

US1AF THRU US1MF

Surface Mount Ultrafast Recovery Rectifier

Reverse Voltage - 50 to 1000 V

Forward Current - 1 A

Features

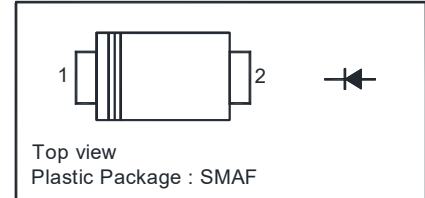
- Glass Passivated Chip Junction
- For surface mount applications
- Low profile package
- Easy to pick and place
- High efficiency

Mechanical Data

- **Case:** SMAF
- **Terminals:** Solderable per MIL-STD-750, method 2026

PINNING

PIN	DESCRIPTION
1	Cathode
2	Anode



Maximum Ratings and Electrical Characteristics

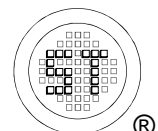
Ratings at $T_a = 25^\circ\text{C}$ ambient temperature unless otherwise specified. Single phase half-wave 60 Hz, resistive or inductive load, for capacitive load current derate by 20%.

Parameter	Symbols	US1AF	US1BF	US1DF	US1GF	US1JF	US1KF	US1MF	Units
	Marking	US1A	US1B	US1D	US1G	US1J	US1K	US1M	-
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	V
Maximum DC Blocking Voltage at	V_{DC}	50	100	200	400	600	800	1000	V
Maximum Average Forward Rectified Current at $T_C = 125^\circ\text{C}$	$I_{F(AV)}$	1							A
Peak Forward Surge Current 8.3 ms Single Half Sine-wave Superimposed on Rated Load	I_{FSM}	30							A
Maximum Forward Voltage at 1 A	V_F	1		1.3		1.65		V	
Maximum DC Reverse Current at Rated DC Blocking Voltage $T_a = 25^\circ\text{C}$ $T_a = 125^\circ\text{C}$	I_R	5 100							μA
Maximum Reverse Recovery Time ¹⁾	t_{rr}	50				75			ns
Typical Junction Capacitance ²⁾	C_j	15							pF
Typical Thermal Resistance ³⁾	$R_{\theta JA}$	80							$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_j, T_{stg}	- 55 to + 150							$^\circ\text{C}$

¹⁾ Measured with $I_F = 0.5\text{ A}$, $I_R = 1\text{ A}$, $I_{rr} = 0.25\text{ A}$

²⁾ Measured at 1 MHz and applied reverse voltage of 4 V D.C

³⁾ P.C.B. mounted with 2.0" X 2.0" (5 X 5 cm) copper pad areas.



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Electrical Characteristics Curves

