

Surface Mount Superfast Recovery Rectifier

Reverse Voltage – 50 to 600 V

Forward Current – 5 A

FEATURES

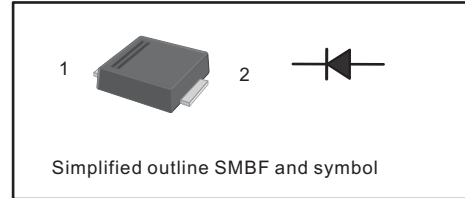
- For surface mounted applications
- Low profile package
- Glass Passivated Chip Junction
- Superfast reverse recovery time
- Lead free in comply with EU RoHS 2011/65/EU directives

MECHANICAL DATA

- Case: SMBF
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 57mg / 0.002oz

PINNING

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



Absolute Maximum Ratings and Characteristics

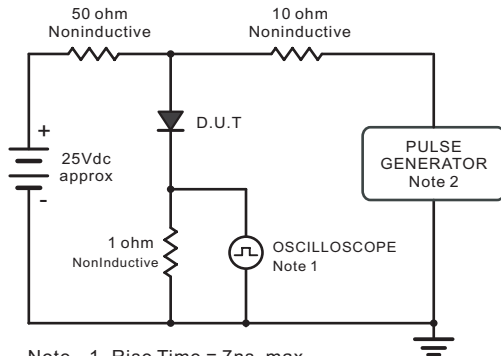
Ratings at 25 °C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

| Parameter | Symbols | ES5ABF | ES5BF | ES5CBF | ES5DBF | ES5EBF | ES5GBF | ES5JBF | Units |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------|--------|-------|--------|--------|------------|--------|--------|--------------------|
| Maximum Repetitive Peak Reverse Voltage | V_{RRM} | 50 | 100 | 150 | 200 | 300 | 400 | 600 | V |
| Maximum RMS voltage | V_{RMS} | 35 | 70 | 105 | 140 | 210 | 280 | 420 | V |
| Maximum DC Blocking Voltage | V_{DC} | 50 | 100 | 150 | 200 | 300 | 400 | 600 | V |
| Maximum Average Forward Rectified Current at $T_L = 100\text{ }^\circ\text{C}$ | $I_{F(AV)}$ | 5 | | | | | | | A |
| Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) | I_{FSM} | 150 | | | | 135 | | | A |
| Maximum Forward Voltage at 5A | V_F | 1.0 | | | | 1.25 | | 1.7 | V |
| Maximum DC Reverse Current at Rated DC Blocking Voltage $T_a = 25\text{ }^\circ\text{C}$ $T_a = 125\text{ }^\circ\text{C}$ | I_R | | | | | 10 100 | | | μA |
| Typical Junction Capacitance | C_j | | | | | 95 | | | pF |
| Maximum Reverse Recovery Time at $I_F = 0.5\text{A}$, $I_R = 1\text{A}$, $I_{rr} = 0.25\text{A}$ | t_{rr} | | | | | 35 | | | ns |
| Typical Thermal Resistance ²⁾ | $R_{\theta JA}$ | | | | | 45 | | | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range | T_j, T_{stg} | | | | | -55 ~ +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) P.C.B. mounted with 0.5 X 0.5" (12.7 X 12.7 mm) copper pad areas.

Fig.1 Reverse Recovery Time Characteristic And Test Circuit Diagram



Note: 1. Rise Time = 7ns, max.
Input Impedance = 1megohm, 22pF.
2. Rise Time = 10ns, max.
Source Impedance = 50 ohms.

