

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.

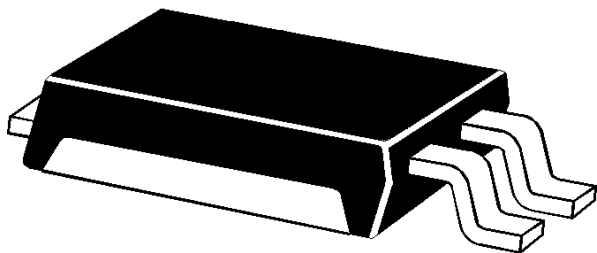
IMPORTANT: For the most current data, consult MICROSEMI's website: <http://www.microsemi.com>

**ABSOLUTE MAXIMUM RATINGS AT 25° 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@ $T_c = 90^\circ\text{C}$	I_{FSM}	100	A
Storage Temperature	T_{STG}	-55 to +150	°C
Junction Temperature	T_J	-55 to +125	°C


**THERMAL CHARACTERISTICS
(UNLESS OTHERWISE SPECIFIED)**

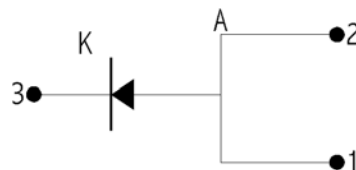
Thermal Resistance			
Junction-to Tab	$R_{\theta JTAB}$	7.5	°C/Watt
Junction-to Bottom	$R_{\theta JC}$	2.5	°C/Watt


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.

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



ELECTRICAL PARAMETERS @ 25°C (unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ.	Max	Units
Forward Voltage (Note 1)	V_{Fm}	$I_F = 5\text{ A}, T_J = 25^\circ\text{C}$ $I_F = 5\text{ A}, T_J = 125^\circ\text{C}$ $I_F = 8\text{ A}, T_J = 25^\circ\text{C}$ $I_F = 8\text{ A}, T_J = 125^\circ\text{C}$		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}	$I_R = 0.2\text{ mA}$	60			V
Reverse Current (Note1)	I_{rm}	$V_R = 60\text{ V}, T_J = 25^\circ\text{C}$ $V_R = 60\text{ V}, T_J = 125^\circ\text{C}$		2 0.6	200 20	μA mA
Capacitance	C_T	$V_R = 4\text{ V}; F = 1\text{ MHz}$		150		pF