Fig.1 Forward Current Derating Curve

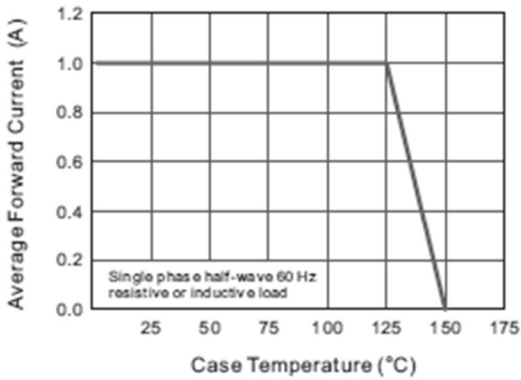


Fig.2 Typical Reverse Characteristics

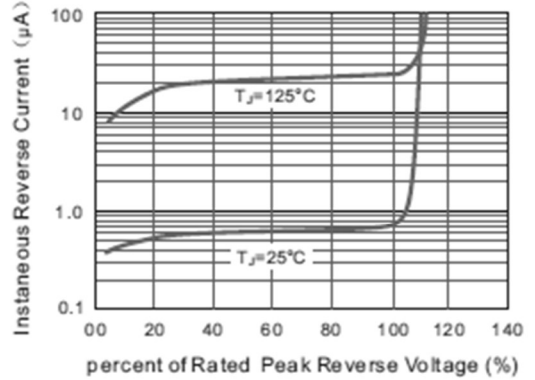


Fig.3 Typical Forward Characteristics

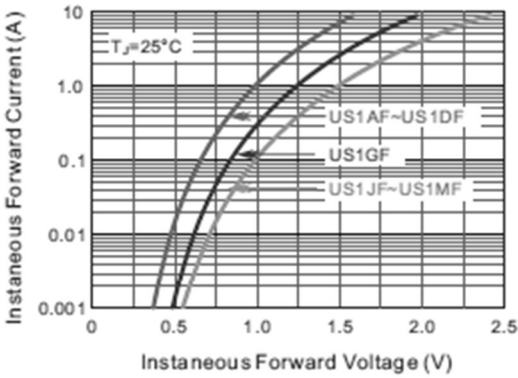


Fig.4 Maximum Non-Repetitive Peak Forward Surge Current

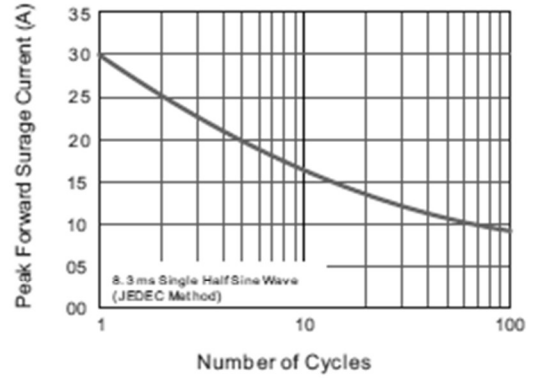
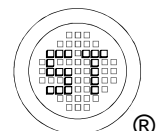
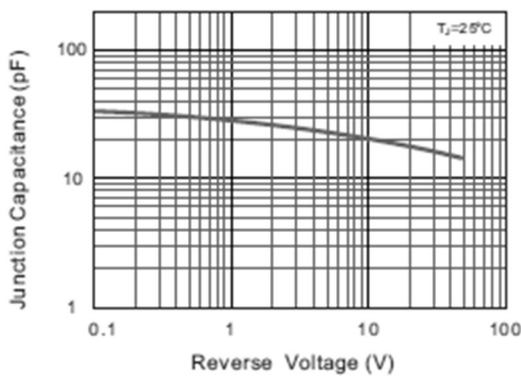


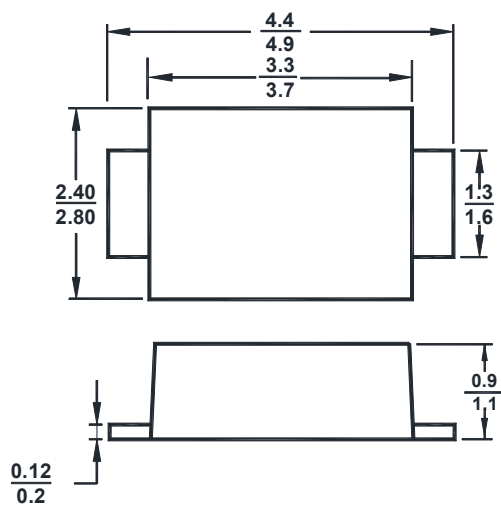
Fig.5 Typical Junction Capacitance



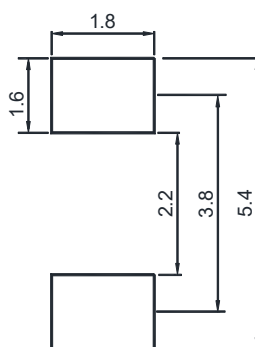
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Package Outline Dimensions (Units: mm)

SMAF



Recommended Soldering Footprint



Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
SMAF	12	4 ± 0.1	(0.157 ± 0.004)	178	7	3,000

Marking information

" **** " = Part No.

" III " = Cathode line

Font type: Arial

