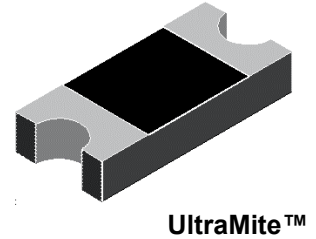


**ULTRAMITE™ SURFACE MOUNT
SCHOTTKY BARRIER RECTIFIERS**

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.

MAXIMUM RATINGS

- Operating junction and storage temperature range (T_J and T_{STG}): -50°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°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°C for 10 s (maximum)

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

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

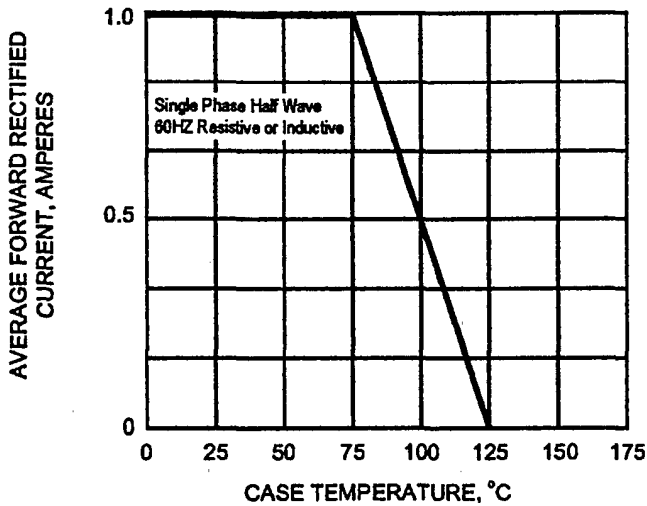
ELECTRICAL CHARACTERISTICS @ 25°C unless specified otherwise

| 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 |

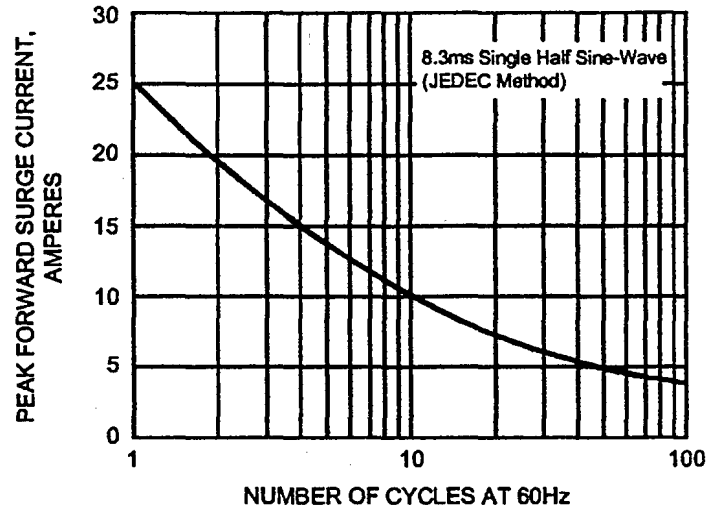
NOTES: (1) Pulse test with $P_W=300 \mu\text{sec}$, 1% duty cycle.

