



# M1F~M7F

## Surface Mount Standard Rectifiers

Reverse Voltage - 50 to 1000 V

Forward Current - 1 A

### FEATURES

- For surface mounted applications
- Low profile package
- Glass Passivated Chip Junction
- Easy to pick and place
- Lead free in comply with EU RoHS 2011/65/EU directives

### MECHANICAL DATA

- Case: SMAF
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 27mg 0.00086oz

### PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1   | Cathode     |
| 2   | Anode       |



Simplified outline SMAF and symbol

### Maximum Ratings and Electrical characteristics

Ratings at 25 °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                           | M1F | M2F | M3F | M4F        | M5F | M6F | M7F  | Units |
|---|-----------------------------------|-----|-----|-----|------------|-----|-----|------|-------|
| Maximum Repetitive Peak Reverse Voltage   | V <sub>RRM</sub>                  | 50  | 100 | 200 | 400        | 600 | 800 | 1000 | V     |
| Maximum RMS voltage   | V <sub>RMS</sub>                  | 35  | 70  | 140 | 280        | 420 | 560 | 700  | V     |
| Maximum DC Blocking Voltage   | V <sub>DC</sub>                   | 50  | 100 | 200 | 400        | 600 | 800 | 1000 | V     |
| Maximum Average Forward Rectified Current at Ta = 65 °C   | I <sub>F(AV)</sub>                |     |     |     | 1          |     |     |      | A     |
| Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) | I <sub>FSM</sub>                  |     |     |     | 30         |     |     |      | A     |
| Maximum Instantaneous Forward Voltage at 1 A  | V <sub>F</sub>                    |     |     |     | 1.1        |     |     |      | V     |
| Maximum DC Reverse Current Ta = 25 °C at Rated DC Blocking Voltage Ta = 125 °C                    | I <sub>R</sub>                    |     |     |     | 5<br>50    |     |     |      | µA    |
| Typical Junction Capacitance <sup>1)</sup>  | C <sub>j</sub>                    |     |     |     | 8          |     |     |      | pF    |
| Typical Thermal Resistance <sup>2)</sup>  | R <sub>θJA</sub>                  |     |     |     | 110        |     |     |      | °C/W  |
| Operating and Storage Temperature Range   | T <sub>j</sub> , T <sub>stg</sub> |     |     |     | -55 ~ +150 |     |     |      | °C    |

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

2) P.C.B. mounted with 0.2 X 0.2" (5 X 5 mm) copper pad areas.



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### Characteristic Curves ( $T_A=25^\circ\text{C}$ unless otherwise noted)

