UPS5817e3 and UPS5819e3

POWERMITE 1™ SURFACE MOUNT 1 AMP 20 and 40 V SCHOTTKY RECTIFIERS

Microsemi
SCOTTSDALE DIVISION

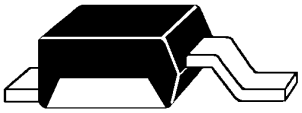
DESCRIPTION

The UPS5817e3 and UPS5819e3 offer a small and powerful surface mount package that is RoHS compliant for a 1 Amp rated Schottky. These ratings are found only in much larger packages. They are ideal for surface mount applications that operate at high frequencies with their "hot carrier" features that provide extremely fast switching. The very low thermal resistance of the patented Powermite 1™ package design with a full metallic bottom and unique locking tab act as an efficient heat path to a heat sink mounting permitting cooler operating junction temperatures for minimal reverse leakage currents and lower power loss. It is also ideal for automatic insertion equipment.

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

APPEARANCE

DO-216



Powermite 1™

FEATURES

- Low profile DO-216 package (<1.1 mm)
- RoHS compliant with e3 suffix part number
- Small footprint area of 8.45 mm^2
- Plastic package has Underwriters Laboratory Flammability classification 94V-0
- Unique locking tab on bottom acts as integral efficient heat path to heat sink (mounting substrate)
- Metal to silicon rectifier, majority carrier conduction

APPLICATIONS / BENEFITS

- High current capability with low forward voltage
- Guard-ring-die construction for transient protection
- Silicon Schottky (hot carrier) rectifier for minimal t_{rr} and minimal reverse recovery voltage
- Elimination of reverse-recovery oscillations to reduce need for EMI filtering
- For use in high-frequency switching power supplies, inverters, free wheeling, charge pump circuits and polarity protection applications
- Lower forward power loss and high efficiency
- Low inductive parasitics (<2nH) for minimal Ldi/dt effects
- Robust package configuration for pick-and-place handling
- Full-metallic bottom eliminates flux entrapment
- Small foot print with 0.100 x 0.160 inches (see mounting pad details on last page)

MAXIMUM RATINGS

- Storage temperature (T_{STG}): -55 °C to +150°C
- Operating junction temperature (T_J): -55 °C to +150°C
- Average forward rectified current (I_O) @T_C=100°C: 1.0 Amp
- Forward surge current (I_{FSM}) 8.3 ms single half-sine waveform superimposed on rated load (JEDEC Method): 50 Amps
- Thermal resistance junction to case (bottom): 10 °C/W
- Thermal resistance ($R_{\theta JA}$): 240 °C/W on PCB with FR4 using 1 oz Copper and recommended mounting pad size (see pad layout next page)
- Solder temperatures: 260 °C for 10 s (maximum)

MECHANICAL AND PACKAGING

- Terminals: Copper with annealed matte-Tin plating for RoHS compliance solderable per MIL-STD-750 method 2026 (consult factory for Tin-Lead plating.)
- Polarity: Backside is cathode
- Marking: UPS5817e3 marked with S17• and UPS5819e3 marked with S19•
- Molded epoxy package meets UL94V-0
- Weight: 0.016 grams (approximate)
- Tape & Reel option: 12 mm tape per EIA-481-B 3000 units on 7 inch reel and 12,000 on 13" reel (add TR7 or TR13 respectively to part number)
- See package dimensions on last page

