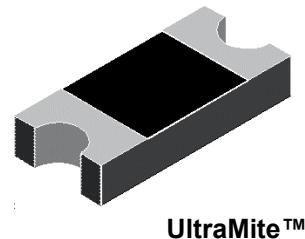


**ULTRAMITE™ SURFACE MOUNT  
SCHOTTKY BARRIER RECTIFIERS**

**DESCRIPTION**

The UMA5817 thru UMA5819 UltraMite™ series offers small efficient surface mount packaging with the same electrical features as the popular 1N5817, 1N5818, and 1N5819 Schottky rectifiers. It provides the same size footprint as other small surface mount DO-214AC or BA package options except with a much lower profile height. Its configuration in a “2010 MELF” style robust package design prevents lead damage to terminals and also minimizes parasitics by eliminating internal wire bonds and providing very short internal conduction paths.

**APPEARANCE**



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

**FEATURES**

- Plastic package has Underwriters Laboratory Flammability classification 94V-0
- Metal to silicon rectifier, majority carrier conduction
- High current capability, low  $V_F$
- Built-in stress relief with similar COE as PC boards
- Optional Lead-Free design/finish (UMAF5817-19)
- Options for screening in accordance with MIL-PRF-19500/586 for JAN, JANTX, JANTXV, and JANS are available by adding MQ, MX, MV, or MSP prefixes respectively to part numbers. For example, designate a MXUMA5819 for a JANTX screen.

**APPLICATIONS / BENEFITS**

- For surface mount applications
- For use in low-voltage high-frequency switching power supplies, inverters, free wheeling, and polarity protection applications
- Low power loss, High efficiency
- Low inductive parasitics for minimal Ldi/dt effects
- Fits same small PCB footprints as popular “SMAJxxx” or “SMBJxxx” Schottky devices in JEDEC outlines DO-214AC (or BA) and DO-214AA respectively except with much lower height profile
- Robust 2010 MELF style package configuration for pick-and-place handling

**MAXIMUM RATINGS**

- Operating junction and storage temperature range ( $T_J$  and  $T_{STG}$ ):  $-50^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$
- Forward average rectified current ( $I_O$ ) @  $T_C=75^{\circ}\text{C}$ : 1.0 Amp
- Forward surge current ( $I_{FSM}$ ) 8.3 ms single half-sine waveform superimposed on rated load (JEDEC Method): 25 Amps
- Typical thermal resistance ( $R_{\theta JL}$ ):  $50^{\circ}\text{C/W}$
- Typical junction capacitance ( $C_J$ ) at 1.0 MHz and  $V_R$  of 5.0 Volts: 65 pF for UMA5817, and 46 pF for UMA5818 and UMA5819
- Solder temperatures:  $260^{\circ}\text{C}$  for 10 s (maximum)

**MECHANICAL AND PACKAGING**

- FRP substrate material and epoxy under-fill package meeting UL94V-0
- Terminals solder plated (solderable per MIL-STD-750, Method 2026)
- Body marked with 5817, 5818, or 5819
- Cathode designated with band
- Weight: 0.020 grams
- Tape & Reel packaging per EIA-481-2 with 12 mm tape and 3000 units/reel (7 inch reel) or 10,000 units/reel (13 inch reel)
- See package dimensions on last page

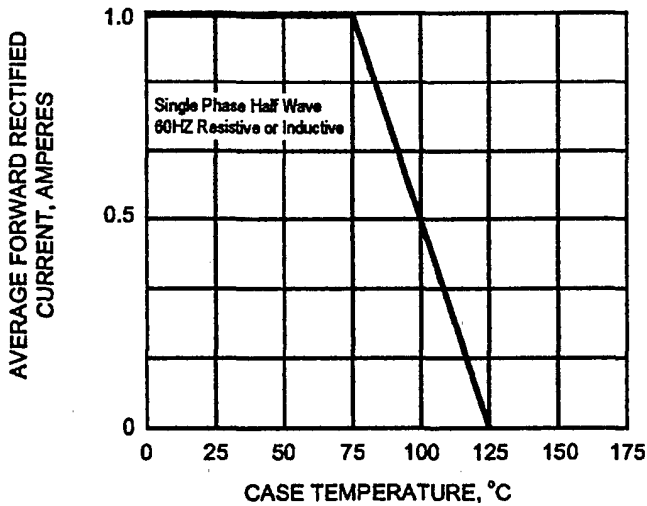
**ELECTRICAL CHARACTERISTICS @ 25°C unless specified otherwise**

Part Number	Working Peak Reverse Voltage	Maximum RMS Voltage;	Maximum Peak Repetitive Voltage;	Maximum Forward Voltage at 1.0A (note 1)	Maximum Forward Voltage at 3.0A (note 1)	Maximum dc reverse current @ $V_{RWM}$	Maximum dc reverse current @ $V_{RWM}, 100^{\circ}\text{C}$
	$V_{RWM}$ Volts	$V_{RMS}$ Volts	$V_{RRM}$ Volts	$V_F$ Volts	$V_F$ Volts	$I_R$ mA	$I_R$ mA
UMA5817	20	14	20	0.45	0.75	0.5	10
UMA5818	30	21	30	0.55	0.875	0.5	10
UMA5819	40	28	40	0.60	0.90	0.5	10

