008 | AC164303 | | ✓ | SW006011 | DM163028 |
| PIC18F6520 | 64PT | PCM18XE1 | DVA18PQ640 | XLT64PT2 or XLT64PT5 | PMF18WA2 | DAF18-6 | XLT64PT2 or XLT64PT5 | AC174008 | AC164303 | | ✓ | SW006011 | DM183022 |
| PIC18F6525 | 64PT | PCM18XK0 | DVA18PQ802 | XLT64PT2 or XLT64PT5 | PMF18WE0 | DAF18-1 | XLT64PT2 or XLT64PT5 | AC174008 | AC164303 | | ✓ | SW006011 | |
| PIC18F6527 | 64PT | PCM18XS0* | DVA1003 | XLT64PT2 or XLT64PT5 | PMF18WS0* | DAF18-6 | XLT64PT2 or XLT64PT5 | AC174008* | AC164303* | | ✓* | SW006011 | |
| PIC18F6585 | 68L | PCM18XK0 | DVA18PQ802 | XLT68L1 | PMF18WE0 | DAF18-1 | XLT68L1 | AC174007 | AC164308 | | ✓ | SW006011 | |
| PIC18F6585 | 64PT | PCM18XK0 | DVA18PQ802 | XLT64PT2 or XLT64PT5 | PMF18WE0 | DAF18-1 | XLT64PT2 or XLT64PT5 | AC174008 | AC164303 | | ✓ | SW006011 | DM163015 |
| PIC18F65J10 | 64PT | | | | | | | | AC164327** | | AC162062** (9) | SW006011 | DM183022 |
| PIC18F65J15 | 64PT | | | | | | | | AC164327** | | AC162062** (9) | SW006011 | DM183022 |
| PIC18F6620 | 64PT | PCM18XE1 | DVA18PQ640 | XLT64PT2 or XLT64PT5 | PMF18WA2 | DAF18-6 | XLT64PT2 or XLT64PT5 | AC174008 | AC164303 | ✓ (7)* | ✓ | SW006011 | DM183022 |
| PIC18F6621 | 64PT | PCM18XK0 | DVA18PQ802 | XLT64PT2 or XLT64PT5 | PMF18WE0 | DAF18-1 | XLT64PT2 or XLT64PT5 | AC174008 | AC164303 | | ✓ | SW006011 | |
| PIC18F6622 | 64PT | PCM18XS0 | DVA1003 | XLT64PT2 or XLT64PT5 | PMF18WS0 | DAF18-6 | XLT64PT2 or XLT64PT5 | AC174008* | AC164303* | | ✓* | SW006011 | |
| PIC18F6627 | 64PT | PCM18XS0 | DVA1003 | XLT64PT2 or XLT64PT5 | PMF18WS0 | DAF18-6 | XLT64PT2 or XLT64PT5 | AC174008 | AC164303 | | ✓ | SW006011 | DM183022 |
| PIC18F6680 | 68L | PCM18XK0 | DVA18PQ802 | XLT68L1 | PMF18WE0 | DAF18-1 | XLT68L1 | AC174007 | AC164308 | | ✓ | SW006011 | |
| PIC18F6680 | 64PT | PCM18XK0 | DVA18PQ802 | XLT64PT2 or XLT64PT5 | PMF18WE0 | DAF18-1 | XLT64PT2 or XLT64PT5 | AC174008 | AC164303 | | ✓ | SW006011 | DM163015 |
| PIC18F66J10 | 64PT | | | | | | | | AC164327** | | AC162062** (9) | SW006011 | DM183022 |
| PIC18F66J15 | 64PT | | | | | | | | AC164327** | | AC162062** (9) | SW006011 | DM183022 |
| PIC18F66J60 | 64PT | | | | | | | | AC164327** | | AC162064** | SW006011* | |
| PIC18F66J65 | 64PT | | | | | | | | AC164327** | | AC162064** | SW006011* | |
| PIC18F6720 | 64PT | PCM18XE1 | DVA18PQ640 | XLT64PT2 or XLT64PT5 | PMF18WA2 | DAF18-6 | XLT64PT2 or XLT64PT5 | AC174008 | AC164303 | ✓ (7)* | ✓ | SW006011 | DM183022 |
| PIC18F6722 | 64PT | PCM18XS0 | DVA1003 | XLT64PT2 or XLT64PT5 | PMF18WS0 | DAF18-6 | XLT64PT2 or XLT64PT5 | AC174008 | AC164303 | | ✓ | SW006011 | DM183022 |
| PIC18F67J10 | 64PT | | | | | | | | AC164327** | | AC162062** (9) | SW006011 | DM183022 |
| PIC18F67J60 | 64PT | | | | | | | | AC164327** | | AC162064** | SW006011* | |
| PIC18F8310 | 80PT | PCM18XQ0 | DVA1003 | XLT80PT or XLT80PT3 | PMF18WK0 | DAF18-6 | XLT80PT or XLT80PT3 | AC174011 | AC164304 | | ✓ | SW006011 | |

NOTE: See complete list of notes on page 94.

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|------------------------|----------------------------|--------------------|------------------------|--|------------------------------------|-----------------------|---------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC18F8390 | 80PT | PCM18XQ0 | DVA1003 | XLT80PT or XLT80PT3 | PMF18WK0 | DAF18-6 | XLT80PT or XLT80PT3 | AC174011 | AC164304 | | ✓ | SW006011 | DM163028 |
| PIC18F8410 | 80PT | PCM18XQ0 | DVA1003 | XLT80PT or XLT80PT3 | PMF18WK0 | DAF18-6 | XLT80PT or XLT80PT3 | AC174011 | AC164304 | | ✓ | SW006011 | |
| PIC18F8490 | 80PT | PCM18XQ0 | DVA1003 | XLT80PT or XLT80PT3 | PMF18WK0 | DAF18-6 | XLT80PT or XLT80PT3 | AC174011 | AC164304 | | ✓ | SW006011 | DM163028 |
| PIC18F8520 | 80PT | PCM18XE1 | DVA18PQ800 | XLT80PT or XLT80PT3 | PMF18WA2 | DAF18-6 | XLT80PT or XLT80PT3 | AC174011 | AC164304 | | ✓ | SW006011 | DM183022 |
| PIC18F8525 | 80PT | PCM18XK0 | DVA18PQ802 | XLT80PT or XLT80PT3 | PMF18WE0 | DAF18-1 | XLT80PT or XLT80PT3 | AC174011 | AC164304 | | ✓ | SW006011 | |
| PIC18F8527 | 80PT | PCM18XS0 | DVA1003 | XLT80PT or XLT80PT3 | PMF18WS0 | DAF18-6 | XLT80PT or XLT80PT3 | AC174011* | AC164304* | | ✓* | SW006011 | |
| PIC18F8585 | 80PT | PCM18XK0 | DVA18PQ802 | XLT80PT or XLT80PT3 | PMF18WE0 | DAF18-1 | XLT80PT or XLT80PT3 | AC174011 | AC164304 | | ✓ | SW006011 | DM163015 |
| PIC18F85J10 | 80PT | | | | | | | | AC164328** | | AC162062** (9) | SW006011 | DM183022 |
| PIC18F85J15 | 80PT | | | | | | | | AC164328** | | AC162062** (9) | SW006011 | DM183022 |
| PIC18F8620 | 80PT | PCM18XE1 | DVA18PQ800 | XLT80PT or XLT80PT3 | PMF18WA2 | DAF18-6 | XLT80PT or XLT80PT3 | AC174011 | AC164304 | ✓ (7) | ✓ | SW006011 | DM183022 |
| PIC18F8621 | 80PT | PCM18XK0 | DVA18PQ802 | XLT80PT or XLT80PT3 | PMF18WE0 | DAF18-1 | XLT80PT or XLT80PT3 | AC174011 | AC164304 | | ✓ | SW006011 | |
| PIC18F8622 | 80PT | PCM18XS0 | DVA1003 | XLT80PT or XLT80PT3 | PMF18WS0 | DAF18-6 | XLT80PT or XLT80PT3 | AC174011* | AC164304* | | ✓* | SW006011 | |
| PIC18F8627 | 80PT | PCM18XS0 | DVA1003 | XLT80PT or XLT80PT3 | PMF18WS0 | DAF18-6 | XLT80PT or XLT80PT3 | AC174011 | AC164304 | | ✓ | SW006011 | DM183022 |
| PIC18F8680 | 80PT | PCM18XK0 | DVA18PQ802 | XLT80PT or XLT80PT3 | PMF18WE0 | DAF18-1 | XLT80PT or XLT80PT3 | AC174011 | AC164304 | | ✓ | SW006011 | DM163015 |
| PIC18F86J10 | 80PT | | | | | | | | AC164328** | | AC162062** (9) | SW006011 | DM183022 |
| PIC18F86J15 | 80PT | | | | | | | | AC164328** | | AC162062** (9) | SW006011 | DM183022 |
| PIC18F86J60 | 80PT | | | | | | | | AC164328** | | AC162064** | SW006011* | |
| PIC18F86J65 | 80PT | | | | | | | | AC164328** | | AC162064** | SW006011* | |
| PIC18F8720 | 80PT | PCM18XE1 | DVA18PQ800 | XLT80PT or XLT80PT3 | PMF18WA2 | DAF18-6 | XLT80PT or XLT80PT3 | AC174011 | AC164304 | ✓ (7) | ✓ | SW006011 | DM183022 |
| PIC18F8722 | 80PT | PCM18XS0 | DVA1003 | XLT80PT or XLT80PT3 | PMF18WS0 | DAF18-6 | XLT80PT or XLT80PT3 | AC174011 | AC164304 | | ✓ | SW006011 | DM183022 |
| PIC18F87J10 | 80PT | | | | | | | | AC164328** | | AC162062** (9) | SW006011 | DM183022 |
| PIC18F87J60 | 80PT | | | | | | | | AC164328** | | AC162064** | SW006011* | |
| PIC18F96J60 | 100PT | | | | | | | | AC164323** | | AC162064** | SW006011* | |

NOTE: See complete list of notes on page 94.



Development Systems Products

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|--|-------------------------|----------------------------|--------------------|----------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|---------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| PICmicro® Microcontroller Development Tools (continued) | | | | | | | | | | | | | |
| PIC18F96J65 | 100PT | | | | | | | | AC164323** | | AC162064** | SW006011* | |
| PIC18F97J60 | 100PT | | | | | | | | AC164323** | | AC162064** | SW006011* | |
| PIC24FJ64GA006 | 64PT | | | | | | | | AC164327** | | AC162065** | SW006012* | DM240001** |
| PIC24FJ64GA008 | 80PT | | | | | | | | AC164328** | | AC162065** | SW006012* | DM240001** |
| PIC24FJ64GA010 | 100PT | | | | | | | | AC164323** | | AC162065** | SW006012* | DM240001** |
| PIC24FJ96GA006 | 64PT | | | | | | | | AC164327** | | AC162065** | SW006012* | DM240001** |
| PIC24FJ96GA008 | 80PT | | | | | | | | AC164328** | | AC162065** | SW006012* | DM240001** |
| PIC24FJ96GA010 | 100PT | | | | | | | | AC164323** | | AC162065** | SW006012* | DM240001** |
| PIC24FJ128GA006 | 64PT | | | | | | | | AC164327** | | AC162065** | SW006012* | DM240001** |
| PIC24FJ128GA008 | 80PT | | | | | | | | AC164328** | | AC162065** | SW006012* | DM240001** |
| PIC24FJ128GA010 | 100PT | | | | | | | | AC164323** | | AC162065** | SW006012* | DM240001** |
| rfPIC® Microcontroller Development Tools | | | | | | | | | | | | | |
| rfPIC12C509AF | 20JW | PCM16XA0 | DVA12XP080 | | | | | AC124001 | AC164301 | ✓ | | | |
| rfPIC12C509AF | 20SS | PCM16XA0 | DVA12XP080 | XLT20SS | | | | AC124002 | AC164307 | ✓ | | | |
| rfPIC12C509AG | 18JW | PCM16XA0 | DVA12XP080 | | | | | AC124001 | AC164301 | ✓ (7) | | | |
| rfPIC12C509AG | 18SO | PCM16XA0 | DVA12XP080 | XLT18SO | | | | AC124002 | AC164302 | ✓ (7) | | | |
| rfPIC12F675F | 20SS | PCM12XB0 | DVA12XP081 | XLT20SS | | | | AC124002 | AC164307 | ✓ (7)* | | | DV164102 AC164101 AC164103 |
| rfPIC12F675H | 20SS | PCM12XB0 | DVA12XP081 | XLT20SS | | | | AC124002 | AC164307 | ✓ (7)* | | | |
| rfPIC12F675K | 20SS | PCM12XB0 | DVA12XP081 | XLT20SS | | | | AC124002 | AC164307 | ✓ (7)* | | | DV164102 AC164102 AC164104 |
| rfRXD0420 | 32LQ | | | | | | | | | | | | DV164102 |
| rfRXD0920 | 32LQ | | | | | | | | | | | | |

NOTE: See complete list of notes on page 94.