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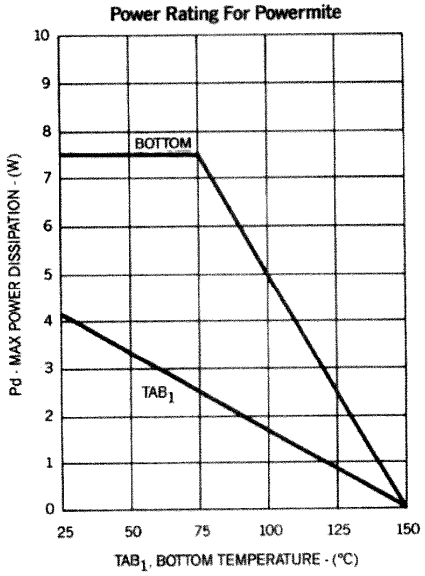
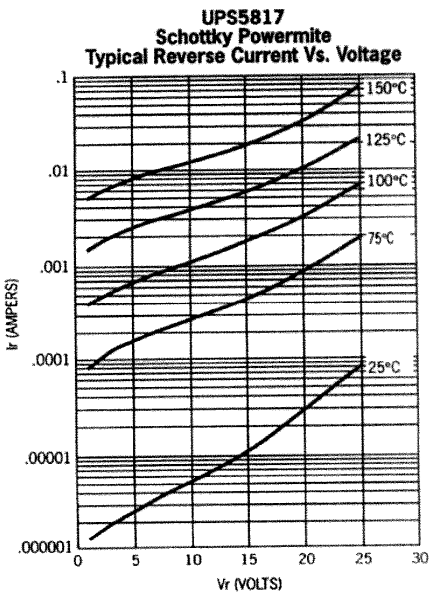
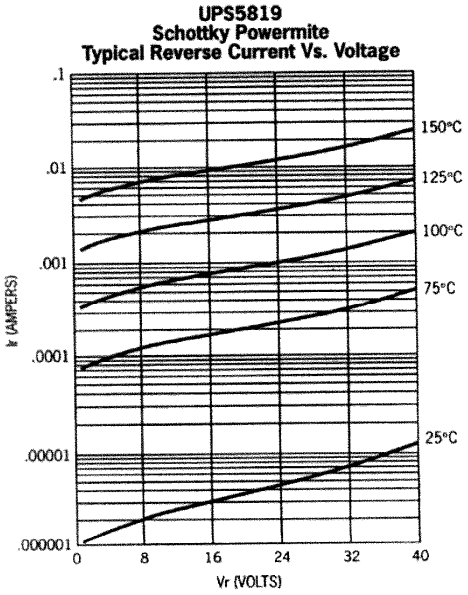
ELECTRICAL CHARACTERISTICS (T_A=25°C unless noted)

	Working Peak Reverse Voltage	Maximum Forward Voltage			Maximum Reverse Current I_R @ V_{RWM}	Typical Junction Capacitance @ V_R = 5.0 V
Part Number	V_{RWM}	V_F @ 0.1A	V_F @ 1A	V_F @ 3A	I_R	C_J
	Volts	Volts	Volts	Volts	mA	pF
UPS5817e3	20	0.36	0.45	0.65	1	**105**
UPS5819e3	40	0.39	0.55	0.85	1	**60**

CHARTS AND GRAPHS







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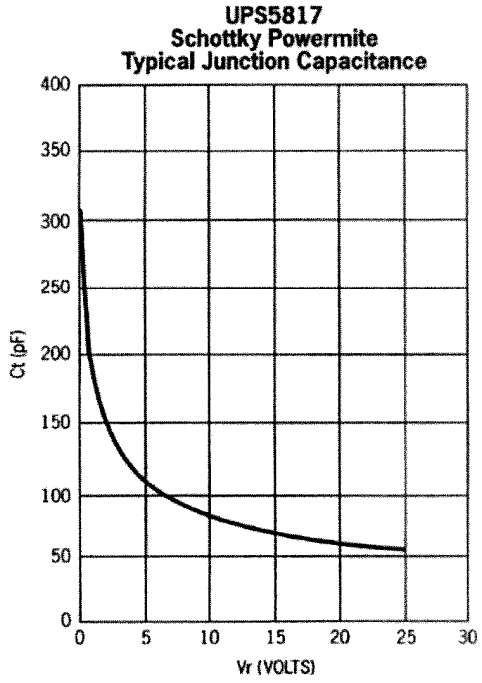

