UPS560

5 A Schottky Barrier Rectifier

DESCRIPTION

In Microsemi's new Powermite® SMT package, these high efficiency Schottky rectifiers offer the power handing capabilities previously found only in much larger packages. They are ideal for SMD applications that operate at high frequencies.

In addition to its size advantages, Powermite® package features include a full metallic bottom that eliminates the possibility of solder flux entrapment during assembly, and a unique locking tab acts as an integral heat sink. Its innovative design makes this device ideal for use with automatic insertion equipment.

IMPORTANT: For the most current data, consult *MICROSEMI*'s website: **http://www.microsemi.com**

KEY FEATURES

- High power surface mount package
- Guard Ring die construction for transient protection
- Internal heat sink locking tabs
- Low forward voltage
- Full metallic bottom eliminates flux entrapment
- Compatible with automatic insertion equipment
- Low profile-maximum height of 1mm supplied in 16 mm tape reel- 5000 units/ 13" reel.

ABSOLUTE MAXIMUM RATINGS AT 25º C (UNLESS OTHERWISE SPECIFIED)

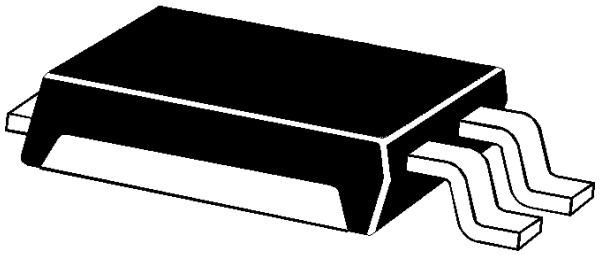
Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	60	V
RMS Reverse Voltage	$V_{R\ (RMS)}$	42	V
Average Rectified Output Current	I_O	5	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine wave Superimposed on Rated Load@ T_c =90 ºC	I_{FSM}	100	A
Storage Temperature	T_{STG}	-55 to +150	ºC
Junction Temperature	T_J	-55 to +125	ºC

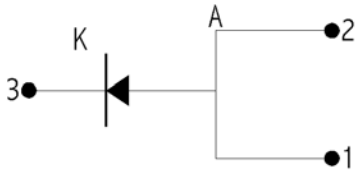
APPLICATIONS/BENEFITS

- Switching and Regulating Power Supplies
- Silicon Schottky (hot carrier) rectifier for minimal reverse voltage recovery
- Elimination of reverse-recovery oscillations to reduce need for EMI filtering
- Charge Pump Circuits
- Reduces reverse recovery loss due to low I_{RM}
- Small foot print ■=
  190 X 270 mils (1:1 Actual size)
  See mounting pad details on pg 4

THERMAL CHARACTERISTICS (UNLESS OTHERWISE SPECIFIED)

Thermal Resistance			
Junction-to Tab	$R_{\theta JTAB}$	7.5	ºC/Watt
Junction-to Bottom	$R_{\theta JC}$	2.5	ºC/Watt





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ELECTRICAL PARAMETERS @ 25°C (unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ.	Max	Units
Forward Voltage (Note 1)	V_{Fm}	I_F = 5 A , T_j = 25 ºC I_F = 5 A , T_j = 125 ºC I_F = 8 A , T_j = 25 ºC I_F = 8 A , T_j = 125 ºC		0.65 0.56 0.74 0.64	0.69 0.60 0.78 0.68	V
Reverse Break Down Voltage (Note 1)	V_{BR}	I_R = 0.2 mA	60			V
Reverse Current (Note1)	I_{rm}	V_R = 60 V, T_j = 25ºC V_R = 60 V, T_j =125 ºC		2 0.6	200 20	µA mA
Capacitance	C_T	V_R = 4 V; F = 1 MH_Z		150		pF

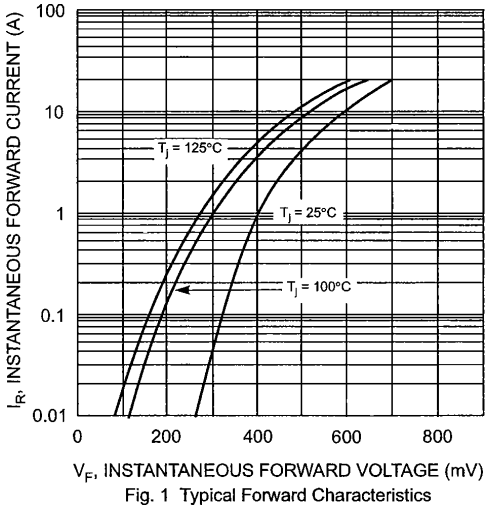


Fig. 1 Typical Forward Characteristics

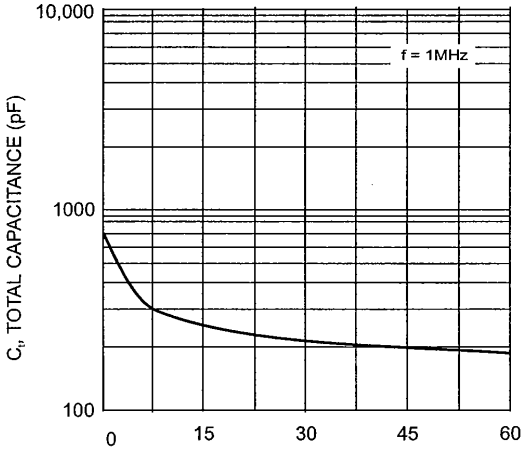


Fig. 3 Typical Capacitance vs. Reverse Voltage

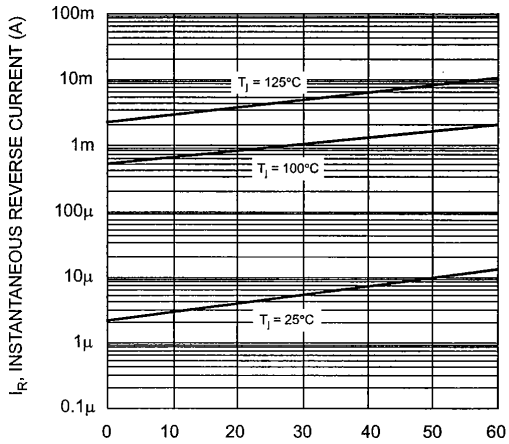


Fig. 2 Typical Reverse Characteristics

Note: 1 Short duration test pulse used to minimize self – heating effect.