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|-------------------------------------|-------------------------|----------------------------|--------------------|----------------------|----------------------------|--------------------|------------------------|--|------------------------------------|-----------------------|---------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| dsPIC® DSC Development Tools | | | | | | | | | | | | | |
| dsPIC30F2010 | 28SO | | | | PMF30XA1 | DAF30-4 | XLT28SO | AC30F004 | AC164302 | | ✓ | SW006012 | DM300017 |
| dsPIC30F2010 | 28SP | | | | PMF30XA1 | DAF30-4 | ACICE0204 | AC30F004 | AC164301 | | ✓ | SW006012 | DM300017 DM300018 |
| dsPIC30F2010 | 28MM | | | | PMF30XA1 | DAF30-4 | XLT28QFN4 | | AC164322 | | ✓ | SW006012 | |
| dsPIC30F2011 | 18SO | | | | PMF30XA1 | DAF30-4 | XLT18SO | AC30F005 | AC164302 | | ✓* | SW006012 | |
| dsPIC30F2011 | 18P | | | | PMF30XA1 | DAF30-4 | ACICE0202 | AC30F005 | AC164301 | | ✓* | SW006012 | DM300018 |
| dsPIC30F2011 | 28ML | | | | PMF30XA1 | DAF30-4 | | | AC164322 | | ✓* | SW006012 | |
| dsPIC30F2012 | 28SO | | | | PMF30XA1 | DAF30-4 | XLT28SO | AC30F004 | AC164302 | | ✓* | SW006012 | DM300017 |
| dsPIC30F2012 | 28SP | | | | PMF30XA1 | DAF30-4 | ACICE0204 | AC30F004 | AC164301 | | ✓* | SW006012 | DM300017, DM300018 |
| dsPIC30F2012 | 28ML | | | | PMF30XA1 | DAF30-4 | XLT28QFN4 | | AC164322 | | ✓* | SW006012 | |
| dsPIC30F3010 | 28SO | | | | PMF30XA1 | DAF30-4 | XLT28SO | AC30F004 | AC164302 | | ✓ | SW006012 | DM300017 |
| dsPIC30F3010 | 28SP | | | | PMF30XA1 | DAF30-4 | ACICE0204 | AC30F004 | AC164301 | | ✓ | SW006012 | DM300017, DM300018 |
| dsPIC30F3010 | 44ML | | | | PMF30XA1 | DAF30-4 | XLT44QFN4 | | AC164322 | | ✓ | SW006012 | |
| dsPIC30F3011 | 40P | | | | PMF30XA1 | DAF30-4 | ACICE0206 | AC30F003 | AC164301 | | ✓ | SW006012 | DM30018 |
| dsPIC30F3011 | 44PT | | | | PMF30XA1 | DAF30-3 | XLT44PT or XLT44PT3 | AC30F006 | AC164305 | | ✓ | SW006012 | |
| dsPIC30F3011 | 44ML | | | | PMF30XA1 | DAF30-4 | XLT44QFN2 | | AC164322 | | ✓ | SW006012 | |
| dsPIC30F3012 | 18SO | | | | PMF30XA1 | DAF30-4 | XLT18SO | | AC164302 | | ✓ | SW006012 | |
| dsPIC30F3012 | 18P | | | | PMF30XA1 | DAF30-4 | ACICE0202 | | AC164301 | | ✓ | SW006012 | DM300018 |
| dsPIC30F3012 | 44ML | | | | PMF30XA1 | DAF30-4 | XLT44QFN5* | | AC164322 | | ✓ | SW006012 | |
| dsPIC30F3013 | 28SO | | | | PMF30XA1 | DAF30-4 | XLT28SO | AC30F004 | AC164302 | | ✓ | SW006012 | DM300017 |
| dsPIC30F3013 | 28SP | | | | PMF30XA1 | DAF30-4 | ACICE0204 | AC30F004 | AC164301 | | ✓ | SW006012 | DM300017, DM300018* |
| dsPIC30F3013 | 44ML | | | | PMF30XA1 | DAF30-4 | XLT44QFN3* | | AC164322 | | ✓ | SW006012 | |
| dsPIC30F3014 | 40P | | | | PMF30XA1 | DAF30-4 | ACICE0206 | AC30F003 | AC164301 | | ✓ | SW006012 | DM300018 |
| dsPIC30F3014 | 44PT | | | | PMF30XA1 | DAF30-3 | XLT44PT or XLT44PT3 | AC30F006 | AC164305 | | ✓ | SW006012 | |
| dsPIC30F3014 | 44ML | | | | PMF30XA1 | DAF30-4 | XLT44QFN2 | | AC164322 | | ✓ | SW006012 | |
| dsPIC30F4011 | 40P | | | | PMF30XA1 | DAF30-4 | ACICE0206 | AC30F003 | AC164301 | | ✓ | SW006012 | DM300018 |
| dsPIC30F4011 | 44PT | | | | PMF30XA1 | DAF30-3 | XLT44PT or XLT44PT3 | AC30F006 | AC164305 | | ✓ | SW006012 | |
| dsPIC30F4011 | 44ML | | | | PMF30XA1 | DAF30-4 | XLT44QFN2 | | AC164322 | | ✓ | SW006012 | |

NOTE: See complete list of notes on page 94.

**Development
Systems Products**

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|---|-------------------------|----------------------------|--------------------|----------------------|----------------------------|--------------------|---------------------------|--|------------------------------------|-----------------------|---------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| dsPIC® DSC Development Tools (continued) | | | | | | | | | | | | | |
| dsPIC30F4012 | 28SO | | | | PMF30XA1 | DAF30-4 | XLT28SO | AC30F004 | AC164302 | | ✓ | SW006012 | DM300017 |
| dsPIC30F4012 | 28SP | | | | PMF30XA1 | DAF30-4 | ACICE0204 | AC30F004 | AC164301 | | ✓ | SW006012 | DM300017, DM300018 |
| dsPIC30F4012 | 44ML | | | | PMF30XA1 | DAF30-4 | XLT44QFN4 | | AC164322 | | ✓ | SW006012 | |
| dsPIC30F4013 | 40P | | | | PMF30XA1 | DAF30-4 | ACICE0206 | AC30F003 | AC164301 | | ✓ | SW006012 | DM300018 |
| dsPIC30F4013 | 44PT | | | | PMF30XA1 | DAF30-3 | XLT44PT or XLT44PT3 | AC30F006 | AC164305 | | ✓ | SW006012 | |
| dsPIC30F4013 | 44ML | | | | PMF30XA1 | DAF30-4 | XLT44QFN2 | | AC164322 | | ✓ | SW006012 | |
| dsPIC30F5011 | 64PT | | | | PMF30XA1 | DAF30-2 | XLT64PT2 or XLT64PT5 | AC30F008 | AC164319 | | ✓ | SW006012 | DM300016 |
| dsPIC30F5013 | 80PT | | | | PMF30XA1 | DAF30-2 | XLT80PT or XLT80PT3 | AC30F007 | AC164320 | | ✓ | SW006012 | DM300014, DM300004-1, DM300004-2 |
| dsPIC30F5015 | 64PT | | | | PMF30XA1 | DAF30-2 | XLT64PT2 or XLT64PT5 | AC30F008* | AC164319* | | ✓* | SW006012 | |
| dsPIC30F5016 | 80PT | | | | PMF30XA1 | TBD | TBD | | AC164320* | | ✓* | SW006012 | |
| dsPIC30F6010 | 80PF | | | | PMF30XA1 | DAF30-2 | XLT80PT2 | AC30F001 | AC164314 | | ✓ | SW006012 | DM300020 |
| dsPIC30F6010A | 80PF | | | | PMF30XA1* | DAF30-2 | XLT80PT2 | | AC164314* | | ✓* | SW006012 | DM300020 |
| dsPIC30F6010A | 80PT | | | | PMF30XA1* | DAF30-2 | XLT80PT or XLT80PT3 | AC30F007* | AC164320* | | ✓* | SW006012 | DM300020 |
| dsPIC30F6011 | 64PF | | | | PMF30XA1 | DAF30-2 | XLT64PT3 or XLT64PT4 | AC30F002 | AC164313 | | ✓ | SW006012 | DM300016 |
| dsPIC30F6011A | 64PF | | | | PMF30XA1 | DAF30-2 | XLT64PT3 or XLT64PT4 | AC30F008* | AC164313* | | ✓* | SW006012 | |
| dsPIC30F6011A | 64PT | | | | PMF30XA1 | DAF30-2 | XLT64PT2 or XLT64PT5 | AC30F008* | AC164319* | | ✓* | SW006012 | DM300016 |
| dsPIC30F6012 | 64PF | | | | PMF30XA1 | DAF30-2 | XLT64PT3 or XLT64PT4 | AC30F002 | AC164313 | | ✓ | SW006012 | DM300016 |
| dsPIC30F6012A | 64PF | | | | PMF30XA1 | DAF30-2 | XLT64PT3 or XLT64PT4 | AC30F002* | AC164313* | | ✓* | SW006012 | |
| dsPIC30F6012A | 64PT | | | | PMF30XA1 | DAF30-2 | XLT64PT2 or XLT64PT5 | AC30F008* | AC164319* | | ✓* | SW006012 | DM300016 |
| dsPIC30F6013 | 80PF | | | | PMF30XA1 | DAF30-2 | XLT80PT2 | AC30F001 | AC164314 | | ✓ | SW006012 | DM300014 |
| dsPIC30F6013A | 80PF | | | | PMF30XA1 | DAF30-2 | XLT80PT2 | AC30F001* | AC164314* | | ✓* | SW006012 | |
| dsPIC30F6013A | 80PT | | | | PMF30XA1 | DAF30-2 | XLT80PT or XLT80PT3 | AC30F007* | AC164320* | | ✓* | SW006012 | DM300014 |

NOTE: See complete list of notes on page 94.

