Microsemi
SCOTTSDALE DIVISION

UMAF5817, UMAF5818, and UMAF5819

ULTRAMITE™ SURFACE MOUNT SCHOTTKY BARRIER RECTIFIERS

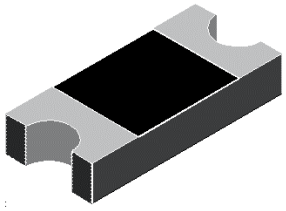
ENVIRONMENTALLY LEAD-FREE

DESCRIPTION

The UMAF5817 thru UMAF5819 UltraMite™ series offers a ***Lead-Free*** construction (both internally and externally) in a small efficient surface mount package 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.

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

APPEARANCE



UltraMite™

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
- ***Lead-Free*** construction externally and internally
- Optional Lead-Tin finish available (UMA5817-19)
- 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 MXUMAFJ5819 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 °C to +125°C
- Forward average rectified current (I_O) @T_C=75°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 UMAF5817, and 46 pF for UMAF5818 and UMAF5819
- Solder temperatures: 260 °C for 10 s (maximum)

MECHANICAL AND PACKAGING

- FRP substrate material and epoxy under-fill package meeting UL94V-0
- Terminals Tin plated (solderable per MIL-STD-750, Method 2026)
- Body marked with F817, F818, or F819
- 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 V_{RWM} Volts	Maximum RMS Voltage; V_{RMS} Volts	Maximum Peak Repetitive Voltage; V_{RRM} Volts	Maximum Forward Voltage at 1.0A (note 1) V_F Volts	Maximum Forward Voltage at 3.0A (note 1) V_F Volts	Maximum dc reverse current @ V_{RWM} I_R mA	Maximum dc reverse current @ V_{RWM} ,100°C I_R mA
UMAF5817	20	14	20	0.45	0.75	0.5	10
UMAF5818	30	21	30	0.55	0.875	0.5	10
UMAF5819	40	28	40	0.60	0.90	0.5	10

NOTES: (1) Pulse test with P_W=300 μsec, 1% duty cycle.

