

## Surface Mount Schottky Barrier Rectifier

Reverse Voltage - 20 to 200 V

Forward Current - 5 A

### FEATURES

- ◆Metal silicon junction, majority carrier conduction
- ◆For surface mounted applications
- ◆Low power loss, high efficiency
- ◆High forward surge current capability
- ◆For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- ◆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 / 0.00095oz

### Pinning

| 1.Cathode                                                                           | 2.Anode |
|-------------------------------------------------------------------------------------|---------|
|  |         |
|  |         |
| SMAF                                                                                |         |

### Marking Code

|        |       |
|--------|-------|
| SS52F  | SS52  |
| SS54F  | SS54  |
| SS56F  | SS56  |
| SS58F  | SS58  |
| SS510F | SS510 |
| SS512F | SS512 |
| SS515F | SS515 |
| SS520F | SS520 |

### Absolute Maximum Ratings and Electrical characteristics

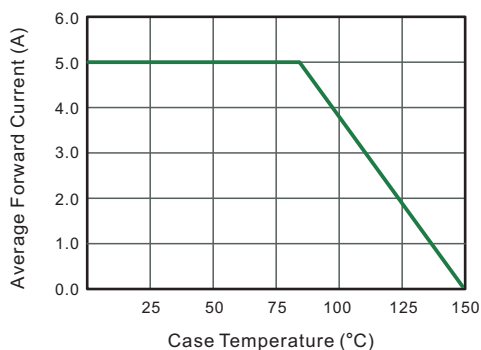
Ratings at 25 ° ambient temperature unless otherwise specified. Single phase, half wave, 60Hz resistive or inductive load, for capacitive load, derate by 20 %

| Parameter                                                                                                           | Symbols         | SS52F      | SS54F | SS56F | SS58F | SS510F | SS512F | SS515F | SS520F | Units |
|---------------------------------------------------------------------------------------------------------------------|-----------------|------------|-------|-------|-------|--------|--------|--------|--------|-------|
| Maximum Repetitive Peak Reverse Voltage                                                                             | $V_{RRM}$       | 20         | 40    | 60    | 80    | 100    | 120    | 150    | 200    | V     |
| Maximum RMS voltage                                                                                                 | $V_{RMS}$       | 14         | 28    | 42    | 56    | 70     | 84     | 105    | 140    | V     |
| Maximum DC Blocking Voltage                                                                                         | $V_{DC}$        | 20         | 40    | 60    | 80    | 100    | 120    | 150    | 200    | V     |
| Maximum Average Forward Rectified Current                                                                           | $I_{F(AV)}$     | 5.0        |       |       |       |        |        |        |        | A     |
| Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed On Rated Load (JEDEC method)                   | $I_{FSM}$       | 175        |       |       |       | 150    |        |        |        | A     |
| Maximum Instantaneous Forward Voltage at 5 A                                                                        | $V_F$           | 0.45       | 0.55  | 0.70  |       | 0.85   |        |        |        | V     |
| Maximum Instantaneous Reverse Current<br>at Rated DC Reverse Voltage<br>$T_A = 25^{\circ}C$<br>$T_A = 100^{\circ}C$ | $I_R$           | 1.0<br>50  |       |       |       |        | mA     |        |        |       |
| Typical Junction Capacitance <sup>(1)</sup>                                                                         | $C_j$           | 700        |       | 500   |       |        |        |        |        | pF    |
| Typical Thermal Resistance <sup>(2)</sup>                                                                           | $R_{\theta JA}$ | 50         |       |       |       |        |        |        |        | °C/W  |
| Operating Junction Temperature Range                                                                                | $T_j$           | -55 ~ +150 |       |       |       |        |        |        |        | °C    |
| Storage Temperature Range                                                                                           | $T_{stg}$       | -55 ~ +150 |       |       |       |        |        |        |        | °C    |

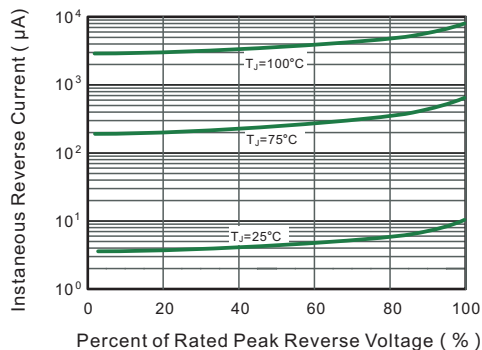
(1) Measured at 1 MHz and applied reverse voltage of 4 V D.C

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

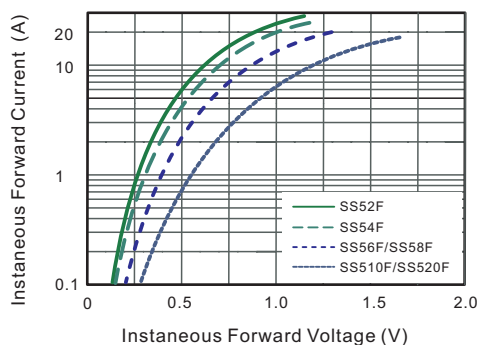
**Fig.1 Forward Current Derating Curve**



