

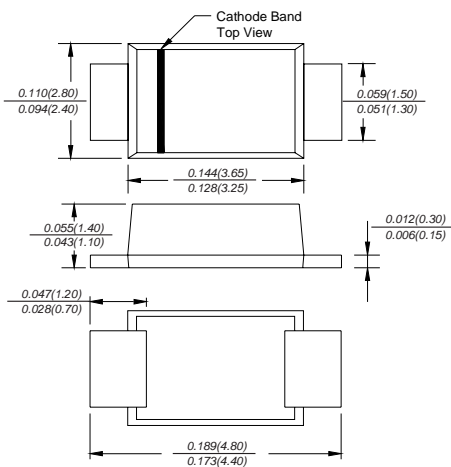


# US3AF THRU US3MF

## SURFACE MOUNT ULTRA FAST RECTIFIER

Reverse Voltage - 50 to 1000 Volts Forward Current - 3.0 Amperes

### SMAF



Dimensions in inches and (millimeters)

### FEATURES

- ◆ The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- ◆ For surface mounted applications
- ◆ Ultra fast switching for high efficiency
- ◆ Low reverse leakage
- ◆ Built-in strain relief, ideal for automated placement
- ◆ High forward surge current capability
- ◆ High temperature soldering guaranteed 260°C/10 seconds at terminals
- ◆ Glass passivated chip junction

### MECHANICAL DATA

**Case:** JEDEC SMAF molded plastic body over passivated chip  
**Terminals:** Solder plated, solderable per MIL-STD-750, Method 2026

**Polarity:** Color band denotes cathode end

**Mounting Position:** Any

**Weight:** 0.0018 ounce, 0.064 grams

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

Single phase half-wave 60Hz, resistive or inductive load, for capacitive load current derate by 20%.

MDD Catalog Number	SYMBOLS	US3AF	US3BF	US3DF	US3GF	US3JF	US3KF	US3MF	UNITS
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	50	100	200	400	600	800	1000	VOLTS
Maximum RMS voltage	V <sub>RMS</sub>	35	70	140	280	420	560	700	VOLTS
Maximum DC blocking voltage	V <sub>DC</sub>	50	100	200	400	600	800	1000	VOLTS
Maximum average forward rectified current at T <sub>L</sub> =55°C	I <sub>(AV)</sub>	3.0							Amps
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I <sub>FSM</sub>	100.0							Amps
Maximum instantaneous forward voltage at 3.0A	V <sub>F</sub>	1.0			1.4	1.7			Volts
Maximum DC reverse current      T <sub>A</sub> =25°C at rated DC blocking voltage      T <sub>A</sub> =125°C	I <sub>R</sub>	5.0 300.0							µA
Maximum reverse recovery time      (NOTE 1)	t <sub>rr</sub>	50				75			ns
Typical junction capacitance (NOTE 2)	C <sub>J</sub>	20.0							pF
Typical thermal resistance (NOTE 3)	R <sub>θJA</sub>	50.0							°C/W
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-50 to +150							°C

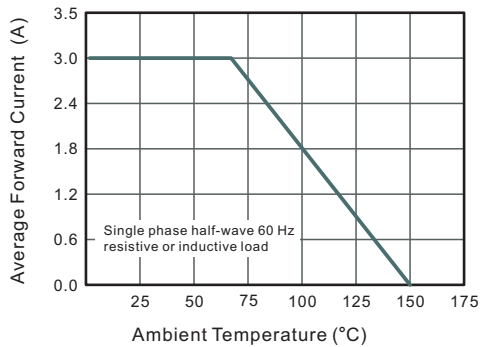
**Note:** 1. Reverse recovery condition  $I_F=0.5\text{A}$ ,  $I_R=1.0\text{A}$ ,  $t_{rr}=0.25\text{A}$

2. Measured at 1MHz and applied reverse voltage of 4.0V D.C.

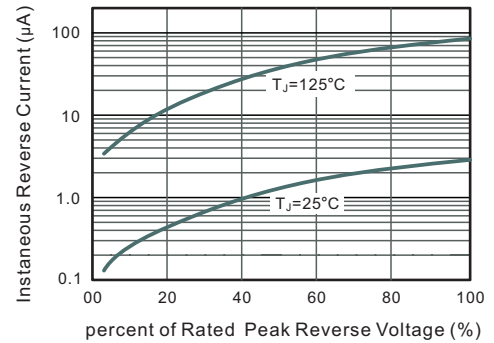
3. P.C.B. mounted with 0.2x0.2" (5.0x5.0mm) copper pad areas

# RATINGS AND CHARACTERISTIC CURVES US3AF THRU US3MF

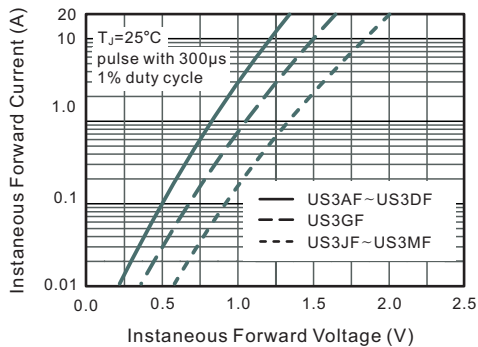
**Fig.1 Forward Current Derating Curve**



**Fig.2 Typical Reverse Characteristics**



**Fig.3 Typical Instaneous Forward Characteristics**



**Fig.4 Maximum Non-Repetitive Peak Forward Surge Current**