GRAPHS

FIG.1 - FORWARD CURRENT DERATING CURVE

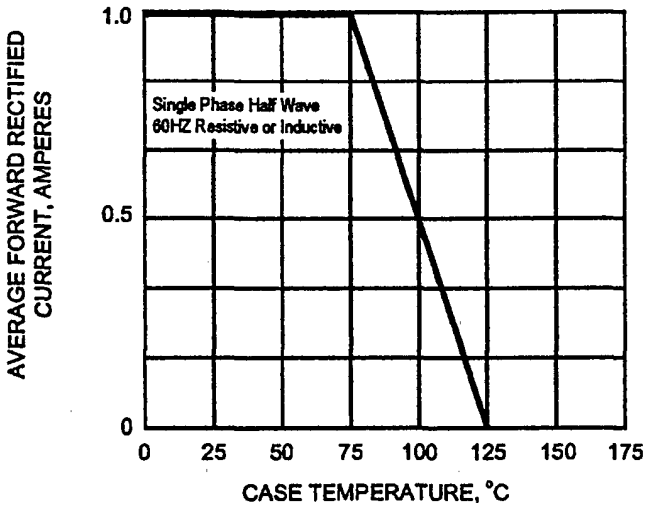


FIG.2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

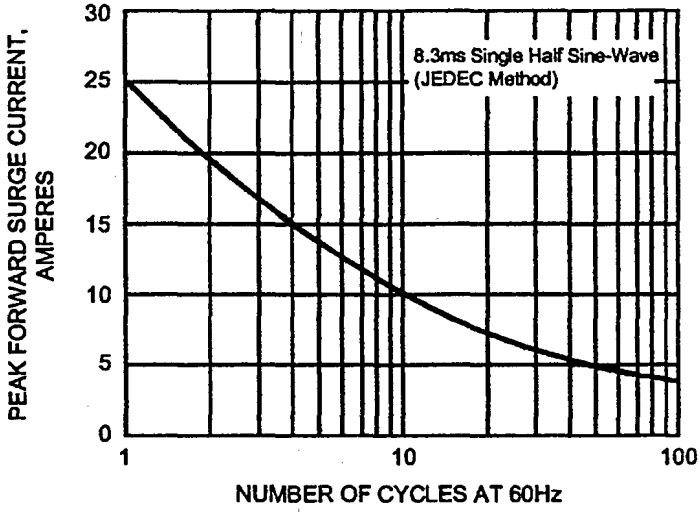


FIG.3 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

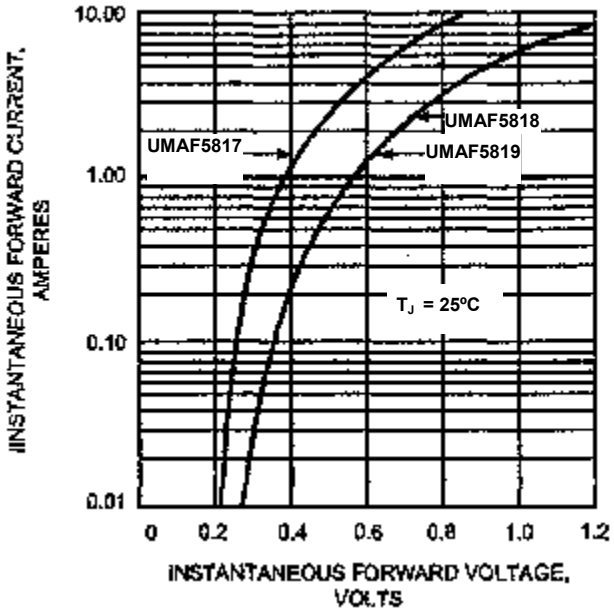


FIG.4 - TYPICAL REVERSE CHARACTERISTICS PER BRIDGE ELEMENT

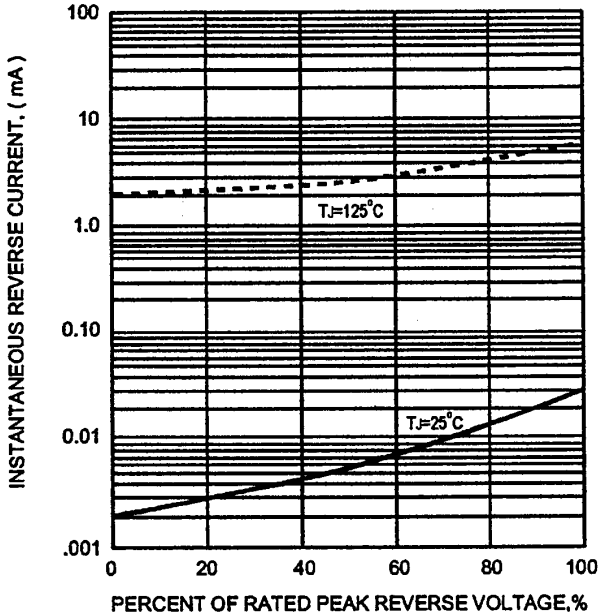


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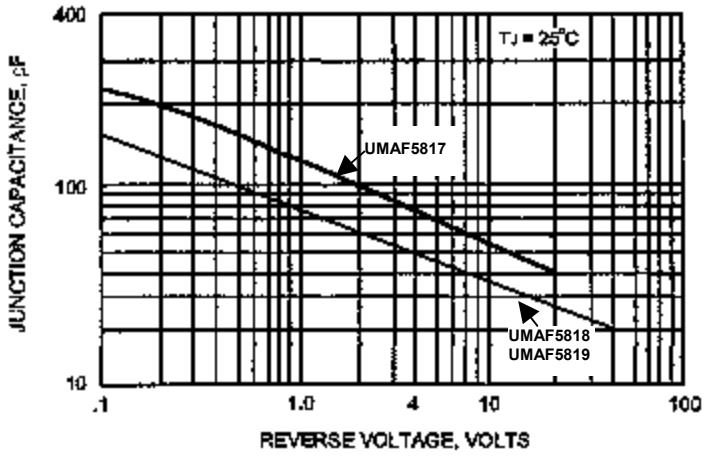
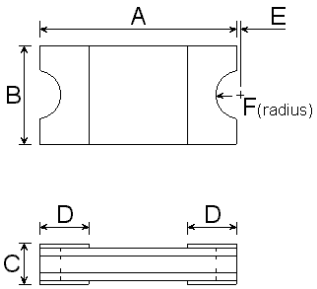
FIG.5 - TYPICAL JUNCTION CAPACITANCE

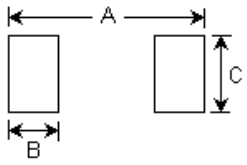


PACKAGE DIMENSIONS & PAD LAYOUT



DIM	INCHES		MM	
	MIN	MAX		MIN
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