





## ABSOLUTE 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, derate by 20 %

| Parameter   | Symbol          | SM<br>520AF | SM<br>540AF | SM<br>560AF | SM<br>580AF | SM<br>5100AF | SM<br>5120AF | SM<br>5150AF | SM<br>5200AF | Unit |
|---|-----------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|------|
| 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<br>8.3ms Single Half Sine-wave<br>Superimposed on Rated Load<br>(JEDEC Method) | $I_{FSM}$       | 150         |             |             |             |              |              |              |              | A    |
| Max Instantaneous Forward Voltage at 5A   | $V_F$           | 0.45        | 0.55        | 0.70        |             |              | 0.85         |              |              | V    |
| Maximum DC Reverse Current at Rated DC Reverse Voltage  | $I_R$           |             |             |             |             | 1.0          |              |              |              | mA   |
|   |                 |             |             |             |             | 50           |              |              |              |      |
| Typical Junction Capacitance <sup>NOTE1</sup>   | $C_j$           | 800         |             |             | 500         |              |              |              |              | pF   |
| Typical Thermal Resistance <sup>NOTE2</sup>   | $R_{\theta JA}$ | 55          |             |             |             |              |              |              |              | °C/W |
| Operating Junction Temperature Range  | $T_J$           | -55 ~ +125  |             |             |             |              |              |              |              | °C   |
| Storage Temperature Range   | $T_{STG}$       | -55 ~ +150  |             |             |             |              |              |              |              | °C   |

NOTE1: Measured at 1MHz and applied reverse voltage of 4 V D.C.

NOTE2: P.C.B. mounted with 0.2 X 0.2" (5 X 5 mm) copper pad areas.