Fig.1 Forward Current Derating Curve

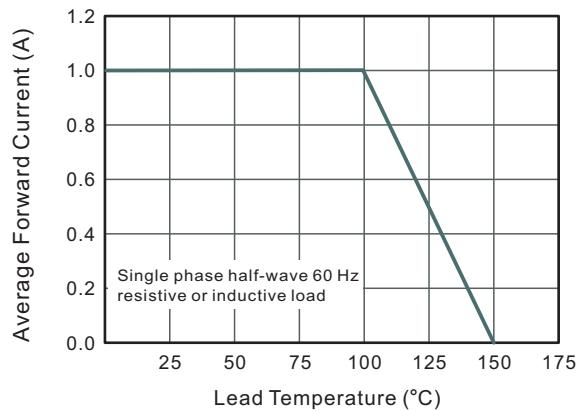


Fig.2 Typical Instantaneous Reverse Characteristics

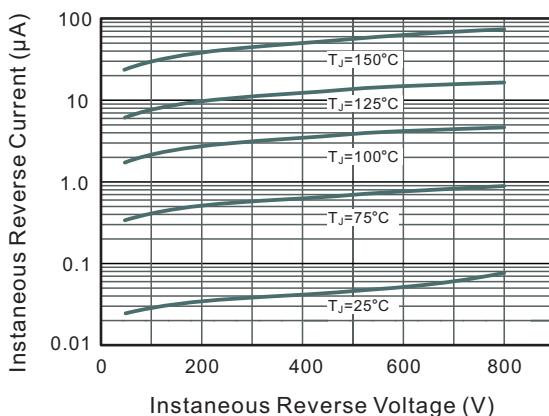


Fig.3 Typical Forward Characteristic

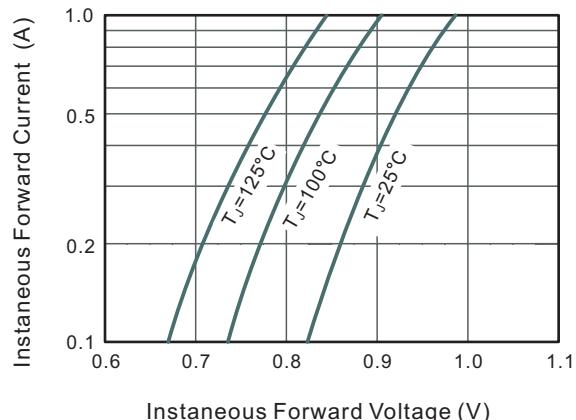


Fig.4 Typical Junction Capacitance

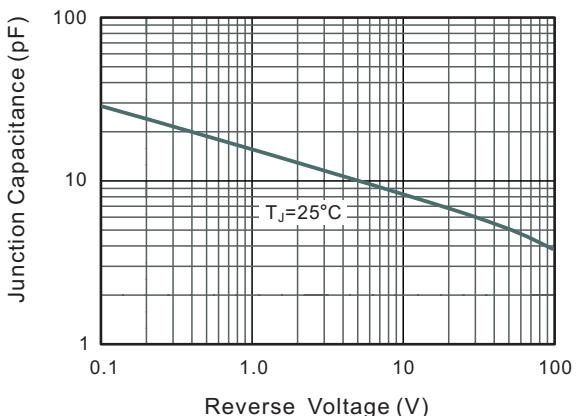
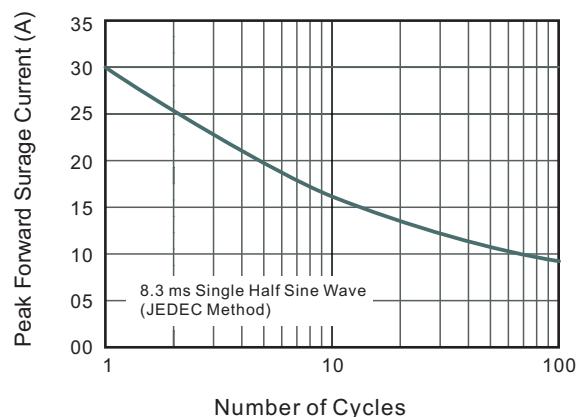


Fig.5 Maximum Non-Repetitive Peak Forward Surge Current





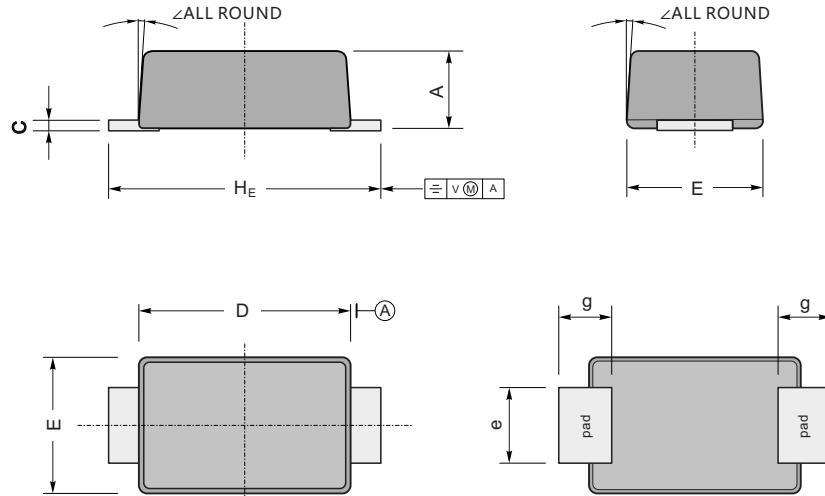
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### PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SMAF

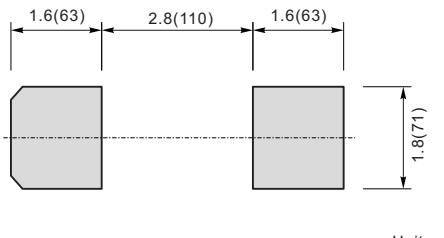


Top View

Bottom View

| UNIT |     | A    | C    | D   | E   | e   | g   | H <sub>E</sub> | ∠  |
|------|-----|------|------|-----|-----|-----|-----|----------------|----|
| mm   | max | 1.2  | 0.23 | 3.7 | 2.7 | 1.6 | 1.3 | 4.9            | 7° |
|      | min | 0.9  | 0.10 | 3.3 | 2.4 | 1.3 | 1.0 | 4.4            |    |
| mil  | max | 47   | 9.1  | 146 | 106 | 63  | 51  | 193            | 7° |
|      | min | 35.4 | 3.9  | 130 | 94  | 51  | 39  | 173            |    |

### The recommended mounting pad size



### Marking

| Type number | Marking code |
|-------------|--------------|
| M1F         | M1           |
| M2F         | M2           |
| M3F         | M3           |
| M4F         | M4           |
| M5F         | M5           |
| M6F         | M6           |
| M7F         | M7           |