

Surface Mount Ultrafast Recovery Rectifier FEATURES

Reverse Voltage – 50V~1000 V

Forward Current – 3.0 A

- 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

PINNING

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



MECHANICAL DATA

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

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 | US3ABF | US3BBF | US3DBF | US3GBF | US3JBF | US3KBF | US3MBF | Units | |
|--|------------------------------------|------------|--------|--------|--------|--------|--------|--------|--------------------|----|
| 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 | V_{DC} | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V | |
| Maximum Average Forward Rectified Current at $T_a = 65^\circ\text{C}$ | $I_{F(AV)}$ | 3 | | | | | | | A | |
| Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) | I_{FSM} | 100 | | | | | | | A | |
| Maximum Instantaneous Forward Voltage at 3 A | V_F | 1.0 | | 1.3 | | 1.6 | | | 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 | |
| Typical Junction Capacitance ¹⁾ | C_j | 75 | | | | | | | pF | |
| Maximum Reverse Recovery Time ²⁾ | t_{rr} | 50 | | | | 75 | | | | ns |
| Typical Thermal Resistance ³⁾ | $R_{\theta JA}$ $R_{\theta JL}$ | 55 16 | | | | | | | $^\circ\text{C/W}$ | |
| Operating and Storage Temperature Range | T_j, T_{stg} | -55 ~ +150 | | | | | | | $^\circ\text{C}$ | |

1) Measured at 1 MHz and applied reverse voltage of 4 V D.C 2) Measured with $I_F = 0.5\text{ A}$, $I_R = 1\text{ A}$, $I_{rr} = 0.25\text{ A}$

3) P.C.B. mounted with 0.5 X 0.5" (12.7 X 12.7 mm) copper pad areas.

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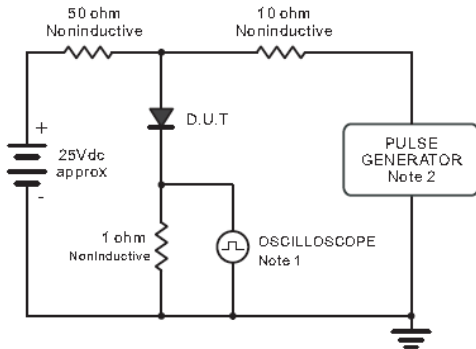
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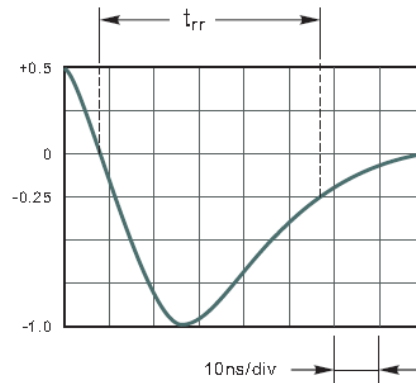


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Fig.1 Reverse Recovery Time Characteristic And Test Circuit Diagram