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| | | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | | | | | | |
|---|-------------------------|----------------------------|--------------------|----------------------|----------------------------|--------------------|------------------------|--|------------------------------------|-----------------------|---------------------|------------------------|---|
| Part Number | Lead Count/ Pkg Type | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
| dsPIC® DSC Development Tools (continued) | | | | | | | | | | | | | |
| dsPIC30F6014 | 80PF | | | | PMF30XA1 | DAF30-2 | XLT80PT2 | AC30F001 | AC164314 | | ✓ | SW006012 | DM300014, DM300004-1, DM300004-2 |
| dsPIC30F6014A | 80PF | | | | PMF30XA1 | DAF30-2 | XLT80PT2 | AC30F001* | AC164314* | | ✓* | SW006012 | |
| dsPIC30F6014A | 80PT | | | | PMF30XA1 | DAF30-2 | XLT80PT or XLT80PT3 | AC30F007* | AC164320* | | ✓* | SW006012 | DM300014, DM300004-1, DM300004-2 |
| dsPIC30F6015 | 64PT | | | | TBD | TBD | TBD | | AC164319* | | ✓* | SW006012 | |
| dsPIC33FJ64GP206 | 64PT | | | | | | | | TBD | | ✓* | SW006012* | DM240001** DM300019** |
| dsPIC33FJ64GP306 | 64PT | | | | | | | | TBD | | ✓* | SW006012* | DM240001** DM300019** |
| dsPIC33FJ64GP310 | 100PT | | | | | | | | TBD | | ✓* | SW006012* | DM240001** DM300019** |
| dsPIC33FJ64GP706 | 64PT | | | | | | | | TBD | | ✓* | SW006012* | DM240001** DM300019** |
| dsPIC33FJ64GP708 | 80PT | | | | | | | | TBD | | ✓* | SW006012* | DM240001** DM300019** |
| dsPIC33FJ64GP710 | 100PT | | | | | | | | TBD | | ✓* | SW006012* | DM240001** DM300019** |
| dsPIC33FJ128GP206 | 64PT | | | | | | | | TBD | | ✓* | SW006012* | DM240001** DM300019** |
| dsPIC33FJ128GP306 | 64PT | | | | | | | | TBD | | ✓* | SW006012* | DM240001** DM300019** |
| dsPIC33FJ128GP310 | 100PT | | | | | | | | TBD | | ✓* | SW006012* | DM240001** DM300019** |
| dsPIC33FJ128GP706 | 64PT | | | | | | | | TBD | | ✓* | SW006012* | DM240001** DM300019** |
| dsPIC33FJ128GP708 | 80PT | | | | | | | | TBD | | ✓* | SW006012* | DM240001** DM300019** |
| dsPIC33FJ128GP710 | 100PT | | | | | | | | TBD | | ✓* | SW006012* | DM240001** DM300019** |
| dsPIC33FJ256GP506 | 64PT | | | | | | | | TBD | | ✓* | SW006012* | DM240001** DM300019** |
| dsPIC33FJ256GP510 | 100PT | | | | | | | | TBD | | ✓* | SW006012* | DM240001** DM300019** |
| dsPIC33FJ256GP710 | 100PT | | | | | | | | TBD | | ✓* | SW006012* | DM240001** DM300019** |
| dsPIC33FJ64MC506 | 64PT | | | | | | | | TBD | | ✓* | SW006012* | |

NOTE: See complete list of notes on page 94.

**Development
Systems Products**

MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards (continued)

| Part Number | Lead Count/ Pkg Type | MPLAB® ICE 2000 System (1) | | | MPLAB® ICE 4000 System (2) | | | PRO MATE® II Socket Module (3,4) | MPLAB® PM3 Socket Module (8) | PICSTART® Plus (5) | MPLAB® ICD 2 (6) | MPLAB® CXX Compiler | Demonstration Boards or Evaluation Kits |
|-------------------|-------------------------|----------------------------|--------------------|----------------------|----------------------------|--------------------|----------------------|--|------------------------------------|-----------------------|---------------------|------------------------|---|
| | | Processor Module | Device Adapters | Transition Socket | Processor Module | Device Adapters | Transition Socket | | | | | | |
| dsPIC33FJ64MC508 | 80PT | | | | | | | TBD | | | ✓* | SW006012* | |
| dsPIC33FJ64MC510 | 100PT | | | | | | | TBD | | | ✓* | SW006012* | |
| dsPIC33FJ64MC706 | 64PT | | | | | | | TBD | | | ✓* | SW006012* | |
| dsPIC33FJ64MC710 | 100PT | | | | | | | TBD | | | ✓* | SW006012* | |
| dsPIC33FJ128MC506 | 64PT | | | | | | | TBD | | | ✓* | SW006012* | |
| dsPIC33FJ128MC510 | 100PT | | | | | | | TBD | | | ✓* | SW006012* | |
| dsPIC33FJ128MC706 | 64PT | | | | | | | TBD | | | ✓* | SW006012* | |
| dsPIC33FJ128MC708 | 80PT | | | | | | | TBD | | | ✓* | SW006012* | |
| dsPIC33FJ128MC710 | 100PT | | | | | | | TBD | | | ✓* | SW006012* | |
| dsPIC33FJ256MC510 | 100PT | | | | | | | TBD | | | ✓* | SW006012* | |
| dsPIC33FJ256MC710 | 100PT | | | | | | | TBD | | | ✓* | SW006012* | |

NOTE: See complete list of notes on page 94.

NOTES - MPLAB® ICE 2000 and MPLAB® ICE 4000 Emulator Systems, PRO MATE® II Programmer Socket Modules, MPLAB® In-Circuit Debugger, Software Tools, Programmers and Demonstration Boards

- NOTES**
- 1: MPLAB® ICE 2000 pod available separately. (ICE2000)
 - 2: MPLAB® ICE 4000 pod available separately. (ICE4000)
 - 3: PRO MATE® II Programmer unit (no longer available). (DV007003)
 - 4: Optional In-Circuit Serial Programming™ (ICSP™) Socket for PRO MATE® II available separately. (AC004004)
 - 5: PICSTART® Plus (DV003001)
 - 6: MPLAB® ICD 2 In-Circuit Debugger. Configurations are:
 (DV164005) ICD 2 module, USB cable and ICD cable.
 (DV164006) ICD 2 module, USB cable, ICD cable, serial cable, PICDEM™ 2 Plus and power supply.
 (DV164007) ICD 2 module, USB cable, ICD cable, serial cable and power supply;
 (DV164030) ICD 2 module, USB cable, ICD cable, serial cable and dsPICDEM™ Starter Demo Board;
 (AC162049) ICD 2 Universal Programming Module;
 (AC162051) ICD or ICD 2 28/40 PDIP Header Interface Board.
 - 7: Custom adapter required; not available from Microchip. See "Readme" for PICSTART® Plus.
 - 8: MPLAB® PM3 Programmer Unit available separately. (DV007004). ICSP™ function is built-in with MPLAB® PM3 Programmer.
 (AC164350) MPLAB® PM3 Adapter for PRO MATE® II Socket modules.
 - 9: Supported natively by ICD 2, but ICD 2 header gives user access to I/O pins RB6 and RB7.

* Future support. Contact Microchip web site at www.microchip.com for availability.

** New/Future product. Contact Microchip web site at www.microchip.com for availability.

✓ Supported with basic configuration. If a part number is listed in the column, that part is required and available separately.

Demonstration Boards and Evaluation Kits

| Part Number | Description |
|--|--|
| PICmicro® Demonstration Kits | |
| DM163001 | PICDEM™ 1 Demo Board for PIC16C5X, 55X, 62X, CE62X, 71, 710, 711, 715, 770, 771, 83, 84, and PIC17C42, 43, 44 |
| DM163003 | PICDEM™ 3 Demo Board for PIC16C923, 924 LCD |
| DM163006 | PICDEM™ 18R Demo Board for PIC18C601/801 |
| DM163014 | PICDEM™ 4 Demo Board for PIC12F629, 675, PIC16F630, 676, 684, 627A, 628A, 648A, 818, 819, 87, 88, PIC18F1220, 1320 |
| DM163022 | PICDEM™ 2 Plus Demo Board for PIC16C62, 63, 64, 65, 66, 67, 72, 73, 74, 76, 77, 87X, 773, 774 and PIC18CXX2, 642, 662, and PIC18FXXX |
| DM163026 | Low-Power Solutions Demo Board |
| DM163028 | PICDEM™ LCD Demo Board (uses 64L/80L PIC18FXX90 and 28L/40L PIC16F91X family) |
| DM163029 | PICDEM™ Mechatronics Demo Board |
| DV164101 | PICKit™ 1 8/14P Flash Development Kit for PIC12F629, 675 and PIC16F630, 676 |
| DV164102 | rfPIC® Development Kit 1 |
| DV164120 | PICKit™ 2 Starter Kit |
| PG164120 | PICKit™ 2 Microcontroller Programmer |
| AC164101 | rfPIC® Transmitter Module (433.92 MHz) |
| AC164102 | rfPIC® Transmitter Module (315 MHz) |
| AC164103 | rfRXD Receiver Module (433.92 MHz) |
| AC164104 | rfRXD Receiver Module (315 MHz) |
| AC164120 | Signal Analysis PICtail™ Daughter Board |
| AC163020 | PIC10F2XX Programmer Adapter |
| AC163021 | 6L SOT-23 to 8P DIP Adapter Kit |
| DM173001 | PICDEM™ 17 Demo Board for PIC17CXX |
| DM183011 | PICDEM™ MC Development Board (uses 28L/40L PIC18FXX31 family) |
| DM183021 | PICDEM™ MC LV Development Board (uses 28L PIC18F2331, 2431, dsPIC30F family) |
| DM183022 | PICDEM™ HPC Explorer Board |
| DM240001** | Explorer 16 Demo Board |
| Connectivity Demonstration Kits | |
| DM163004-LT | PICDEM.net™ TCP/IP Demo Board (with no text book) |
| DM163005 | PICDEM™ LIN Demo Board for PIC16C432/433 LIN bus |
| DM163007 | PICDEM™ CAN-LIN 1 Demo Board (uses 68L/84L PIC18CXX8 family) |
| DM163010 | PICDEM™ USB Demo Board for PIC16C7X5 |
| DM163011 | PICDEM™ CAN-LIN 2 Demo Board (uses 28L/40L PIC18FXX8 and PIC18FXX8X family) |
| DM163015 | PICDEM™ CAN-LIN 3 Demo Board (uses 64L/80L PIC18FXX8X family) |
| DM163025 | PICDEM™ FS USB Demo Board |
| DM163027-2 | PICDEM™ Z 2.4 GHz Demonstration Kit |

* Contact Microchip web site at www.microchip.com for availability.