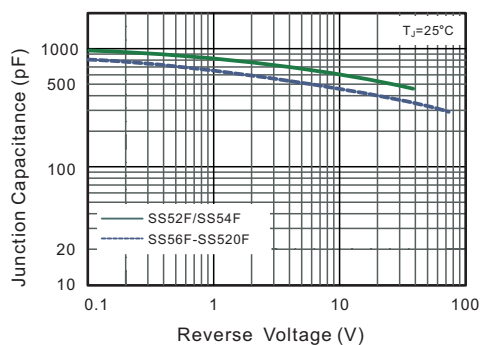
**Fig.2 Typical Reverse Characteristics**



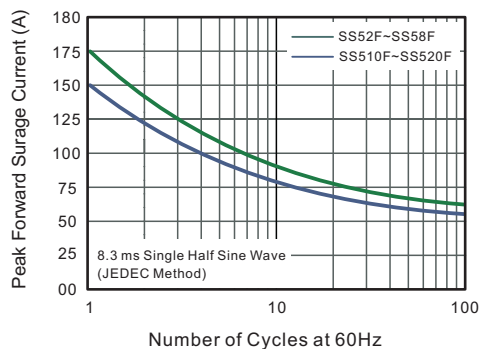
**Fig.3 Typical Forward Characteristic**



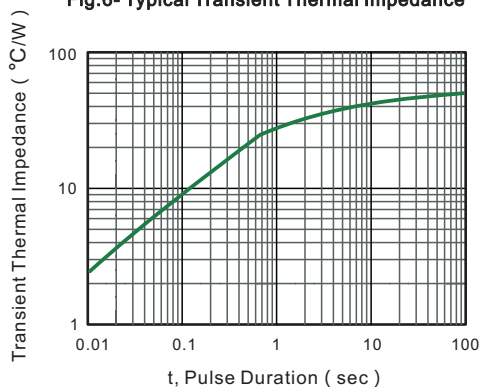
**Fig.4 Typical Junction Capacitance**



**Fig.5 Maximum Non-Repetitive Peak Forward Surge Current**



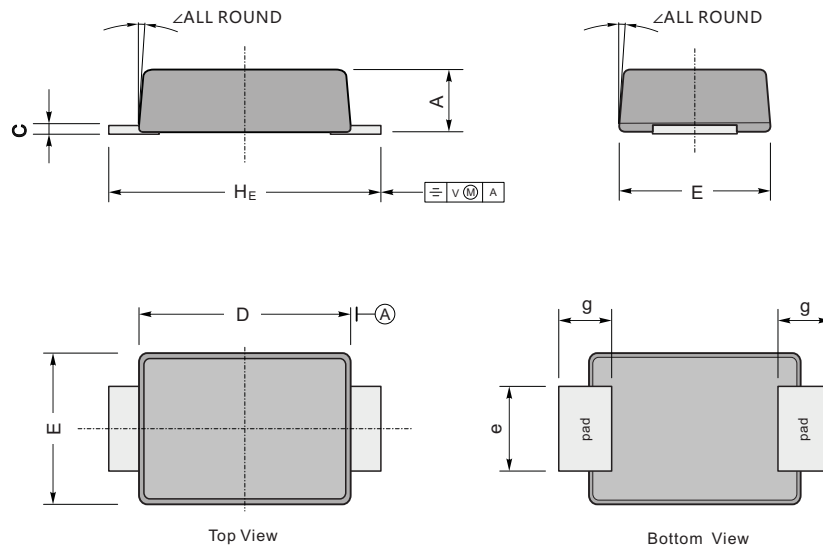
**Fig.6- Typical Transient Thermal Impedance**



## Package Outline

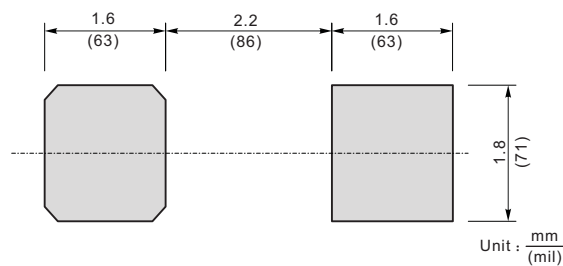
## SMAF

Plastic surface mounted package; 2 leads



| UNIT |     | A   | C    | D   | E   | e   | g   | H <sub>E</sub> | $\angle$ |
|------|-----|-----|------|-----|-----|-----|-----|----------------|----------|
| mm   | max | 1.1 | 0.20 | 3.7 | 2.7 | 1.6 | 1.2 | 4.9            | 7°       |
|      | min | 0.9 | 0.12 | 3.3 | 2.4 | 1.3 | 0.8 | 4.4            |          |
| mil  | max | 43  | 7.9  | 146 | 106 | 63  | 47  | 193            |          |
|      | min | 35  | 4.7  | 130 | 94  | 51  | 31  | 173            |          |

## The recommended mounting pad size



## Summary of Packing Options

| Package | Packing Description | Packing Quantity | Industry Standard |
|---------|---------------------|------------------|-------------------|
| SMAF    | Tape/Reel, 13" reel | 10000            | EIA-481-1         |
|         | Tape/Reel, 7" reel  | 3000             | EIA-481-1         |