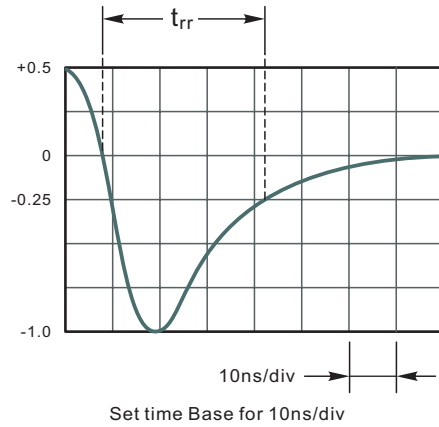


Fig.2 Maximum Average Forward Current Rating

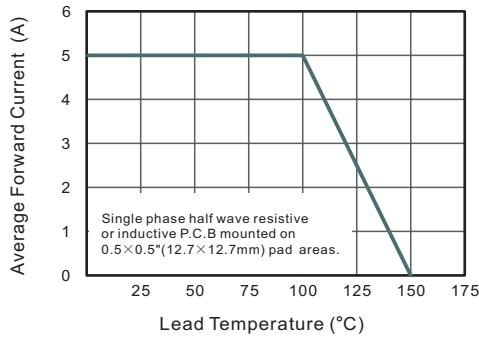


Fig.3 Typical Reverse Characteristics

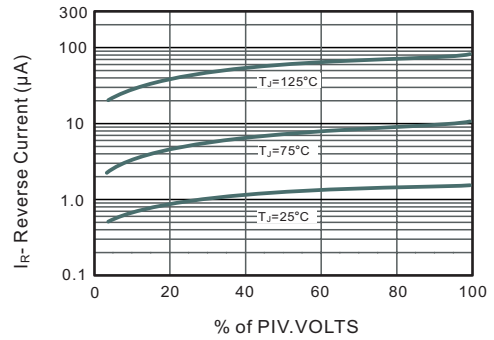


Fig.4 Typical Forward Characteristics

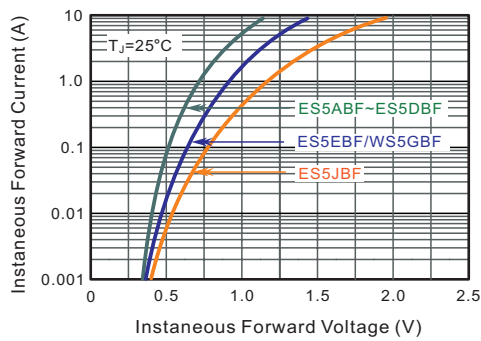


Fig.5 Typical Junction Capacitance

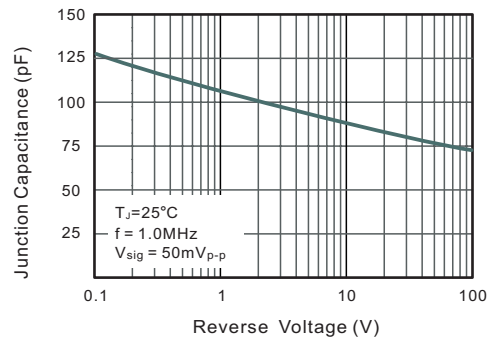
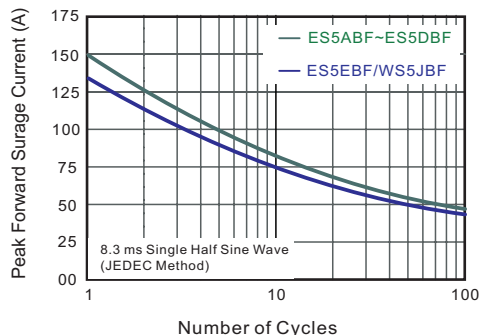


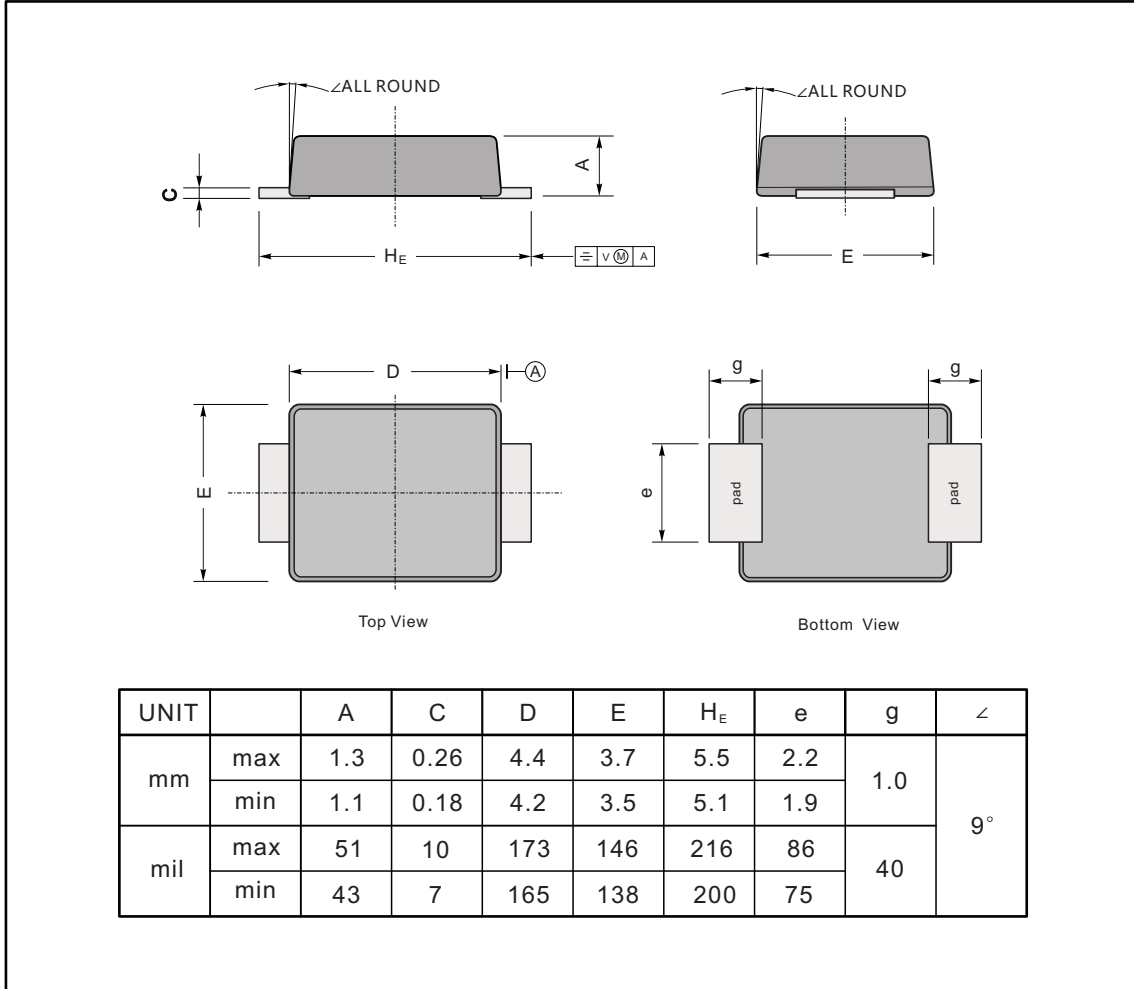
Fig.6 Maximum Non-Repetitive Peak Forward Surge Current



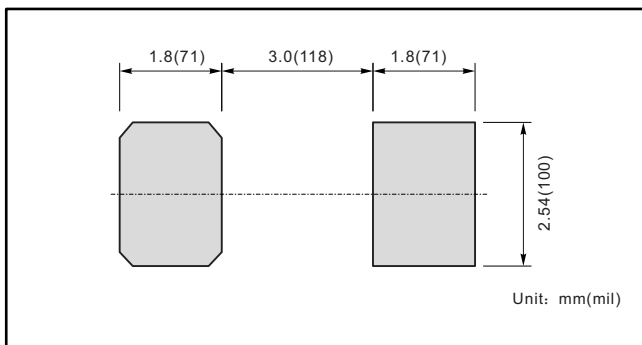
PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SMBF



The recommended mounting pad size



Marking

| Type number | Marking code |
|-------------|--------------|
| ES5ABF | E5AB |
| ES5BBF | E5BB |
| ES5CBF | E5CB |
| ES5DBF | E5DB |
| ES5EBF | E5EB |
| ES5GBF | E5GB |
| ES5JBF | E5JB |