GRAPHS

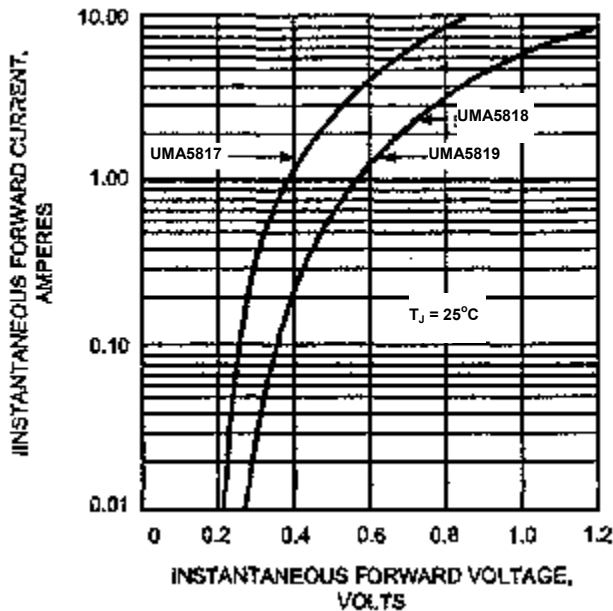
FIG.1 - FORWARD CURRENT DERATING CURVE



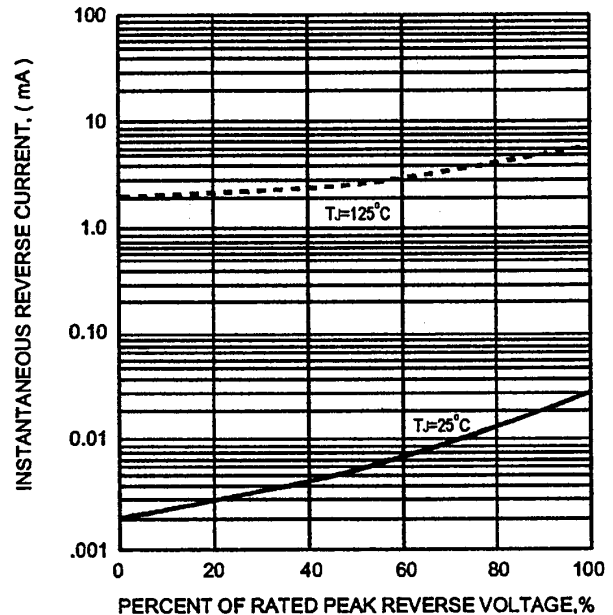
**FIG.2 - MAXIMUM NON-REPETITIVE
PEAK FORWARD SURGE CURRENT**

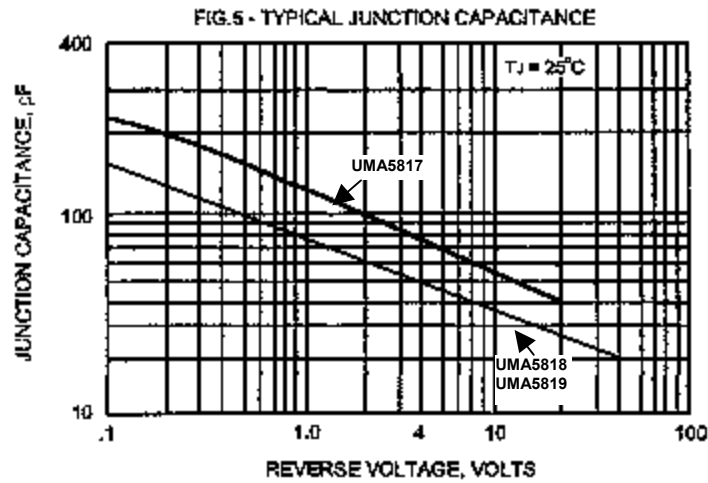


**FIG.3 - TYPICAL INSTANTANEOUS
FORWARD CHARACTERISTICS**

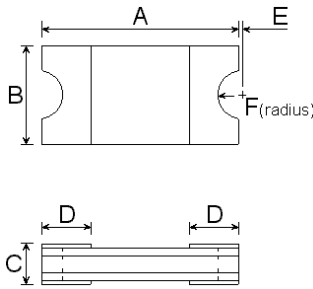


**FIG.4 - TYPICAL REVERSE CHARACTERISTICS
PER BRIDGE ELEMENT**



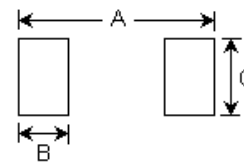


PACKAGE DIMENSIONS & PAD LAYOUT



| DIM | INCHES | | MM | |
|-----|--------|------|------|------|
| | MIN | MAX | MAX | MAX |
| A | .173 | .181 | 4.40 | 4.60 |
| B | .083 | .091 | 2.10 | 2.30 |
| C | .033 | .045 | .85 | 1.15 |
| D | .033 | .045 | .85 | 1.15 |
| 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 |