Development Systems Products

| Demonstration Boards and Evaluation Kits | |
|--|---|
| Part Number | Description |
| Connectivity Demonstration Kits (continued) | |
| AC163027-1 | PICDEM™ Z Motherboard |
| AC163027-2 | PICDEM™ Z 2.4 GHz RF Card |
| Mixed Signal Control Demonstration Kits | |
| AC163001 | PICDEM™ MSC 1 Voltage Boost Demo Board; requires DM163012 |
| AC163002 | PICDEM™ MSC 1 High Power IR Demo Board; requires DM163012 |
| AC163003 | PICDEM™ MSC 1 Delta Sigma Demo Board; requires DM163012 |
| AC163004 | PICDEM™ MSC 1 Flow Rate Sensor Demo Board; requires DM163012 |
| DM163012 | PICDEM™ MSC 1 Mixed Signal Controller Demo Board for PIC16C781/782 |
| dsPIC® Digital Signal Controller Demonstration Kits | |
| DM183021 | PICDEM™ MC LV Development Board (uses 28L PIC18F2331/2431, dsPIC30F family) |
| DM240001** | Explorer 16 Demo Board |
| DM300004-1 | dsPICDEM.net™ 1 FCC/JATE PSTN Support, Ethernet NIC Development Board |
| DM300004-2 | dsPICDEM.net™ 2 CTR-21 PSTN Support, Ethernet NIC Development Board |
| DM300014 | dsPICDEM™ 1.1 General Purpose Development Board |
| DM300016 | dsPICDEM™ 64-Pin Starter Development Board |
| DM300017 | dsPICDEM™ 28-Pin Starter Development Board |
| DM300018 | dsPICDEM™ 2 Development Board |
| DM300019** | dsPICDEM 80-Pin Starter Development Board |
| DM300020 | dsPICDEM™ MC1 Motor Control Development Board |
| DM300021 | dsPICDEM™ MC1H 3-Phase High Voltage Power Module |
| DM300022 | dsPICDEM™ MC1L 3-Phase Low Voltage Power Module |
| dsPIC® 16-bit DSC Software Tools | |
| SW300001 | Digital Filter Design |
| SW300002 | dsPIC® V.22/V.22bis Soft Modem Library (free download: www.microchip.com) |
| SW300003-EVAL | dsPIC® V.32 Soft Modem Library (Eval Copy) |
| SW300003, 04, 05 | dsPIC® V.32 Soft Modem Library (5K, 25K, 100K licenses, respectively) |
| SW300006 | dsPIC® V.22/V.22bis Soft Modem Library by Vocal Technology |
| SW300010-EVAL | dsPIC® Speech Recognition (Eval Copy) |
| SW300010, 11, 12 | dsPIC® Speech Recognition (5K, 25K, 100K licenses, respectively) |
| SW300020 | dsPIC30 Math Library: Double-Precision Floating Point Routines |
| SW300021 | dsPIC30 Peripheral Library: Peripheral Initialization and Control Routines |
| SW300022 | dsPIC30 DSP Library: Data Signal Processing Library Suite (FFT, Filters) |
| SW300023 | dsPICworks™ Visual Algorithm Analyzer: Data Analyzer and Converter Tool |
| SW300030 | dsPIC® CMX Scheduler: Multi-tasking, Preemptive Scheduler for dsPIC30F |

* Contact Microchip web site at www.microchip.com for availability.

Demonstration Boards and Evaluation Kits

| Part Number | Description |
|---|--|
| dsPIC® 16-bit DSC Software Tools (continued) | |
| SW300031 | CMX-RTX for dsPIC® DSC: Fully Preemptive RTOS |
| SW300032 | CMX-Tiny+ for dsPIC® DSC: Preemptive RTOS |
| SW300040-EVAL, 5K, 25K, 100K | dsPIC® Noise Suppression Library (Eval, 5K, 25K, 100K licenses, respectively) |
| SW300050-EVAL, 5K, 25K, 100K | dsPIC® Symmetric Embedded Encryption Library (Eval, 5K, 25K, 100K licenses, respectively) |
| SW300055-EVAL, 5K, 25K, 100K | dsPIC® Asymmetric Embedded Encryption Library (Eval, 5K, 25K, 100K licenses, respectively) |
| SW300060-EVAL, 5K, 25K, 100K | dsPIC® Acoustic Echo Cancellation Library (Eval, 5K, 25K, 100K licenses, respectively) |
| SW300070-EVAL, 5, 25, 100K* | dsPIC® Speech Coding/Decoding Library (Eval, 5K, 25K, 100K licenses, respectively) |

* Contact Microchip web site at www.microchip.com for availability.

PowerSmart® Systems

| Model Name/ Part Number | Description |
|----------------------------|---|
| PS042 | PS401 PowerCal™ Board |
| PS051 | PowerInfo™ 2 Configuration Interface Board for use with PS501, PS200, PS810 |
| PS052 | PowerCal™ 2 Configuration Interface Board for use with PS501, PS200, PS810 |
| PS2070** | PS200 Configurable Battery Charger Evaluation Board |
| PS2070EV** | PS200 Configurable Battery Charger Evaluation Board with PS051 PowerInfo™ 2 |
| PS5100 | PS501 6-12 cell NiMH Module |
| PS5100EV | PS501 6-12 cell NiMH Module with PS051 |
| PS5162 | 2-cell Li-Ion/Poly Fuel Gauge with safety |
| PS5162EV | 2-cell Li-Ion/Poly Fuel Gauge with safety and PS051 PowerInfo™ 2 |
| PS5163 | 3-cell Li-Ion/Poly Fuel Gauge with safety |
| PS5163EV | 3-cell Li-Ion/Poly Fuel Gauge with safety and PS051 PowerInfo™ 2 |
| PS5164 | 4-cell Li-Ion/Poly Fuel Gauge with safety |
| PS5164EV | 4-cell Li-Ion/Poly Fuel Gauge with safety and PS051 PowerInfo™ 2 |
| PS8070** | PS8X0 Li-Ion/Poly Single Cell Fuel Gauge |
| PS8070EV** | PS8X0 Li-Ion/Poly Single Cell Fuel Gauge with PS051 PowerInfo™ 2 |

* Contact Microchip web site at www.microchip.com for availability.

Memory Evaluation/Developer's Kits

| | | |
|--|----------|---|
| SEEVAL® 32 Serial EEPROM Developer's Kit | DV243002 | All serial EEPROMS, 24XX, 93XX, 25XX series |
|--|----------|---|

Development Systems Products

KEELOQ® Evaluation Kits

| | HCS101 | HCS200/201 | HCS300/301/320 | HCS360/361 | HCS362 | HCS365/370 | HCS410/412 | HCS473 | HCS500/515 | HCS512 |
|--|----------|------------|----------------|------------|----------|------------|------------|----------|------------|----------|
| KEELOQ® Transponder Evaluation Kit* | – | – | – | – | – | – | DM303005 | – | – | |
| KEELOQ® Evaluation Kit II* | DM303006 | DM303006 | DM303006 | DM303006 | DM303006 | DM303006 | DM303006 | DM303006 | DM303006 | |
| PRO MATE® II Universal Programmer for SOIC* | AC004002 | AC004002 | AC004002 | AC004002 | AC004002 | AC004003 | AC004002 | AC004003 | – | AC164002 |
| PRO MATE® II Universal Programmer for DIP* | AC004001 | AC004001 | AC004001 | AC004001 | AC004001 | AC004007 | AC004001 | AC004007 | – | AC164001 |
| PRO MATE® II Universal Programmer for ICSP™* | AC004004 | AC004004 | AC004004 | AC004004 | AC004004 | AC004004 | AC004004 | AC004004 | AC004004 | |

* Support is limited to PRO MATE® II using MPLAB® IDE release 5.70.

RFID Evaluation/Developer's Kits

| | MCRF355 | MCRF450/452 |
|---|--------------------|-------------|
| 13.56 MHz Anti-Collision microID® Developer's Kit | DV103003, DV103006 | DV103006 |
| microID® Programmer Kit only for MCRF355 | PG103003 | – |

Analog/Interface Demo/Eval/Developer's Kits

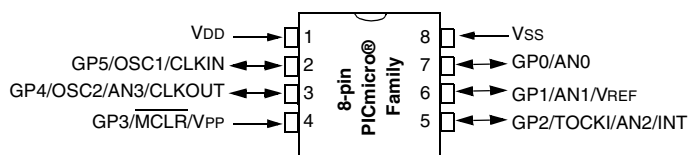
| Interface | Part Number | Devices Supported |
|---|--------------------|---|
| MCP2140 IrDA® Wireless Temp. Demo | MCP2140DM-TMPSNS | MCP2140 |
| MCP215X Data Logger Demo Board | MCP215XDM | MCP2150/55 |
| MCP250XX CAN I/O Expanders Developer's Kit | DV250501 | MCP25020, MCP25025, MCP25050, MCP25055 |
| MCP2510/2515 CAN Developer's Kit | DV251001 | MCP2510, MCP2515 |
| MCP2120/2150 Developer's Kit | DM163008 | MCP2120, MCP2150 |
| MCP23X08 Evaluation Board | MCP23X08EV | MCP23008, MCP23S08 |
| MCP23X17 Evaluation Board | MCP23X17EV | MCP23017, MCP23S17 |
| Linear | Part Number | Devices Supported |
| MCP6S22 PGA PICtail™ Demo Board | MCP6S22DM-PICTL | MCP6S22/92 |
| MCP6SX2 PGA Photodiode PICtail™ Demo Board | MCP6SX2DM-PCTLPD | MCP6S22/92 |
| MCP6SX2 PGA Thermistor PICtail™ Demo Board | MCP6SX2DM-PCTLTH | MCP6S22/92 |
| MCP6S2X PGA Evaluation Board | MCP6S2XEV | MCP6S2X |
| Mixed Signal | Part Number | Devices Supported |
| Mixed Signal PICtail™ Demo Board | MXSIGDM | TX132X, MCP330X, MCP320X, MCP494X, MCP3221, MCP3201, MCP1525, MCP1541 |
| Evaluation Kit for Sigma-Delta A/D Converter Family | TX3400EV | TX3400X |
| Single-Dual A/D | DV3201A | MCP3001, MCP3002, MCP3201, MCP3202 |
| MCP3201/02 Evaluation System Daughter Board | DV3201A | MCP3201/02 |
| MXDEV Analog Evaluation System | DVMCPA | MCP3001/02, MCP3004./08, MCP3201/02, MCP3204/08 |
| MCP3204/08 Evaluation System Daughter Board | DV3204A | MCP3204, MCP3208 |
| MCP42XXX Digital Pot Evaluation Kit | DV42XXX | MCP42010, MCP42050, MCP42100 |
| MCP402X Evaluation Board | MCP402XEV | MCP4021, MCP4022, MCP4023, MCP4024 |

Analog/Interface Demo/Eval/Developer's Kits

| Power Management | Part Number | Devices Supported |
|--|-----------------|---|
| MCP1612 Synchronous Buck Regulator Evaluation Board | MCP1612EV | MCP1612 |
| MCP1630 +12V Dual Output Buck Converter Ref. Design | MCP1630RD-DDBK1 | MCP1630 |
| MCP1630 Li-Ion Multi Bay Battery Charger Ref. Design | MCP1630RD-LIC1 | MCP1630 |
| MCP1630 NiMH Battery Charger Demo Board | MCP1630DM-NMC1 | MCP1630 |
| MCP1601 Buck Regulator Evaluation Board | MCP1601EV | MCP1601 |
| Voltage Supervisor Evaluation Board | VSUPEV | SOT-23 packages |
| MCP7386X Li-Ion Battery Charger Evaluation Board | MCP7386XEV | MCP73861/62 |
| MCP165X 3W White LED Demo Board | MCP1650DM-LED1 | MCP1650/51 |
| MCP1650 Boost Controller Evaluation Board | MCP1650EV | MCP1650 |
| MCP7384X Li-Ion Battery Charger | MCP7384XEV | MCP7384X |
| MCP7382X Li-Ion Battery Charger | MCP7382XEV | MCP7382X |
| MCP73855 Evaluation Board | MCP73855EV | MCP73855 |
| Voltage Supervisor SOT23-5/6 Evaluation Board | VSUPEV2 | SOT23-5/6-lead packages |
| MCP1726 Evaluation Board | MCP1726EV | MCP1726 |
| Thermal Management Tools | Part Number | Devices Supported |
| MCP9800 Thermal Sensor PICtail™ Demo Board | MCP9800DM-PCTL | MCP9800 |
| Demo Board for Tiny Serial Digital Thermal Sensor | TC74DEMO | TC74 |
| Fan Controller Demo Board for TC652 | TC652DEMO | TC652 |
| Fan Controller Demo Board for TC650 | TC650DEMO | TC650 |
| Evaluation Kit for the Fan Speed Controllers | TC642EV | TC642, TC646, TC647, TC648, TC649, TC642B, TC646B, TC647B, TC648B, TC649B |
| TC72 Digital Temperature Sensor | TC72DM-PICTL | TC72 |
| TC77 Thermal Sensor PICtail™ Demo | TC77DM-PICTL | TC77 |
| Demo Board for Fan Speed Controllers | TC642DEMO | TC642 |
| TC1047A Temperature to Voltage | TC1047ADM-PICTL | TC1047A |

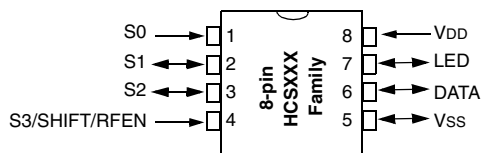
PIN AND CODE COMPATIBILITY CHART

8-pin PICmicro® MCU Family



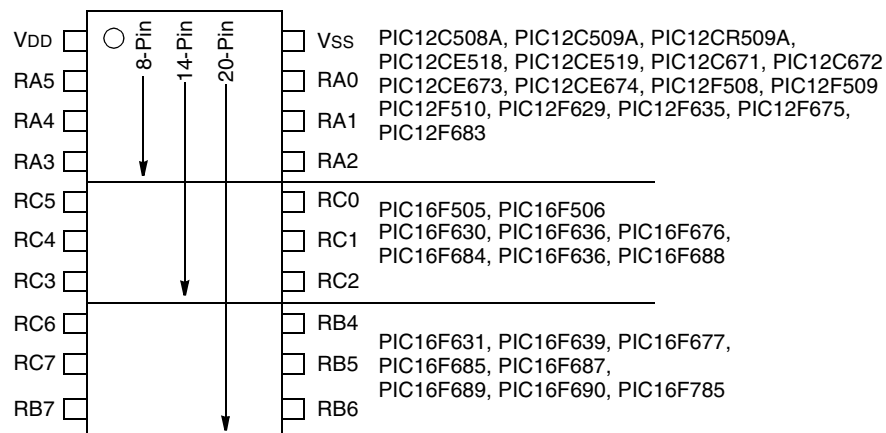
| | | |
|-------------|------------|-----------|
| PIC12C508A | PIC12C671 | PIC12F510 |
| PIC12C509A | PIC12C672 | PIC12F629 |
| PIC12CR509A | PIC12CE673 | PIC12F635 |
| PIC12CE518 | PIC12CE674 | PIC12F675 |
| PIC12CE519 | PIC12F508 | PIC12F683 |
| | PIC12F509 | |

8-pin KEELoq® Family

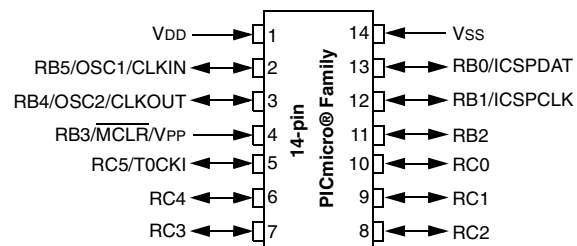


| | | |
|--------|--------|--------|
| HCS101 | HCS300 | HCS360 |
| HCS200 | HCS301 | HCS361 |
| HCS201 | HCS320 | HCS362 |
| | | HCS365 |

8/14/20-pin PICmicro® MCU Family

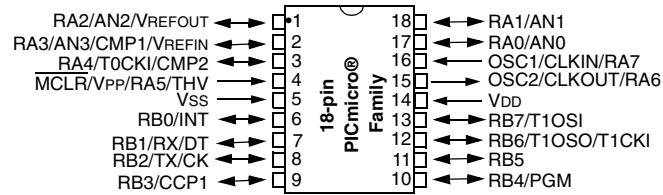


14-pin PICmicro® MCU Family



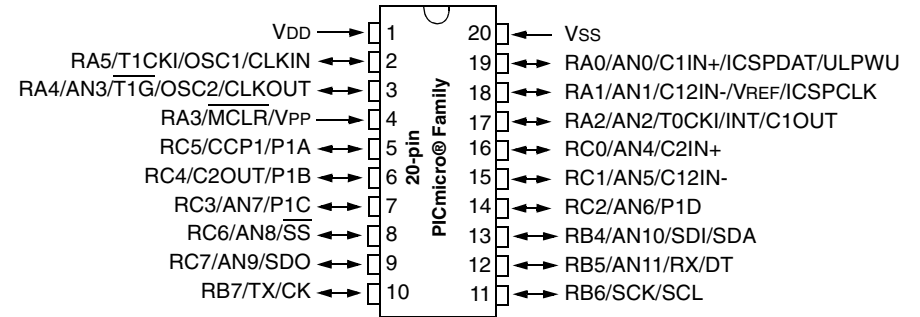
| | | |
|-----------|-----------|-----------|
| PIC16F505 | PIC16F630 | PIC16F688 |
| PIC16F506 | PIC16F636 | PIC16F684 |
| | PIC16F676 | |

18-pin PICmicro® MCU Family



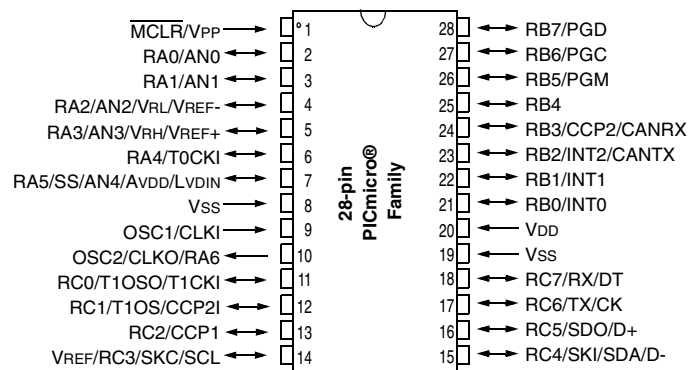
| | | | |
|-------------|------------|-----------|------------|
| PIC16C620A | PIC16CE625 | PIC16C711 | PIC16F819 |
| PIC16CR620A | PIC16F627 | PIC16C712 | PIC16F87 |
| PIC16C621A | PIC16F628 | PIC16C715 | PIC16F88 |
| PIC16C622A | PIC16F627A | PIC16C716 | PIC16F54 |
| PIC16CE623 | PIC16F628A | PIC16F716 | PIC16HV540 |
| PIC16CE624 | PIC16F648A | PIC16C58B | PIC18F1220 |
| PIC16C54C | PIC16C56A | PIC16F84A | PIC18F1320 |
| | PIC16C710 | PIC16F818 | |

20-pin PICmicro® MCU Family



| | |
|-----------|-----------|
| PIC16F685 | PIC16F689 |
| PIC16F687 | PIC16F690 |

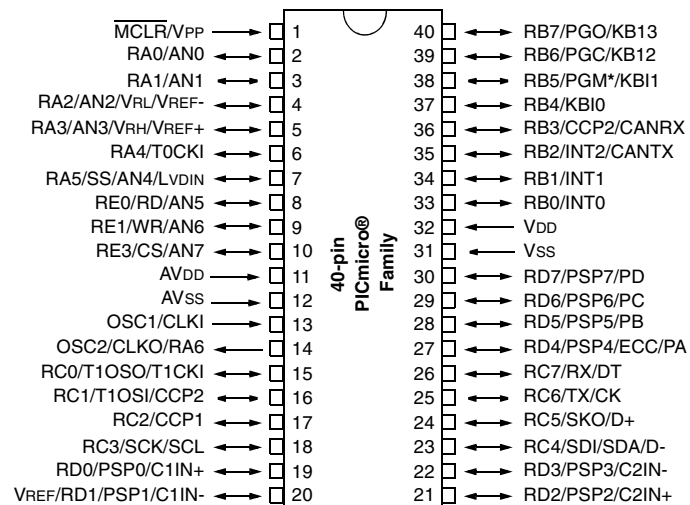
28-pin PICmicro® MCU Family



| | | |
|------------|-------------|------------|
| PIC16C62B | PIC16F767* | PIC18F2331 |
| PIC16CR63 | PIC16F870* | PIC18F2410 |
| PIC16C63A | PIC16F872* | PIC18F2420 |
| PIC16C642 | PIC16F873* | PIC18F2431 |
| PIC16C66 | PIC16F873A* | PIC18F2455 |
| PIC16CR72 | PIC16F876* | PIC18F2480 |
| PIC16C72A | PIC16F876A* | PIC18F2510 |
| PIC16C73B | PIC16F913* | PIC18F2515 |
| PIC16C745 | PIC18C242 | PIC18F2520 |
| PIC16C76 | PIC18C252 | PIC18F2525 |
| PIC16C773 | PIC18F242 | PIC18F2550 |
| PIC16F57 | PIC18F248 | PIC18F2580 |
| PIC16F72* | PIC18F252 | PIC18F2585 |
| PIC16F73* | PIC18F258 | PIC18F2610 |
| PIC16F737* | PIC18F2220 | PIC18F2620 |
| PIC16F76* | PIC18F2221 | PIC18F2680 |
| | PIC18F2320 | |
| | PIC18F2321 | |

* PGM for PIC16FXXX devices is located on pin 24.