### TYPICAL PERFORMANCE CHARACTERISTICS

Figure. 1 Forward Current Derating Curve

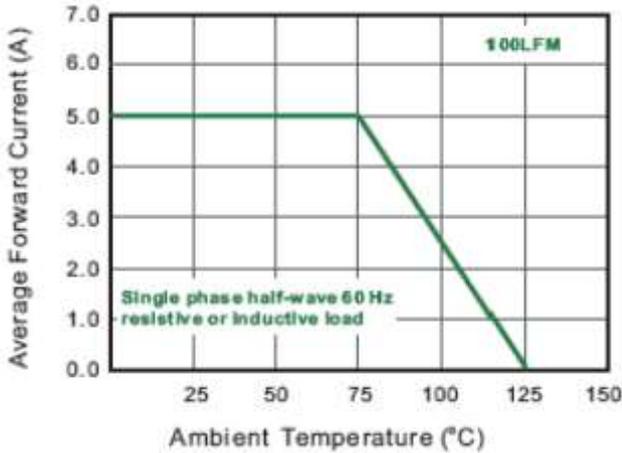


Figure. 2 Typical Reverse Characteristics

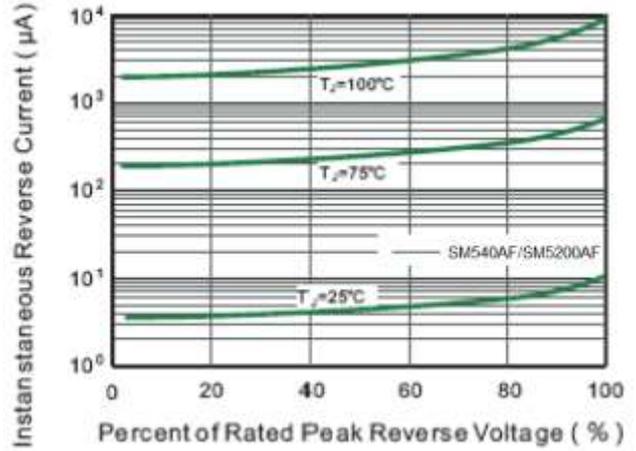


Figure. 3 Typical Forward Characteristic

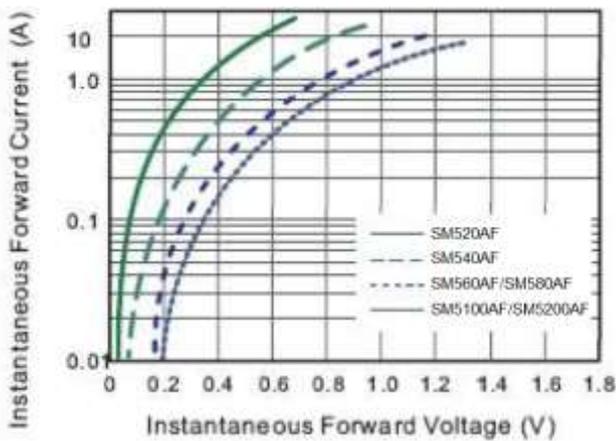


Figure. 4 Typical Junction Capacitance

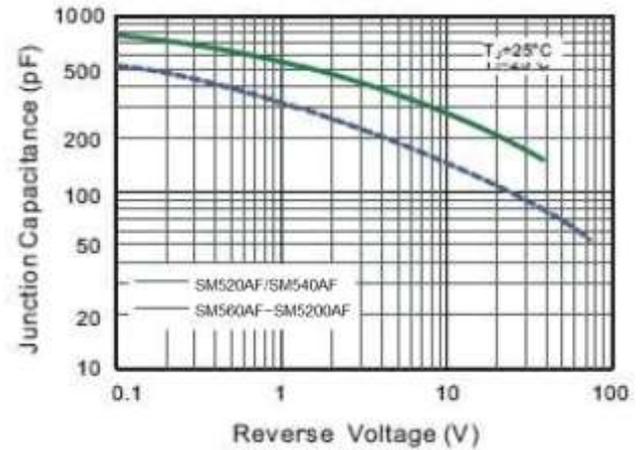


Figure. 5 Maximum Non-repetitive Peak Forward Surge Current

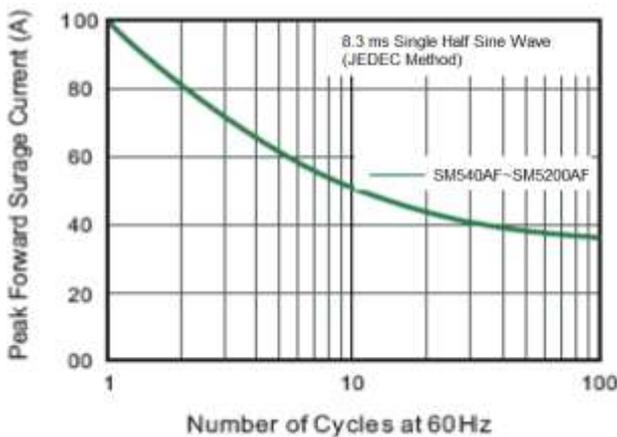
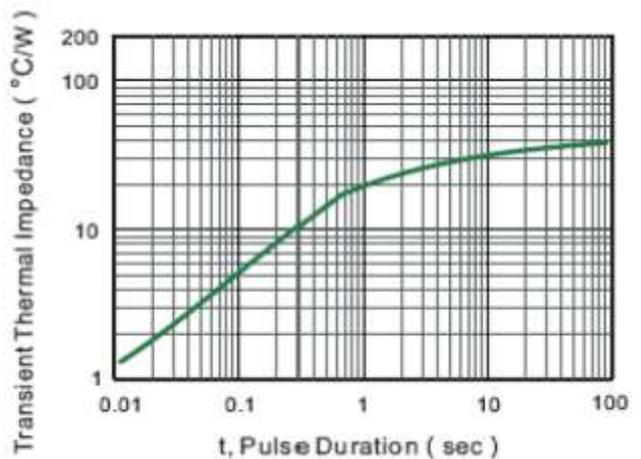