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



Set time Base for 10ns/div

Fig.2 Maximum Average Forward Current Rating

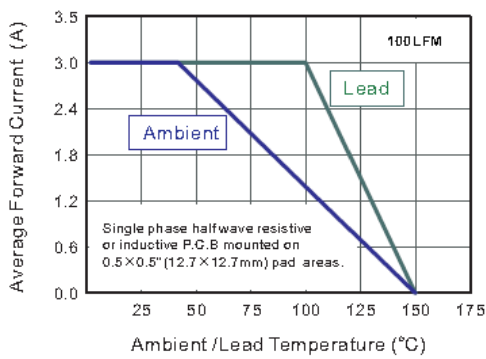


Fig.3 Typical Reverse Characteristics

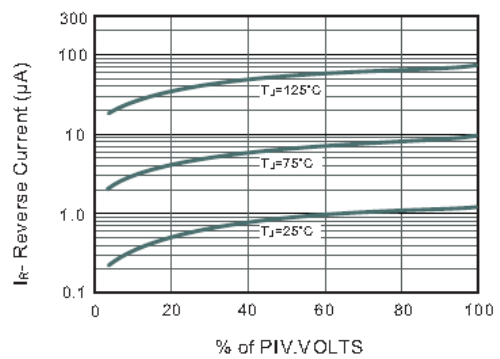


Fig.3 Typical Instantaneous Forward Characteristics

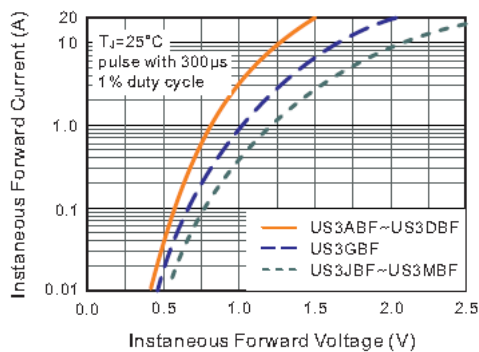
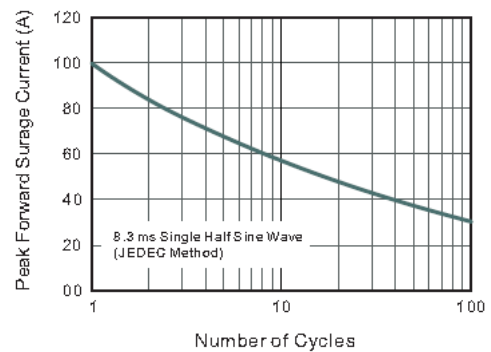


Fig.4 Maximum Non-Repetitive Peak Forward Surge Current



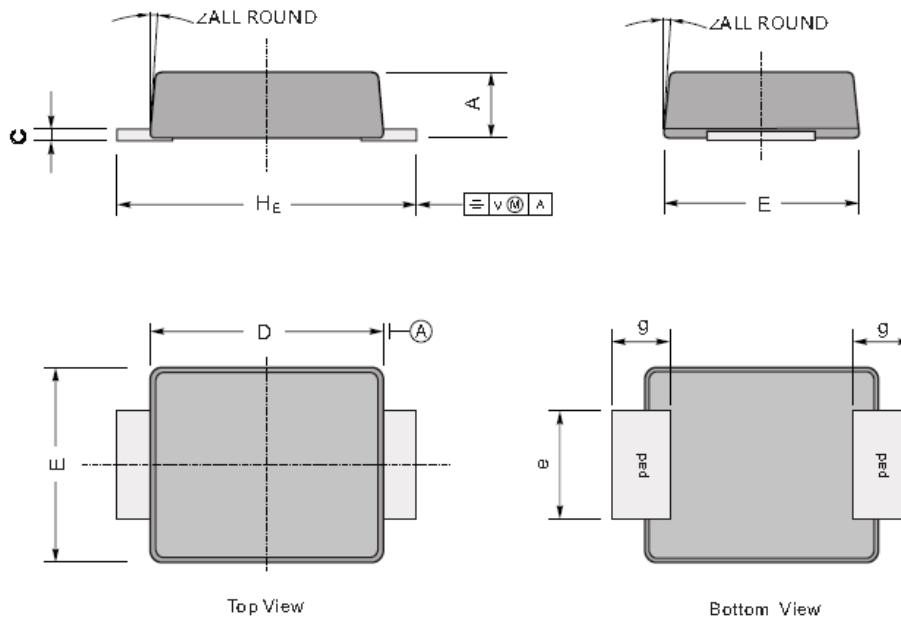
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PACKAGE OUTLINE

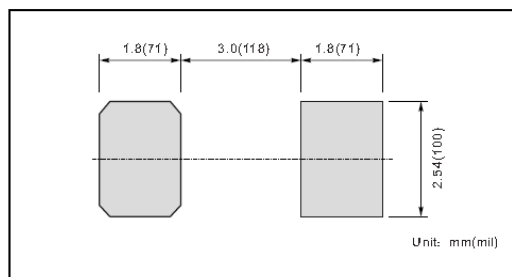
Plastic surface mounted package; 2 leads

SMBF



| UNIT | | A | C | D | E | H _E | e | g | ∠ |
|------|-----|-----|------|-----|-----|----------------|-----|-----|----|
| mm | max | 1.3 | 0.26 | 4.4 | 3.7 | 5.5 | 2.2 | 1.0 | 9° |
| | min | 1.1 | 0.18 | 4.2 | 3.5 | 5.1 | 1.9 | | |
| mil | max | 51 | 10 | 173 | 146 | 216 | 86 | 40 | |
| | min | 43 | 7 | 165 | 138 | 200 | 75 | | |

The recommended mounting pad size



Marking

| Type number | Marking code |
|-------------|--------------|
| US3ABF | U3AB |
| US3BBF | U3BB |
| US3DBF | U3DB |
| US3GBF | U3GB |
| US3JBF | U3JB |
| US3KBF | U3KB |
| US3MBF | U3MB |

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