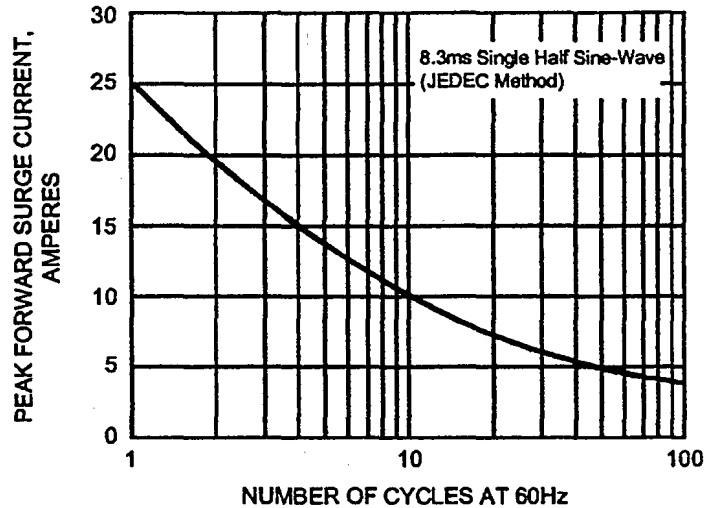
**NOTES:** (1) Pulse test with  $P_W=300 \mu\text{sec}$ , 1% duty cycle.

**GRAPHS**

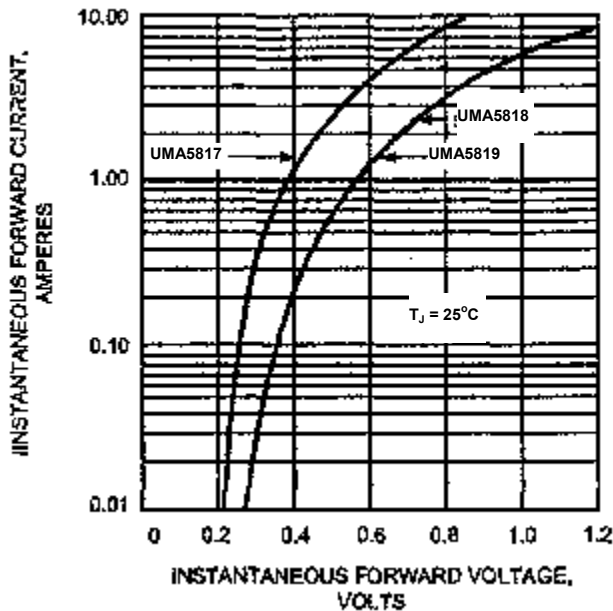
**FIG.1 - FORWARD CURRENT DERATING CURVE**



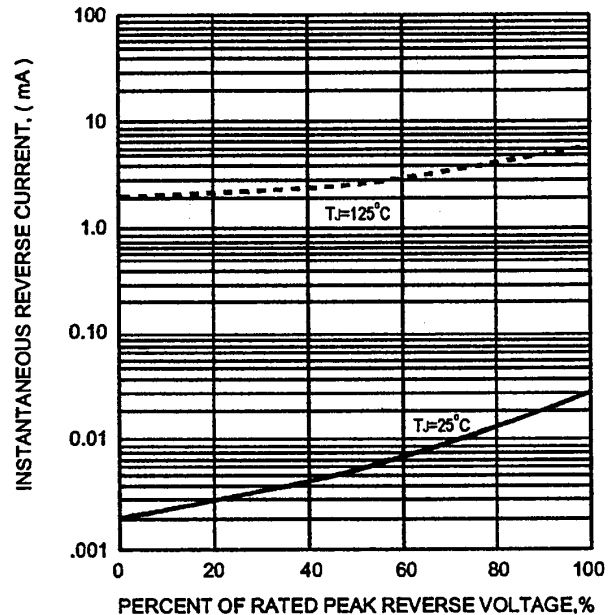
**FIG.2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT**

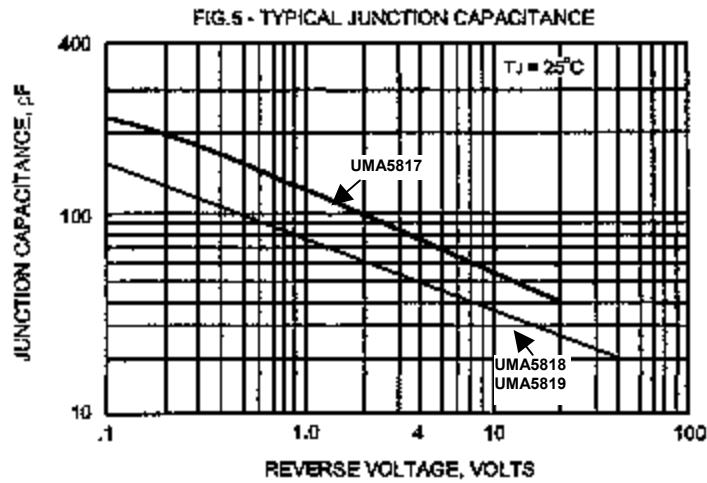


**FIG.3 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS**

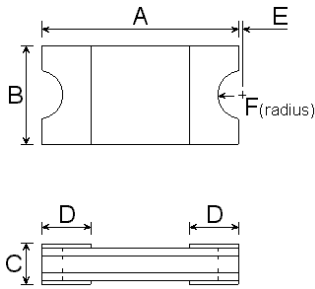


**FIG.4 - TYPICAL REVERSE CHARACTERISTICS PER BRIDGE ELEMENT**



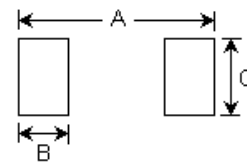


**PACKAGE DIMENSIONS & PAD LAYOUT**



DIM	INCHES		MM	
	MIN	MAX	MAX	MAX
A	.173	.181	4.40	4.60
B	.083	.091	2.10	2.30
C	.033	.049	.85	1.25
D	.033	.049	.85	1.25
E	.002	.002	.05	.05
F	.020	.020	.50	.50

**PAD LAYOUT**



	INCHES	mm
A	.245	6.22
B	.075	1.90
C	.103	2.62