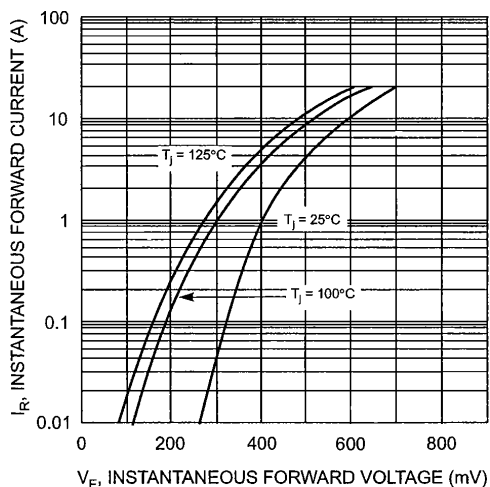


Fig. 1 Typical Forward Characteristics

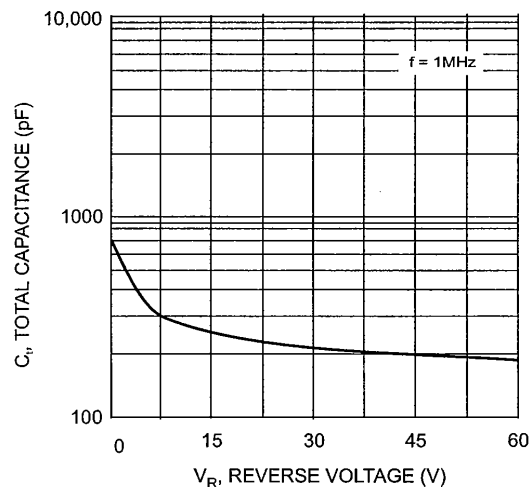


Fig. 3 Typical Capacitance vs. Reverse Voltage

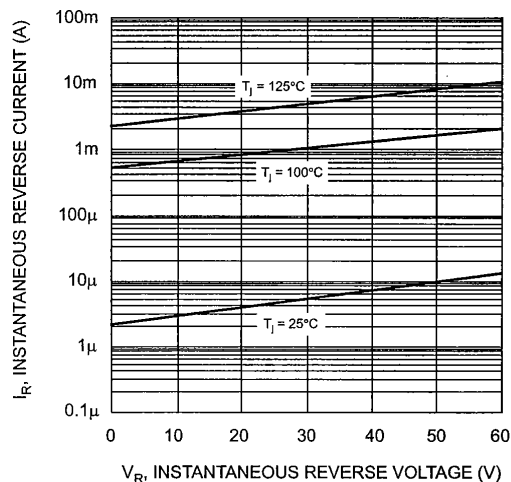


Fig. 2 Typical Reverse Characteristics

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

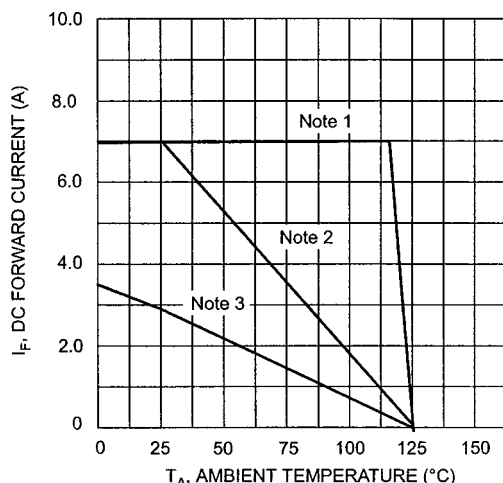


Fig. 4 DC Forward Current Derating

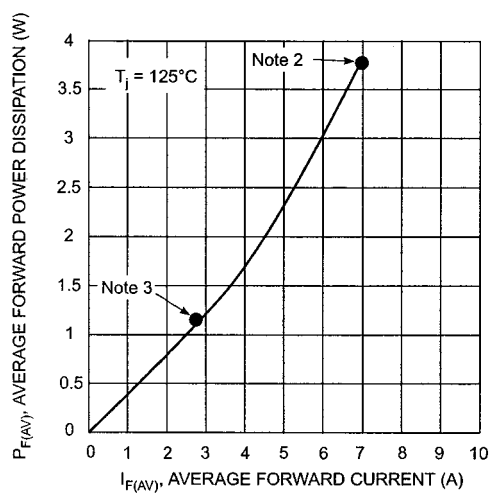


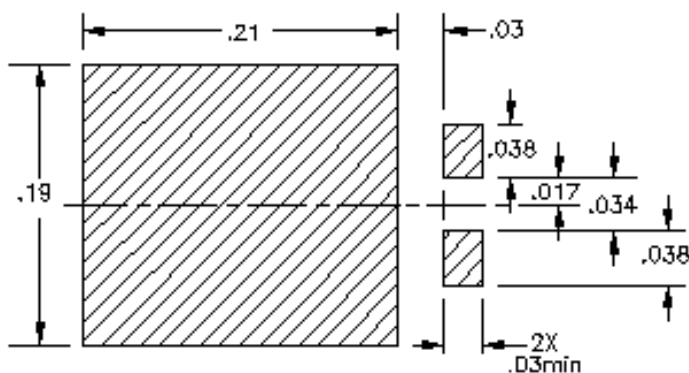
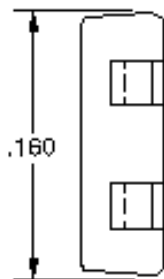
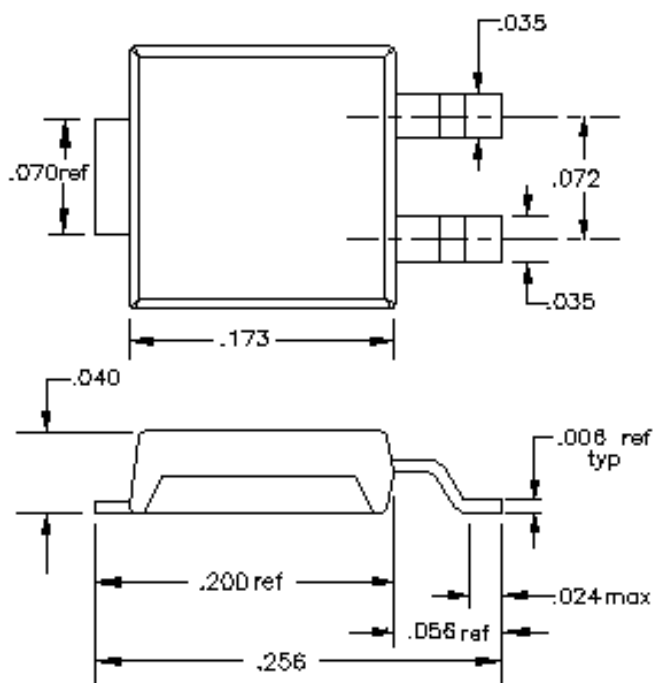
Fig. 5 Forward Power Dissipation

NOTE 1: $T_A = T_C$ at case bottom where $R_{\theta JC} = 2.5^\circ \text{C/W}$ and $R_{\theta CA} = 0^\circ \text{C/W}$ (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.

PRODUCT PRELIMINARY DATA – Information contained in this document is pre-production data, and is proprietary to Microsemi Corp. It may not be modified in any way without the express written consent of Microsemi Corp. Product referred to herein is not guaranteed to achieve preliminary or production status and product specifications, configurations, and availability may change at any time.



MOUNTING PAD DIMS.

NOTE: LEAD FRAMES ARE Sn/Pb PLATED.



UPS560

5 A Schottky Barrier Rectifier

NOTES:

www.Microsemi.com

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