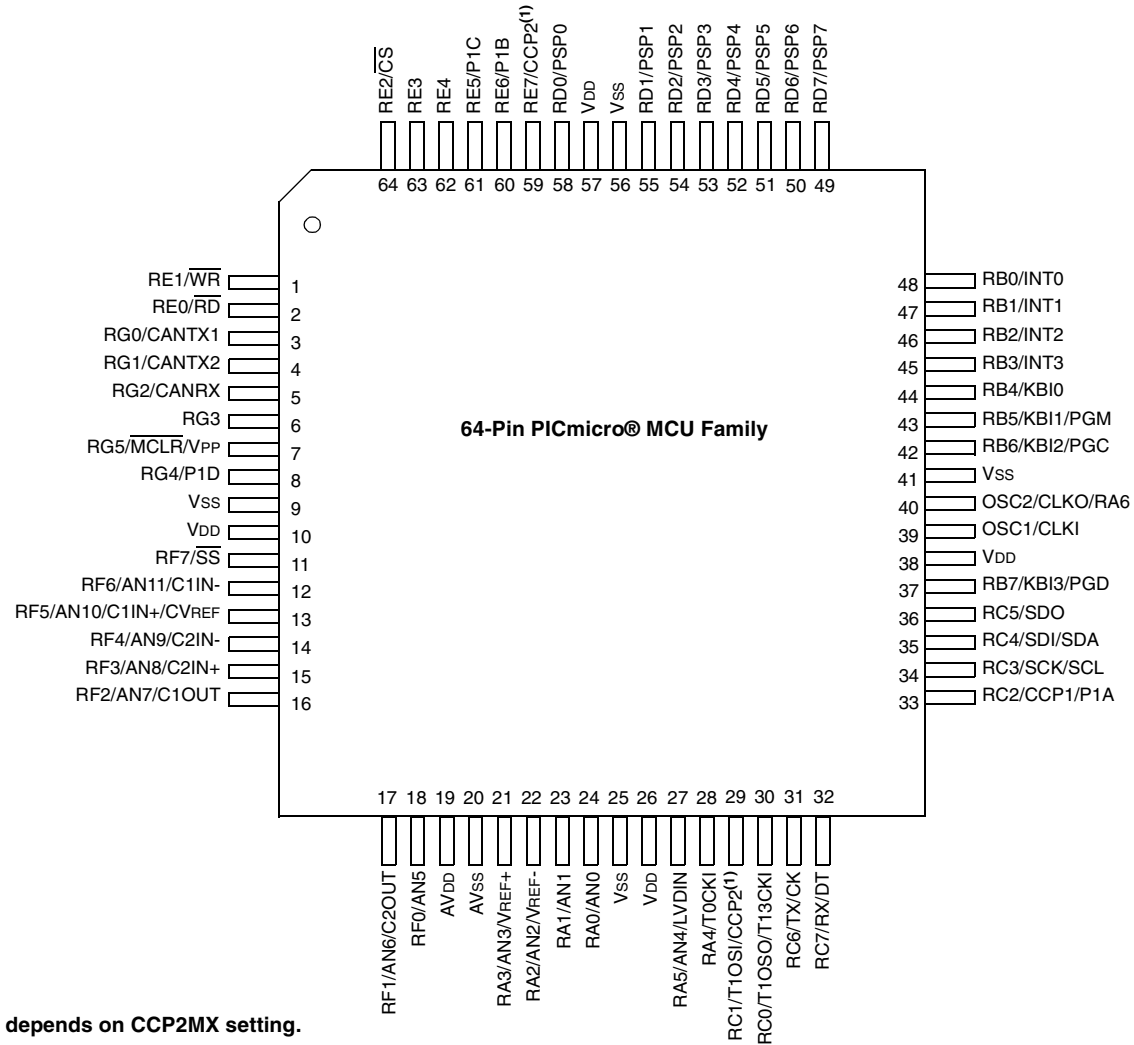
40-pin PICmicro® MCU Family



| | | |
|------------|-------------|------------|
| PIC16CR65 | PIC16F874A* | PIC18F4331 |
| PIC16C65B | PIC16F877* | PIC18F4410 |
| PIC16C662 | PIC16F877A* | PIC18F4420 |
| PIC16C67 | PIC16F914* | PIC18F4431 |
| PIC16C74B | PIC16F917* | PIC18F4455 |
| PIC16C765 | PIC18C442 | PIC18F4480 |
| PIC16C77 | PIC18C452 | PIC18F4510 |
| PIC16C774 | PIC18F442 | PIC18F4515 |
| PIC16F59 | PIC18F448 | PIC18F4520 |
| PIC16F74* | PIC18F452 | PIC18F4525 |
| PIC16F747* | PIC18F458 | PIC18F4550 |
| PIC16F77* | PIC18F4220 | PIC18F4580 |
| PIC16F777* | PIC18F4221 | PIC18F4585 |
| PIC16F871* | PIC18F4320 | PIC18F4610 |
| PIC16F874* | PIC18F4321 | PIC18F4620 |
| | | PIC18F4680 |

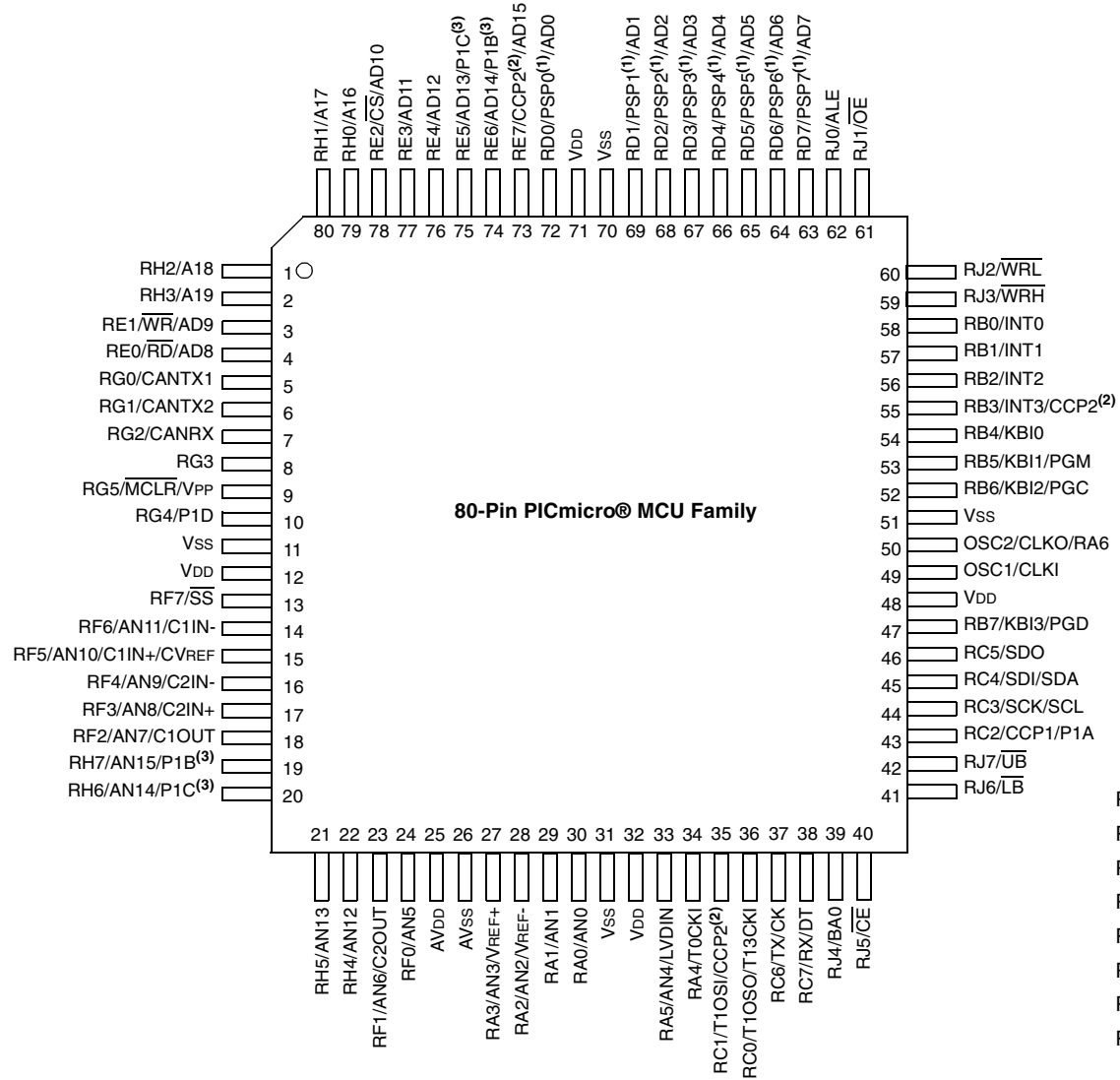
* PGM for PIC16FXXX devices is located on pin 36.

64-pin PICmicro® MCU Family



| | | |
|------------|------------|------------|
| PIC18F6310 | PIC18F6522 | PIC18F6621 |
| PIC18F6390 | PIC18F6525 | PIC18F6627 |
| PIC18F6410 | PIC18F6527 | PIC18F6680 |
| PIC18F6490 | PIC18F6585 | PIC18F6720 |
| PIC18F6520 | PIC18F6620 | PIC18F6722 |
| | PIC18F6622 | |

80-pin PICmicro® MCU Family



| | |
|------------|------------|
| PIC18F8310 | PIC18F8585 |
| PIC18F8390 | PIC18F8620 |
| PIC18F8410 | PIC18F8621 |
| PIC18F8490 | PIC18F8622 |
| PIC18F8520 | PIC18F8680 |
| PIC18F8522 | PIC18F8720 |
| PIC18F8525 | PIC18F8722 |
| PIC18F8527 | |

- Note 1:** PSP is available only in Microcontroller mode.
- Note 2:** CCP2 pin placement depends on CCP2MX and Processor mode settings.
- Note 3:** P1B and P1C pin placement depends on ECCPMX setting.



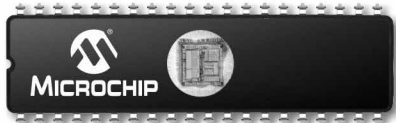
18-LEAD CERDIP
"JW"



20-LEAD CERDIP
"JW"



28-LEAD CERDIP
"JW"

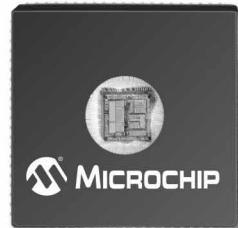


40-LEAD CERDIP
"JW"

CERAMIC CHIP CARRIER
CERQUAD



68-LEAD CERQUAD
"CL"



84-LEAD CERQUAD
"CL"



8-LEAD PDIP
"P" OR "PA"



14-LEAD PDIP
"P" OR "PD"



18-LEAD PDIP
"P"



20-LEAD PDIP
"P"



24-LEAD PDIP
"P" OR "PG"



28-LEAD PDIP
"P" OR "PI"



28-LEAD SKINNY PDIP
"SP" OR "PJ"



40-LEAD PDIP
"P" OR "PL"

PLASTIC QUAD
FLATPACK
"QFP"



32-LEAD LQFP
"LQ"



44-LEAD MQFP
"PQ"



32-LEAD PLCC
"L"



44-LEAD PLCC
"L" OR "W"



68-LEAD PLCC
"L" OR "LS"



84-LEAD PLCC
"L"

PACKAGES ARE APPROXIMATE SIZE

PLASTIC SMALL OUTLINE "SOIC"



8-LEAD SOIC
(.150") "SN" or "OA"



8-LEAD SOIC
(.208") "SM"



14-LEAD SOIC
(.150") "SL" or "OD"



16-LEAD SOIC
(.150") "SL"



18-LEAD SOIC
"SO"



20-LEAD SOIC
"SO"



28-LEAD SOIC
"SO" or "OI"

PLASTIC SHRINK
SMALL OUTLINE "SSOP"



20-LEAD SSOP
"SS"



28-LEAD SSOP
"SS"



16-LEAD QSOP



8-LEAD MSOP
"MS" or "UA"



10-LEAD MSOP
"UN"

PLASTIC THIN QUAD
FLATPACK "TQFP"



44-LEAD TQFP
"PT"



64-LEAD TQFP
"PT"



64-LEAD TQFP
"PF"



80-LEAD TQFP
"PT"



80-LEAD TQFP
"PF"



100-LEAD TQFP
"PT"

SIDE BRAZED
DUAL IN-LINE "TQFP"



8-LEAD SIDE BRAZED
"JW"



14-LEAD SIDE BRAZED
"JW"



20-LEAD SIDE BRAZED
"JW"



28-LEAD SIDE BRAZED
(.300") "JW"

PLASTIC THIN SHRINK
SMALL OUTLINE



8-LEAD TSSOP
(4.4 MM) "ST"



14-LEAD TSSOP
(4.4 MM) "ST" (PICmicro® MCU)
(4.4 MM) "ST14" (Memory)



20-LEAD TSSOP
(4.4 MM) "ST"

CHIP SCALE PACKAGES



8-LEAD DFN
2x3 "MF"



8-LEAD DFN
3x3 "MC"



8-LEAD DFN
6x5 "MF"



28-LEAD QFN
6x6 "ML" or "MM"



8-LEAD QFN
4x4 "ML"



16-LEAD QFN
4x4 "ML"



20-LEAD QFN
4x4 "ML"



44-LEAD QFN
8x8 "ML"



3-LEAD DPAK



5-LEAD DPAK

SMALL OUTLINE TRANSISTORS



3-LEAD TRANSISTOR
"TO" or "ZB"



3-LEAD SC-89



SOT-223



6-LEAD SOT-23
"CH" or "OT"



3-LEAD SOT-23
"TT" or "CB"



SOT-143
"RC"



5-LEAD TO-220



5-LEAD SOT-23
"OT" or "CT"



5-LEAD SC-70
"LT"



3-LEAD SC-70
"LB"

Part Number Suffix Designations

Ordering Information for all Microchip PICmicro®, KEELoq®, RFID, rFHCS and Memory Products

