UPS160e3

1.0 A Schottky Barrier Rectifier

DESCRIPTION

The Microsemi UPS160e3 Powermite® Schottky rectifier is RoHS compliant and offers optimized forward voltage characteristics with reverse blocking capabilities up to 60 Volt. They are ideal for surface mount applications that operate at high frequencies.
In addition to its size advantages, Powermite® package features include a full metallic bottom that eliminates possibility of solder flux entrapment during assembly, and a unique locking tab acts as an efficient heat path from die to mounting plane for external heat sinking with very low thermal resistance junction to case (bottom). 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 25º C (UNLESS OTHERWISE SPECIFIED)

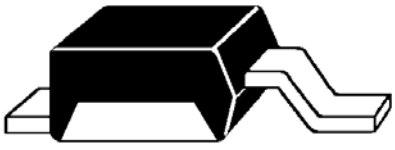
Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	60	V
RMS Reverse Voltage	$V_{R\ (RMS)}$	42	V
Average Rectified Output Current	I_o	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine wave Superimposed on Rated Load@ T_c =90 ºC	I_{FSM}	25	A
Storage Temperature	T stg	-65 to +150	ºC
Junction Temperature	T J	-65 to +125	ºC

THERMAL CHARACTERISTICS (UNLESS OTHERWISE SPECIFIED)

Thermal Resistance			
Junction-to-case (bottom)	$R_{\theta JC}$	15	ºC/ Watt
Junction-to-ambient (1)	$R_{\theta JA}$	240	ºC/ Watt

(1) When mounted on FR-4 PC board using 1 oz copper with recommended minimum foot print

DO-216



See further details and dimensions on last page

KEY FEATURES

- Low thermal resistance DO-216 package
- RoHS Compliant with e3 suffix part number
- Guard-ring-die construction for transient protection
- Efficient heat path with Integral locking bottom metal tab
- Low forward voltage
- Full metallic bottom eliminates flux entrapment
- Compatible with automatic insertion
- Low profile-maximum height of 1mm
- Options for screening in accordance with MIL-PRF-19500 for JAN, JANTX, and JANTXV are available by adding MQ, MX, or MV prefixes respectively to part numbers. For example, designate MXUPS160e3 for a JANTX (consult factory for Tin-Lead plating).
- Optional 100% avionics screening available by adding MA prefix for 100% temperature cycle, thermal impedance and 24 hours HTRB (consult factory for Tin-Lead plating)

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 with low I_{RM}
- Small 8.45 mm^2 foot print (See mounting pad details next page)

MECHANICAL & PACKAGING

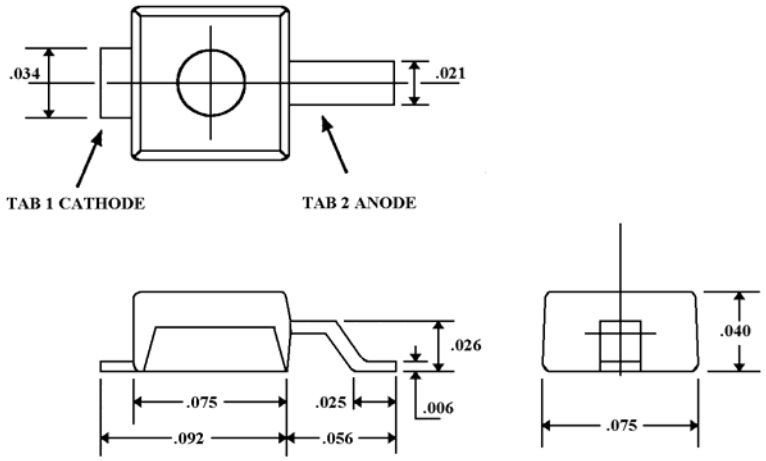
- CASE: Void-free transfer molded thermosetting epoxy compound meeting UL94V-0
- FINISH: Annealed matte-Tin plating over copper and readily solderable per MIL-STD-750 method 2026 (consult factory for Tin-Lead plating)
- POLARITY: See figure (left)
- MARKING: S60•
- WEIGHT: 0.016 grams (approx.)
- Package dimension on last page
- Tape & Reel option: 12 mm tape per Standard EIA-481-B, 3000 on 7 inch reel and 12,000 on 13" reel

ELECTRICAL PARAMETERS @ 25°C (unless otherwise specified)

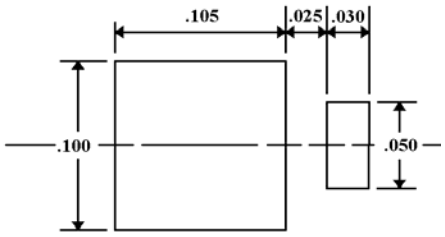
Parameter	Symbol	Conditions	Min	Typ.	Max	Units
Forward Voltage (Note 1)	V_F	I_F = 1 A , T_J =25 ºC I_F = 2 A , T_J =25 ºC			0.60 0.86	V
Reverse Breakdown Voltage (Note 1)	V_{BR}	I_R = 0.1 mA	60			V
Reverse Current (Note 1)	I_R	V_R = 60 V, T_J = 25 ºC			0.1	mA
Capacitance	C_T	V_R = 4 V; f = 1 MHz		45	55	pF

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

PACKAGE & MOUNTING PAD DIMENSIONS



DO-216 Package (All dimensions +/-.005 inches)



MOUNTING PAD in inches