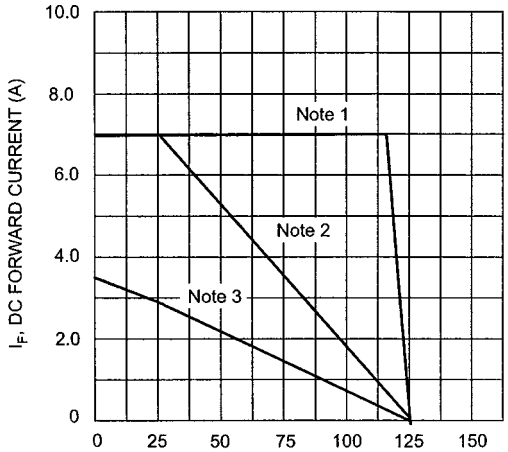


Fig. 4 DC Forward Current Derating

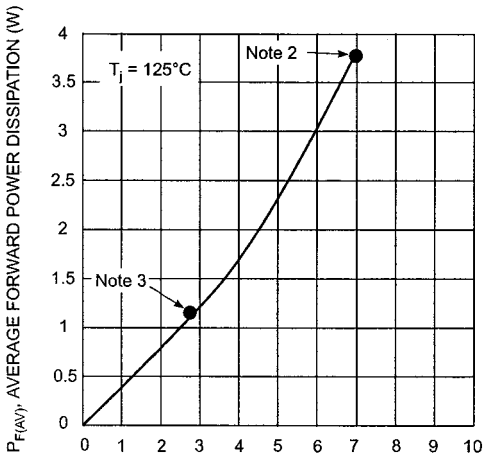
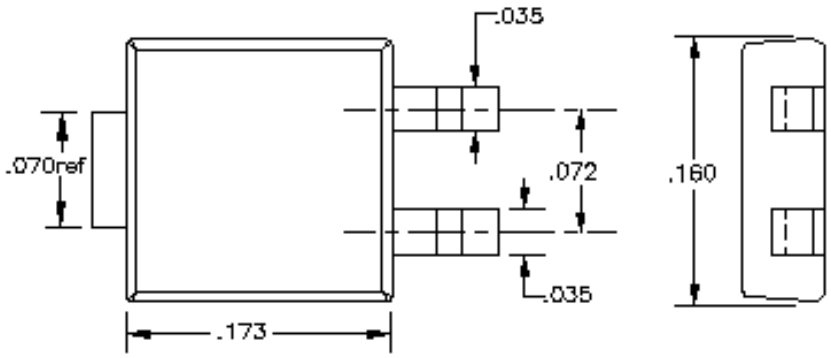


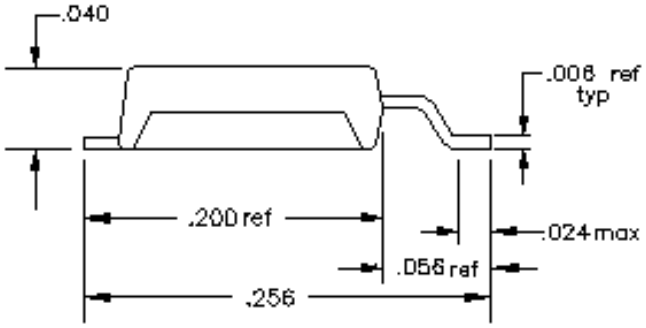
Fig. 5 Forward Power Dissipation

NOTE 1: $T_A = T_C$ at case bottom where $R_{\theta JC}$ =2.5º C/W and $R_{\theta CA}$ = 0º C/W (infinite heat sink).

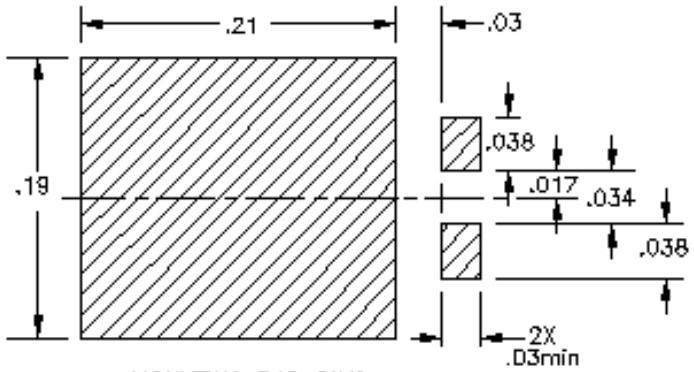
NOTE 2: Device mounted on GETEK substrate, 2" x 2", 2 oz. copper , double-sided , cathode pad dimensions 0.75" x 1.0", anode pad dimensions 0.25" x 1.0". $R_{\theta JA}$ in range of 20-35° C/W.

NOTE 3: Device mounted on FRA-4 substrate, 2" x 2", 2 oz. copper, single-sided, pad layout $R_{\theta JA}$ in range of 75 - 100° C/W.





NOTE: LEAD FRAMES ARE Sn/Pb PLATED.



MOUNTING PAD DIMS.

NOTES: