

PNP DARLINGTON POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/505

Devices

2N6286

2N6287

Qualified Level

JANTX
JANTXV

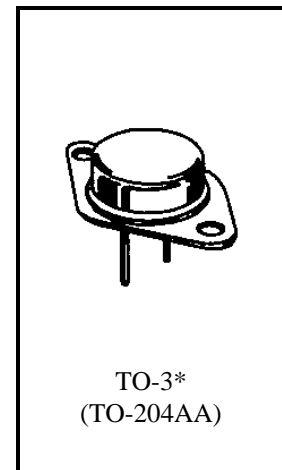
MAXIMUM RATINGS

| Ratings | Symbol | 2N6286 | 2N6287 | Unit |
|--|-------------------------|-------------|--------|-------------|
| Collector-Emitter Voltage | V_{CEO} | -80 | -100 | Vdc |
| Collector-Base Voltage | V_{CBO} | -80 | -100 | Vdc |
| Emitter-Base Voltage | V_{EBO} | -7.0 | | Vdc |
| Base Current | I_B | -0.5 | | Adc |
| Collector Current | I_C | -20 | | Adc |
| Total Power Dissipation ⁽¹⁾ | @ $T_C = +25^{\circ}C$ | 175 | | W |
| | @ $T_C = +100^{\circ}C$ | 87.5 | | W |
| Operating & Storage Junction Temperature Range | T_{op}, T_{stg} | -65 to +175 | | $^{\circ}C$ |

THERMAL CHARACTERISTICS

| Characteristics | Symbol | Max. | Unit |
|--------------------------------------|-----------------|-------|---------------|
| Thermal Resistance, Junction-to-Case | $R_{\theta JC}$ | 0.857 | $^{\circ}C/W$ |

1) Derate linearly @ 1.17 W/ $^{\circ}C$ above $T_C > +25^{\circ}C$



*See appendix A for package outline

ELECTRICAL CHARACTERISTICS ($T_C = 25^{\circ}C$ unless otherwise noted)

| Characteristics | Symbol | Min. | Max. | Unit |
|-----------------|--------|------|------|------|
|-----------------|--------|------|------|------|

OFF CHARACTERISTICS

| | | | | |
|---|------------------|---------------|--------------|------|
| Collector-Emitter Breakdown Voltage $I_C = -100$ mAdc | 2N6286 2N6287 | $V_{(BR)CEO}$ | -80 -100 | Vdc |
| Collector-Emitter Cutoff Current $V_{CE} = -40$ Vdc $V_{CE} = -50$ Vdc | 2N6286 2N6287 | I_{CEO} | -1.0 -1.0 | mAdc |
| Collector-Emitter Cutoff Current $V_{CE} = -80$ Vdc, $V_{BE} = 1.5$ Vdc $V_{CE} = -100$ Vdc, $V_{BE} = 1.5$ Vdc | 2N6286 2N6287 | I_{CEX} | -0.5 -0.5 | mAdc |
| Emitter-Base Cutoff Current $V_{EB} = -7.0$ Vdc | | I_{EBO} | -2.5 | Adc |

ELECTRICAL CHARACTERISTICS (con't)

| Characteristics | Symbol | Min. | Max. | Unit |
|---|----------------------|-----------------------|--------------|------|
| ON CHARACTERISTICS ⁽²⁾ | | | | |
| Forward-Current Transfer Ratio I _C = -1.0 Adc, V _{CE} = -3.0 Vdc I _C = -10 Adc, V _{CE} = -3.0 Vdc I _C = -20 Adc, V _{CE} = -3.0 Vdc | h _{FE} | 1,500 1,250 300 | 18,000 | |
| Collector-Emitter Saturation Voltage I _C = -20 Adc, I _B = -200 mAcd I _C = -10 Adc, I _B = -40 mAcd | V _{CE(sat)} | | -3.0 -2.0 | Vdc |
| Base-Emitter Saturation Voltage I _C = -20 Adc, I _B = -200 mAcd | V _{BE(sat)} | | -4.0 | Vdc |
| Base-Emitter Voltage I _C = -10 Adc, V _{CE} = -3.0 Vdc | V _{BE(on)} | | -2.8 | Vdc |

DYNAMIC CHARACTERISTICS

| | | | | |
|---|------------------|-----|-----|----|
| Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio I _C = -10 Adc, V _{CE} = -3.0 Vdc f = 1.0 MHz | h _{fe} | 8.0 | 80 | |
| Small-Signal Short-Circuit Forward Current Transfer Ratio I _C = -10 Adc, V _{CE} = -3.0 Vdc | h _{fe} | 300 | | |
| Output Capacitance V _{CB} = -10 Vdc, I _E = 0, 100 kHz ≤ f ≤ 1.0 MHz | C _{obo} | | 400 | pF |

SWITCHING CHARACTERISTICS

| | | | | |
|--|------------------|--|-----|----|
| Turn-On Time V _{CC} = -30 Vdc; I _C = -10 Adc; I _B = -40 mAcd | t _{on} | | 2.0 | μs |
| Turn-Off Time V _{CC} = -30 Vdc; I _C = -10 Adc; I _{B1} = I _{B2} = -40 mAcd | t _{off} | | 10 | μs |

SAFE OPERATING AREA

| | |
|--|-----------|
| DC Tests T _C = +25°C, 1 Cycle, t = 1.0 s | |
| Test 1 V _{CE} = -8.75 Vdc, I _C = -20 Adc | All Types |
| Test 2 V _{CE} = -30 Vdc, I _C = -5.8 Adc | All Types |
| Test 3 V _{CE} = -80 Vdc, I _C = -100 mAcd | 2N6286 |
| V _{CE} = -100 Vdc, I _C = -100 mAcd | 2N6287 |

(2) Pulse Test: Pulse Width = 300μs, Duty Cycle ≤ 2.0%.