



UPS120Ee3

1.0 A Schottky Barrier Rectifier

DESCRIPTION

The Microsemi UPS120Ee3 Powermite[®] Schottky rectifier is RoHS compliant and offers low leakage current and optimized forward voltage characteristics with reverse blocking capabilities up to 20 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.

KEY FEATURES

- Low thermal resistance DO-216AA 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 leakage current
- Full metallic bottom eliminates flux entrapment
- Compatible with automatic insertion
- Low profile-maximum height of 1mm

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	20	V
RMS Reverse Voltage	$V_{R(RMS)}$	14	V
Average Rectified Output Current (at rated V_R , $T_C=135^\circ\text{C}$)	I_o	1.0	A
Peak Repetitive Forward Current (at rated V_R , square wave, 100kHz, $T_C=135^\circ\text{C}$)	I_{FRM}	2.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine wave	I_{FSM}	50	A
Voltage Rate of Change (rated V_R , $T_J=25^\circ\text{C}$)	dv/dt	10,000	V/ μs
Storage Temperature	T_{STG}	-55 to +150	$^\circ\text{C}$
Junction Temperature	T_J	-55 to +125	$^\circ\text{C}$

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 mm² 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: 20E•
- 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

THERMAL CHARACTERISTICS (UNLESS OTHERWISE SPECIFIED)

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

(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



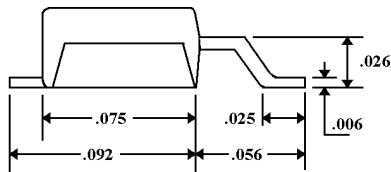
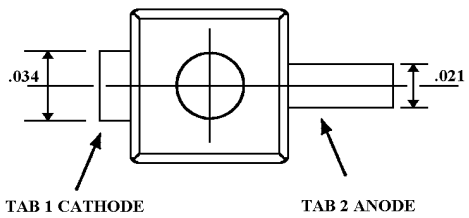
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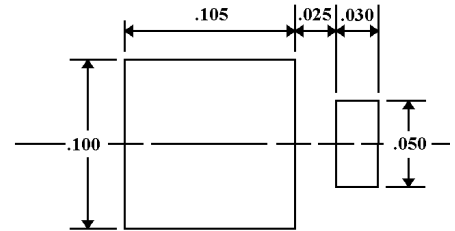
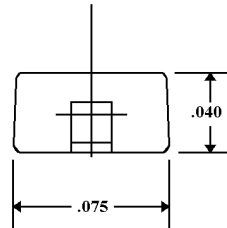
Parameter	Symbol	Conditions	T _J = 25°C	T _J = 100°C	Units
Maximum Forward Voltage (Note 1) See Figure 2	V _F	I _F = 0.1 A	0.455	0.360	V
		I _F = 1.0 A	0.530	0.455	V
		I _F = 3.0 A	0.595	0.540	V
Maximum Instantaneous Reverse Current (Note 1)	I _R	V _R = 20 V	10	1600	μA
		V _R = 10 V	1.0	500	μA
		V _R = 5 V	0.5	300	μA

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