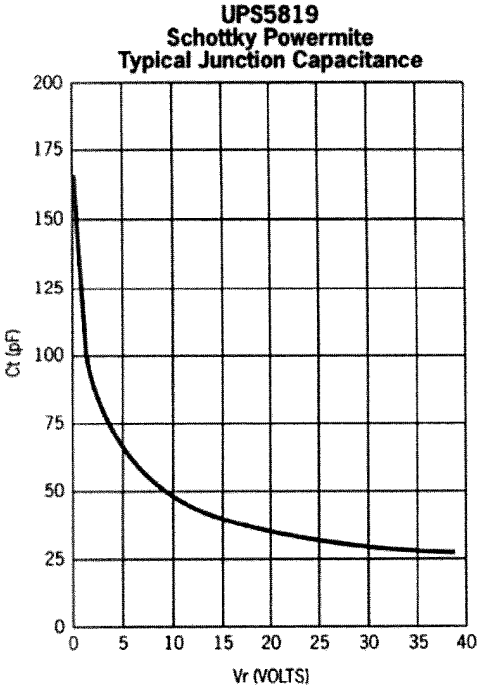

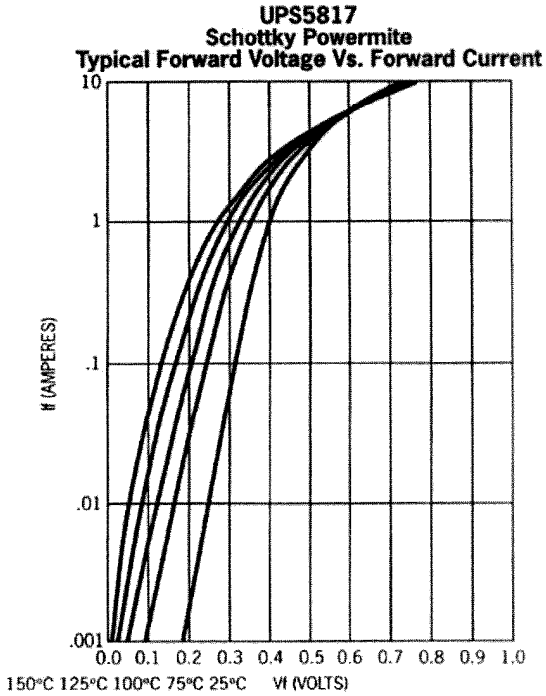

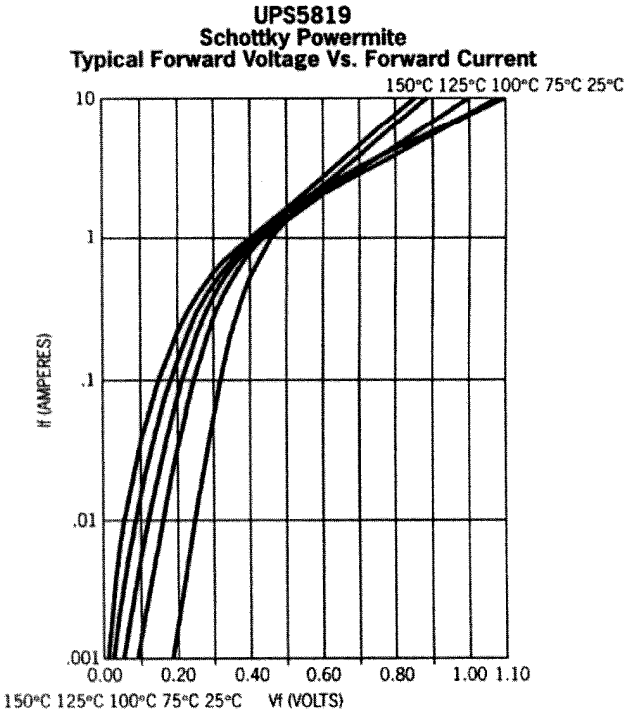

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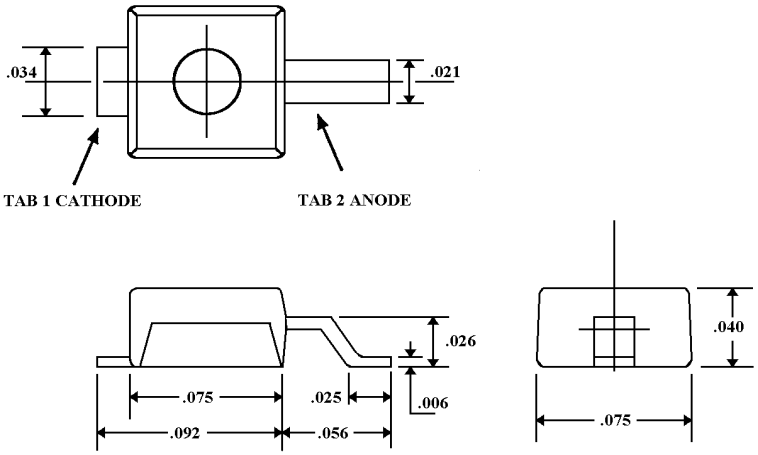
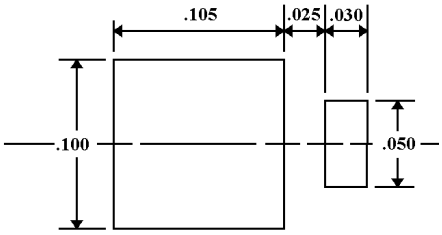
PACKAGE & PAD LAYOUT DIMENSIONS



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



MOUNTING PAD (inches)

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