XXXXXXXXXX - XX X/XX XXX

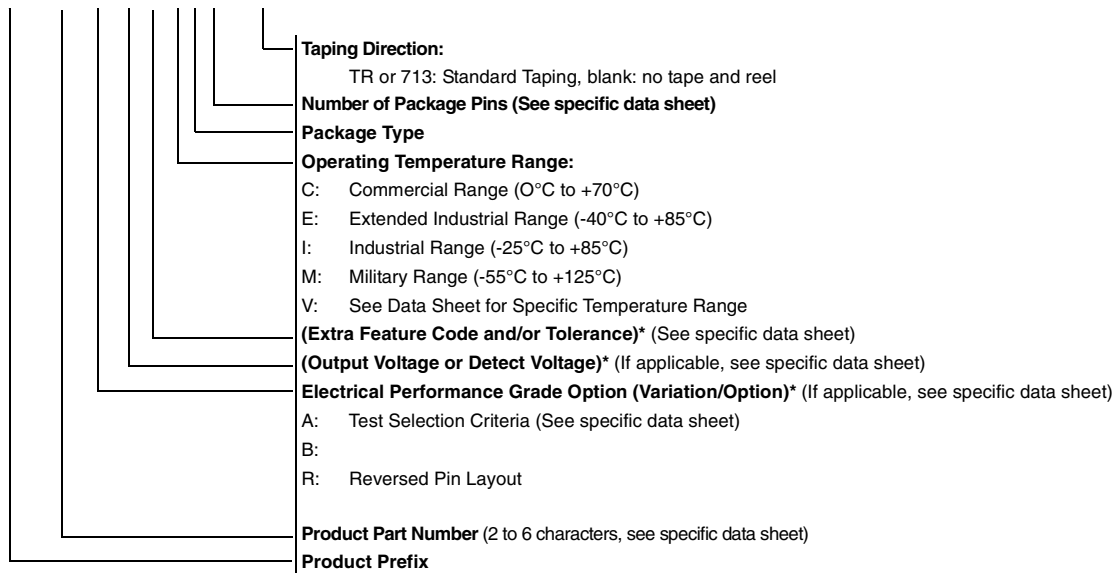
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|--|------------------------|------------------------|-----------------------|--------------------------------|-------------------------------|--------------------------------------|--------------------------|-------------------------------------|-----------------------|-------------------------------------|---------------|---|----------------------|-------------------------|--|--|---------------------------------------|---|--------------------------------------|---|--|----------------------------|---------------------------------|--------------------------------------|---------------------------------|--|---------------------------------|--------------------------------------|------------------------------|-----------------|-----------------|-------------------|--|---------------------------|-----------------------------------|------------------------------------|--|-----------------------------|--|
| | QTP, SQTP or ROM Code; Special Requirements | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Package: | <table border="0" style="width: 100%;"> <tr><td>1M = 1000pF COB Module</td><td>S = Die in Waffle Pack</td></tr> <tr><td>3M = 330pF COB Module</td><td>SB = Bumped Die in Waffle Pack</td></tr> <tr><td>7M = 2x68pF COB Module (IOA2)</td><td>SL = 14-lead Small Outline (150 mil)</td></tr> <tr><td>CB = Chip on Board (COB)</td><td>SM = 8-lead Small Outline (207 mil)</td></tr> <tr><td>CL = Windowed CERQUAD</td><td>SN = 8-lead Small Outline (150 mil)</td></tr> <tr><td>G = Lead Free</td><td>SO = Plastic Small Outline (SOIC) (300 mil)</td></tr> <tr><td>JW = Windowed CERDIP</td><td>SP = Plastic Skinny DIP</td></tr> <tr><td>L = Plastic Leaded Chip Carrier (PLCC)</td><td>SS = Plastic Shrink Small Outline (SSOP)</td></tr> <tr><td>LQ = Plastic Low Quad Flatpack (LQFP)</td><td>ST = Thin Shrink Small Outline (TSSOP 4.4 mm)</td></tr> <tr><td>MC = Dual Flat-No Leads (DFN) 2x3 mm</td><td>ST14 = 14-lead Thin Shrink Small Outline (TSSOP-14)</td></tr> <tr><td>MF = Dual Flat - No Leads (DFN) 5x6 mm</td><td>TO-92 = Transistor Outline</td></tr> <tr><td>ML = Quad Flat - No Leads (QFN)</td><td>TS = Thin Small Outline (8mm x 20mm)</td></tr> <tr><td>MM = Quad Flat - No Leads (DFN)</td><td>TT = SOT-23-3 Small Outline Transistor</td></tr> <tr><td>MS = Micro Small Outline (MSOP)</td><td>VS = Very Small Outline (8mm x 12mm)</td></tr> <tr><td>OT = 5-Lead or 6-Lead SOT-23</td><td>W = Uncut Wafer</td></tr> <tr><td>P = Plastic DIP</td><td>WB = Bumped Wafer</td></tr> <tr><td>PF = Plastic Thin Quad Flatpack (TQFP 14x14)</td><td>WF = Sawed Wafer on Frame</td></tr> <tr><td>PQ = Plastic Quad Flatpack (PQFP)</td><td>WFB = Bumped, Sawed Wafer on Frame</td></tr> <tr><td>PT = Plastic Thin Quad Flatpack (TQFP)</td><td>WM = SOT385 Leadless Module</td></tr> </table> | 1M = 1000pF COB Module | S = Die in Waffle Pack | 3M = 330pF COB Module | SB = Bumped Die in Waffle Pack | 7M = 2x68pF COB Module (IOA2) | SL = 14-lead Small Outline (150 mil) | CB = Chip on Board (COB) | SM = 8-lead Small Outline (207 mil) | CL = Windowed CERQUAD | SN = 8-lead Small Outline (150 mil) | G = Lead Free | SO = Plastic Small Outline (SOIC) (300 mil) | JW = Windowed CERDIP | SP = Plastic Skinny DIP | L = Plastic Leaded Chip Carrier (PLCC) | SS = Plastic Shrink Small Outline (SSOP) | LQ = Plastic Low Quad Flatpack (LQFP) | ST = Thin Shrink Small Outline (TSSOP 4.4 mm) | MC = Dual Flat-No Leads (DFN) 2x3 mm | ST14 = 14-lead Thin Shrink Small Outline (TSSOP-14) | MF = Dual Flat - No Leads (DFN) 5x6 mm | TO-92 = Transistor Outline | ML = Quad Flat - No Leads (QFN) | TS = Thin Small Outline (8mm x 20mm) | MM = Quad Flat - No Leads (DFN) | TT = SOT-23-3 Small Outline Transistor | MS = Micro Small Outline (MSOP) | VS = Very Small Outline (8mm x 12mm) | OT = 5-Lead or 6-Lead SOT-23 | W = Uncut Wafer | P = Plastic DIP | WB = Bumped Wafer | PF = Plastic Thin Quad Flatpack (TQFP 14x14) | WF = Sawed Wafer on Frame | PQ = Plastic Quad Flatpack (PQFP) | WFB = Bumped, Sawed Wafer on Frame | PT = Plastic Thin Quad Flatpack (TQFP) | WM = SOT385 Leadless Module | |
| 1M = 1000pF COB Module | S = Die in Waffle Pack | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3M = 330pF COB Module | SB = Bumped Die in Waffle Pack | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7M = 2x68pF COB Module (IOA2) | SL = 14-lead Small Outline (150 mil) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CB = Chip on Board (COB) | SM = 8-lead Small Outline (207 mil) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CL = Windowed CERQUAD | SN = 8-lead Small Outline (150 mil) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| G = Lead Free | SO = Plastic Small Outline (SOIC) (300 mil) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| JW = Windowed CERDIP | SP = Plastic Skinny DIP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L = Plastic Leaded Chip Carrier (PLCC) | SS = Plastic Shrink Small Outline (SSOP) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LQ = Plastic Low Quad Flatpack (LQFP) | ST = Thin Shrink Small Outline (TSSOP 4.4 mm) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MC = Dual Flat-No Leads (DFN) 2x3 mm | ST14 = 14-lead Thin Shrink Small Outline (TSSOP-14) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MF = Dual Flat - No Leads (DFN) 5x6 mm | TO-92 = Transistor Outline | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ML = Quad Flat - No Leads (QFN) | TS = Thin Small Outline (8mm x 20mm) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MM = Quad Flat - No Leads (DFN) | TT = SOT-23-3 Small Outline Transistor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MS = Micro Small Outline (MSOP) | VS = Very Small Outline (8mm x 12mm) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OT = 5-Lead or 6-Lead SOT-23 | W = Uncut Wafer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P = Plastic DIP | WB = Bumped Wafer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PF = Plastic Thin Quad Flatpack (TQFP 14x14) | WF = Sawed Wafer on Frame | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PQ = Plastic Quad Flatpack (PQFP) | WFB = Bumped, Sawed Wafer on Frame | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PT = Plastic Thin Quad Flatpack (TQFP) | WM = SOT385 Leadless Module | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Process Temperature: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Blank = 0°C to +70°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | I (Industrial) = -40°C to +85°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | E (Extended) = -40°C to +125°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Speed: | OR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | -90 = 90 ns | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | -10 = 100 ns | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | -12 = 120 ns | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | -15 = 150 ns | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | -17 = 170 ns | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | -20 = 200 ns or 20 MIPS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | -25 = 250 ns or 30 MIPS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | -30 = 300 ns | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Option: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | T = Tape and Reel Shipments | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | X = Rotated pinout | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Device Type: (Up to 10 digits) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | AA = 1.8V Serial EEPROM | LCE = Low Voltage CMOS EPROM/EEPROM MCU | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | C = CMOS EPROM/ROMless MCU | LCR = Low Voltage CMOS ROM MCU | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | C = 5V Serial EEPROM | LCS = Low Voltage Security | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | CE = CMOS EPROM/EEPROM MCU | LF = Low Voltage FLASH MCU | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | CR = CMOS ROM MCU | LV = Low Voltage | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | F = Flash MCU | 24 = 2-Wire (I ² C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | FC = High Speed serial EEPROM | 25 = SPI | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | HC = High Speed | 93 = 3-Wire (Microwire) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | HV = High Voltage | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | LC = Low Voltage CMOS EPROM MCU | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | LC = Low Voltage (2.5V) Serial EEPROM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Crystal Frequency Designator for PICmicro® MCUs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | LP = DC to 40 kHz, Low-Power Crystal Oscillator | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | RC = DC to 4 MHz, Resistor/Capacitor Oscillator | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | XT = DC to 4 MHz, Standard Crystal Resonator Oscillator | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | HS = DC to 20 MHz, High Speed Crystal Oscillator | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 02 = DC to 2 MHz, XT and RC Oscillator Support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 04 = DC to 4 MHz Internal, XT and RC Oscillator Support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 04 = DC to 200 kHz, LP Oscillator Support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 08 = DC to 8 MHz, HS Oscillator Support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 10 = DC to 10 MHz, HS Oscillator Support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 16 = DC to 16 MHz, XT Oscillator Support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 20 = DC to 20 MHz, HS Oscillator Support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 25 = DC to 25 MHz, XT Oscillator Support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 30 = DC to 30 MHz, HS Oscillator Support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 33 = DC to 33 MHz, XT Oscillator Support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 40 = DC to 40 MHz, HS Oscillator Support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Note: Microchip offers a wide variety of lead-free package options. Contact your local sales office for availability or refer to the list on Microchip's web site.

Part Number Suffix Designations

Ordering Information for all Microchip Analog Products beginning with "TC" (formerly TelCom Semiconductor Products)

TC 7106 A-60 1 C P L 713



NOTE: (*) Used for voltage regulators and detectors.

