UPR5e3, UPR10e3, UPR15e3

2.5 Amp High Efficiency Ultrafast Rectifier

DESCRIPTION

The Microsemi UPR5e3, UPR10e3, and UPR15e3 Powermite® high efficiency rectifiers are RoHS compliant and offers optimized forward voltage characteristics with reverse blocking capabilities up to 150 Volts. 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)

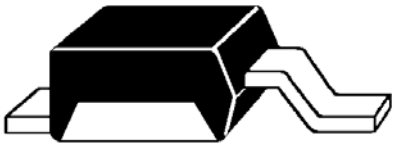
Rating	Symbol	Value	Unit
Working Peak Reverse Voltage UPR5e3 Working Peak Reverse Voltage UPR10e3 Working Peak Reverse Voltage UPR15e3	V_{RWM} V_{RWM} V_{RWM}	50 100 150	V V V
Average Rectified Output Current (at rated V_{RWM}, T_C =75ºC)	I_o	2.5	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half-sine wave	I_{FSM}	25	A
Storage Temperature	T_{STG}	-55 to +150	ºC
Junction Temperature	T_J	-55 to +150	ºC

THERMAL CHARACTERISTICS (UNLESS OTHERWISE SPECIFIED)

Thermal Resistance			
Junction-to-case (bottom)	$R_{\theta JC}$	10	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 for higher current operation
- Utrasfast recovery time of 25 ns
- RoHS Compliant with e3 suffix part number
- 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 MXUPR5e3 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.
- 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: UPR5e3: R05•
UPR10e3: R10•
UPR15e3: R15•
- 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

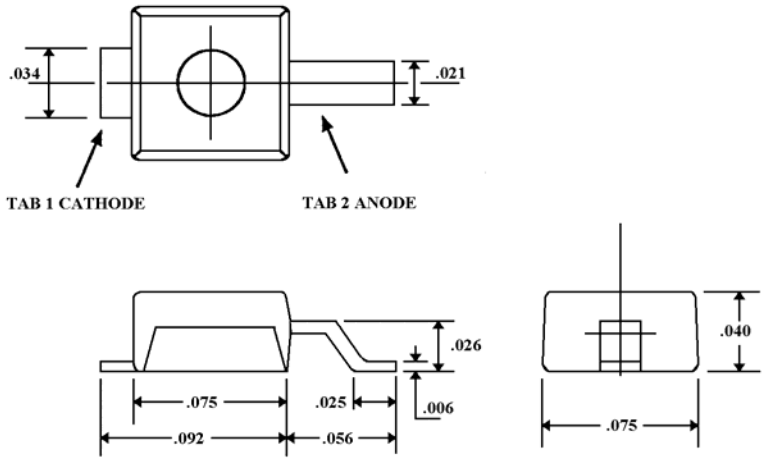
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ELECTRICAL PARAMETERS @ 25°C (unless otherwise specified)

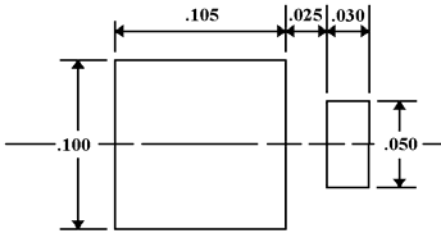
Parameter	Symbol	Conditions	Min	Typ.	Max	Units
Forward Voltage (Note 1)		I_F = 2.0 Amps			0.975	V
Forward Voltage (Note 1)		I_F = 2.0 Amps, T_J = 100C			0.895	V
Reverse Current	I_R	$V_R = V_{RWM}$, T_J = 25 ºC			2.0	µA
Reverse Current	I_R	$V_R = V_{RWM}$, T_J = 100 ºC			50	µA
Reverse Recovery Time	t_{rr}	I_F = 0.5 A; I_R = 1.0 A: I_{REC} = 0.25 A			25	ns

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

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6-26-2007 Rev B