Figure. 6 Typical Transient Thermal Impedance

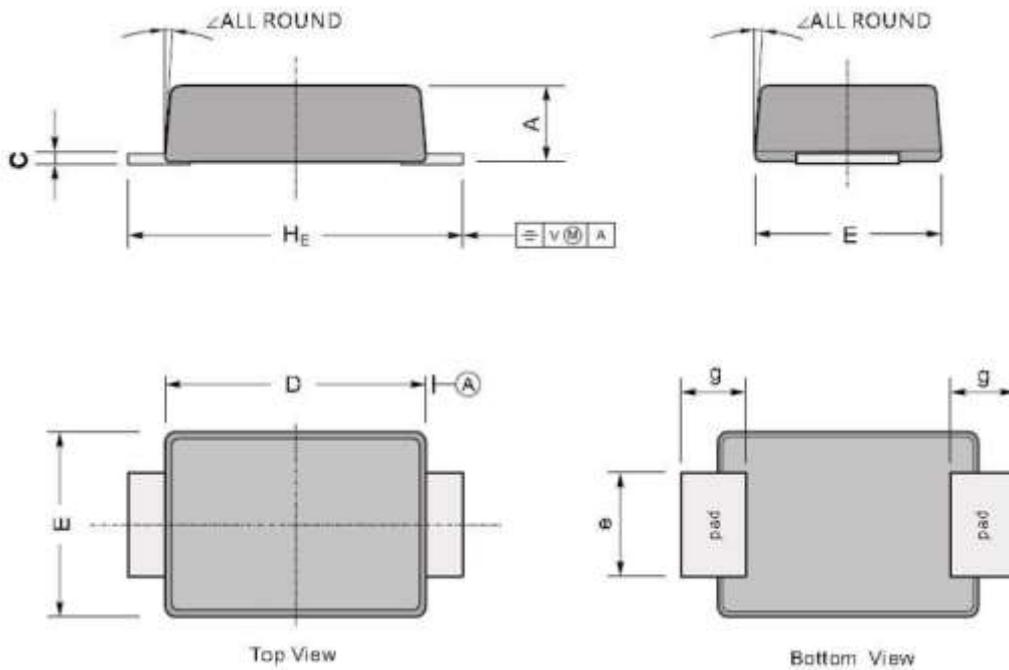




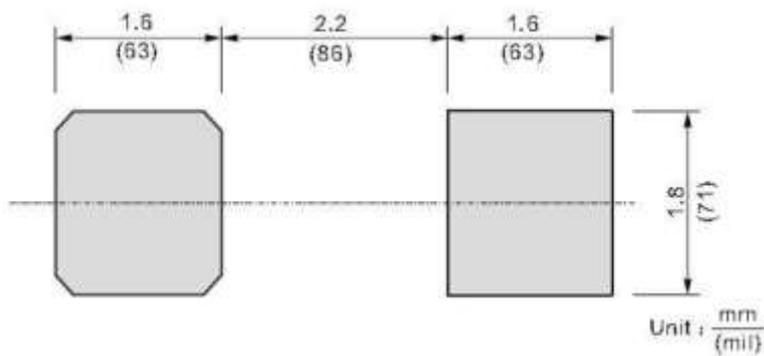
**PACKAGE INFORMATION**

Dimension in SMAF Package (Unit: mm)

Plastic surface mounted package; 2 leads



The recommended mounting pad size



| 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            |          |



## IMPORTANT NOTICE

AiT Semiconductor Inc. (AiT) reserves the right to make changes to any its product, specifications, to discontinue any integrated circuit product or service without notice, and advises its customers to obtain the latest version of relevant information to verify, before placing orders, that the information being relied on is current.

AiT Semiconductor Inc.'s integrated circuit products are not designed, intended, authorized, or warranted to be suitable for use in life support applications, devices or systems or other critical applications. Use of AiT products in such applications is understood to be fully at the risk of the customer. As used herein may involve potential risks of death, personal injury, or server property, or environmental damage. In order to minimize risks associated with the customer's applications, the customer should provide adequate design and operating safeguards.

AiT Semiconductor Inc. assumes to no liability to customer product design or application support. AiT warrants the performance of its products of the specifications applicable at the time of sale.