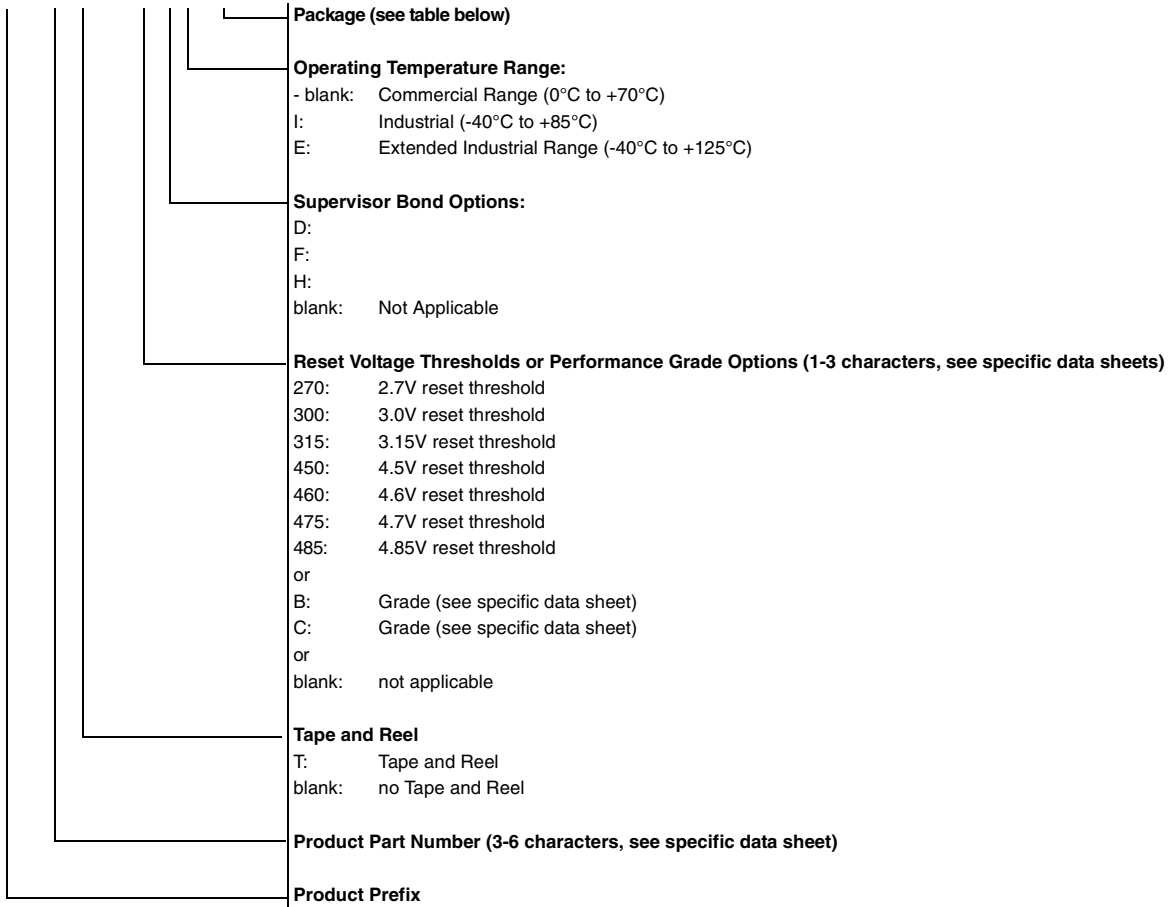
| Package | Description | # of Pins |
|---------|-----------------|-----------|
| AB | TO-220 | 3 |
| AK | TO-220 | 7 |
| AT | TO-220 | 5 |
| AV | TO-220 (Formed) | 5 |
| BB | TO-220B | 3 |
| CB | SOT-23A | 3 |
| CH | SOT-23A | 6 |
| CT | SOT-23A | 5 |
| DB | SOT-223 | 3 |
| EB | DDPAK | 3 |
| EK | DDPAK | 7 |
| ET | DDPAK | 5 |
| HA | SOP | 8 |
| JA | CDIP (N) | 8 |
| JD | CDIP (N) | 14 |
| JE | CDIP (N) | 16 |
| JG | CDIP (W) | 24 |
| JI | CDIP (W) | 28 |
| JL | CDIP (W) | 40 |
| KU | MQFP | 64 |
| KW | MQFP | 44 |
| LB | SC-70 | 3 |
| LI | PLCC | 28 |
| LS | PLCC | 68 |
| LT | SC-70 | 5 |
| LW | PLCC | 44 |

| Package | Description | # of Pins |
|---------|-------------|-----------|
| MB | SOT-89 | 3 |
| MF | DFN (3x3) | 8 |
| MT | SOT-89 | 5 |
| NB | SOT-23B | 3 |
| OA | SOIC (N) | 8 |
| OD | SOIC (N) | 14 |
| OE | SOIC (W) | 16 |
| OG | SOIC (W) | 24 |
| OI | SOIC (W) | 28 |
| OR | SOIC (N) | 16 |
| PA | PDIP (N) | 8 |
| PD | PDIP (N) | 14 |
| PE | PDIP (N) | 16 |
| PF | PDIP (N) | 24 |
| PG | PDIP (W) | 24 |
| PI | PDIP (W) | 28 |
| PJ | PDIP (W) | 28 |
| PL | PDIP (W) | 40 |
| QR | QSOP (N) | 16 |
| RC | SOT-143 | 4 |
| SI | SSOP (W) | 28 |
| UA | MSOP | 8 |
| UN | MSOP | 10 |
| VB | DPAK | 3 |
| ZB | TO-92 | 3 |
| ZM | TO-92 | 2 |

Part Number Suffix Designations

Ordering Information for all Microchip Analog Products beginning with "MCP" Prefix Parts

MCP xxxxx T - yyy z h / qq



Product Information System

| Package | Description | # of Pins | Tube/Bag Qty. | Reel Qty. |
|---------|-------------------|-----------|---------------|-----------|
| TO | TO-92 | 3 | 1000 | n/a |
| TT | SOT-23 | 3 | n/a | 3000 |
| OT | SOT-23 | 5 | n/a | 3000 |
| P | PDIP | 8 | 60 | n/a |
| SN | SOIC | 8 | 100 | 3300 |
| ST | TSSOP | 8 | 100 | 2500 |
| MS | MSOP | 8 | 100 | 2500 |
| MF | DFN (2x3) | 8 | n/a | 3300 |
| MF | DFN (3x3) | 8 | 50 | 3300 |
| MF | DFN (3x3, 10-Pin) | 10 | 120 | 3300 |
| ST | TSSOP | 14 | 96 | 2500 |
| P | PDIP | 14 | 30 | n/a |
| SL | SOIC | 14 | 57 | 2600 |
| P | PDIP | 18 | 25 | n/a |
| SO | SOIC | 18 | 42 | 1100 |
| ST | TSSOP | 20 | 74 | 2500 |
| SS | SSOP | 20 | 67 | 1600 |
| ML | QFN (6x6) | 28 | 50 | 1600 |
| ML | QFN (4x4) | 16 | 91 | 3300 |

ABBREVIATIONS

| | |
|-----------------------|--|
| ADC | Analog-to-Digital Converter |
| ASK | Amplitude Shift Key |
| AUSART | Addressable USART (RS-232, RS-485) |
| BOR | Brown-Out Detection/Reset |
| CAN | Controller Area Network |
| CAP | Capture |
| CCP | Capture/Compare/1 PWM output |
| CRC | Cyclic Redundancy Check |
| DAC | Digital-to-Analog Converter |
| 3 ϕ | 3 Phase PWMs |
| 4 ϕ | 4 Phase PWMs |
| E2 | EEPROM (Reprogrammable) |
| ECAN | Enhanced Controller Area Network |
| ECCP | Enhanced Capture/Compare/4 PWM outputs with program dead time |
| EMA | External Memory Addressing |
| EnhFI | Enhanced Flash: 100K erase/write cycles, 40 year retention, self-programmable in socket from 2V to 5.5V, ICSP at 5V or 12V |
| EUSART | Enhanced USART (RS232, RS485, LIN) |
| FSK | Frequency Shift Key |
| I ² C | Inter-integrated Circuit Bus |
| ICSP™ | In-Circuit Serial Programming™ |
| ICD | # of In-Circuit Debug Breakpoints |
| IntOSC | Internal Oscillator |
| LNA | Low Noise Amplifier |
| LVD | Low Voltage Detection |
| LIN XCVR | Local Interconnection Network Transceiver |
| MI ² C/SPI | Master I ² C/SPI |
| nW | nanoWatt |
| OTP | One-Time Programmable |
| PBOR | Programmable Brown-Out Detection/Reset |
| PLVD | Programmable Low-Voltage Detection |
| PSMC | Programmable Switch Mode Controller |
| PSP | Parallel Slave Port |
| PSMC | Programmable Switch Mode Controller |
| PWM | Pulse Width Modulator |
| ROM-less | External ROM necessary |
| RSSI | Received Signal Strength Indicator |
| RTCC | Real Time Clock with Calendar |
| SLAC | Slope A/D Converter, up to 16 bits |
| SMB | System Management Bus |
| SPI | Serial Peripheral Interface |
| StdFI | Standard Flash: up to 10,000 erase/write cycles, 40 year retention, ICSP capability at 12V |
| ULPW | Ultra Low Power Wake-up |
| USART | Universal Synchronous/Asynchronous Receiver/Transmitter |
| USB | Universal Serial Bus |
| VREF | Voltage Reference |
| WDT | Watchdog Timer |
| WUR | Wake-up Reset |
| ✓P | Programmable |
| x12 | 12-bit Instruction Width |
| x14 | 14-bit Instruction Width |
| x16 | 16-bit Instruction Width |

Microchip Technology's Quality Policy

In order to meet or exceed customer expectations at a reduced cost, we encourage our employees to support continuous improvement, anticipate problems and implement root cause solutions.

Aggregate Approach

Microchip has instituted an "aggregate" approach to understand, align, integrate and unite all company resources. Microchip consciously designed the enterprise as an aggregate system in which company culture, systems, practices, policies and employees work in unison to achieve Microchip's mission and goals. This aggregate system and culture is taught in the Microchip Culture class required for all new hires and taught by Executive Staff members.

The Quality Culture of Microchip is that every organization, business unit and individual owns the quality of their output, whether it is product, process, software or service.

A company must aggressively pursue continuous improvement, employee development, team deployment and statistical techniques to successfully achieve individual accountability of quality.

Continuous Improvement

Microchip promotes a culture of continuous improvement. As stated above, each employee is measured on how they contribute to improvement. Continuous improvement teams are constantly looking to solve problems, allowing us to maximize our value to our customers.

Employee Development and Team Deployment

Every employee has access to a full suite of training. Each employee is measured on Quality and Quantity of work, Teamwork, Continuous Improvement and Customer Satisfaction. Supervisors are measured on how their employees improve and learn. Employees have regular One-on-Ones with their supervisors and open door is a policy that is really practiced.

Statistical Techniques

Microchip uses statistical process techniques in all aspects of our business. Decision-making, experiment definition and process control are a few areas where these techniques are applied. Every manufacturing employee is trained in SPC before they start their job, since they are the people closest to the product quality.

QS-9000 Certification

Microchip Technology's Quality System is based on QS-9000 requirements. QS-9000 is rapidly becoming the standard Quality System for many industries including Semiconductors. All Microchip product facilities and major subcontractors are QS registered. Development Systems and Mountain View products are designed, manufactured and certified to ISO-9001 requirements.

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Microchip's Quality System is fully described in the *Microchip Overview, Quality Systems and Customer Interface Systems Handbook* (DS00169) available on our web site.

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