



**Surface Mount Superfast Recovery Rectifier**

**Reverse Voltage – 50 to 600 V**

**Forward Current – 5 A**

**FEATURES**

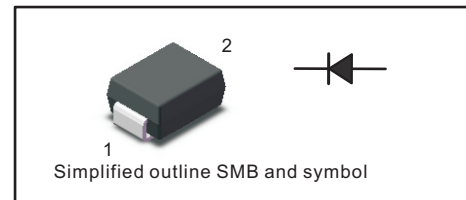
- For surface mounted applications
- Low profile package
- Glass Passivated Chip Junction
- Superfast reverse recovery time
- Lead free in comply with EU RoHS 2011/65/EU directives

**MECHANICAL DATA**

- Case : SMB
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.055g / 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%.

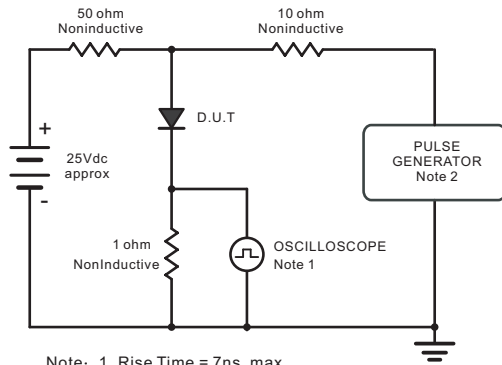
| Parameter  | Symbols                            | ES5AB      | ES5BB | ES5CB | ES5DB | ES5EB | ES5GB | ES5JB | Units              |
|--|------------------------------------|------------|-------|-------|-------|-------|-------|-------|--------------------|
| Maximum Repetitive Peak Reverse Voltage  | $V_{RRM}$                          | 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 $T_c = 115\text{ }^\circ\text{C}$   | $I_{F(AV)}$                        | 5          |       |       |       |       |       |       | A                  |
| Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load   | $I_{FSM}$                          | 100        |       |       |       |       |       |       | A                  |
| Maximum Forward Voltage at 5A  | $V_F$                              | 1.0        |       |       |       | 1.25  |       | 1.7   | V                  |
| Maximum DC Reverse Current at Rated DC Blocking Voltage<br>$T_a = 25\text{ }^\circ\text{C}$<br>$T_a = 125\text{ }^\circ\text{C}$ | $I_R$                              | 5<br>100   |       |       |       |       |       |       | $\mu\text{A}$      |
| Typical Junction Capacitance at $V_R=4\text{V}$ , $f=1\text{MHz}$  | $C_j$                              | 50         |       |       |       |       |       |       | pF                 |
| Maximum Reverse Recovery Time <sup>(1)</sup>   | $t_{rr}$                           | 35         |       |       |       |       |       |       | ns                 |
| Typical Thermal Resistance <sup>(2)</sup>  | $R_{\theta JA}$<br>$R_{\theta JC}$ | 45<br>15   |       |       |       |       |       |       | $^\circ\text{C/W}$ |
| 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 2.0" X 2.0" (5 X 5 cm) 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.

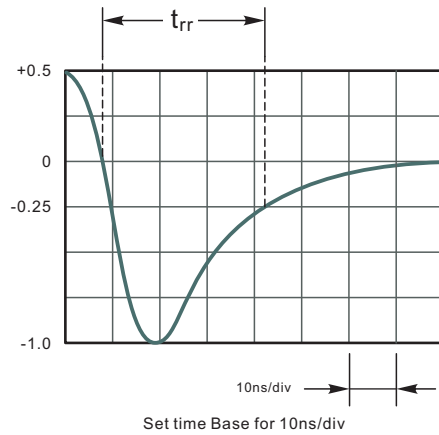


Fig.2 Maximum Average Forward Current Rating

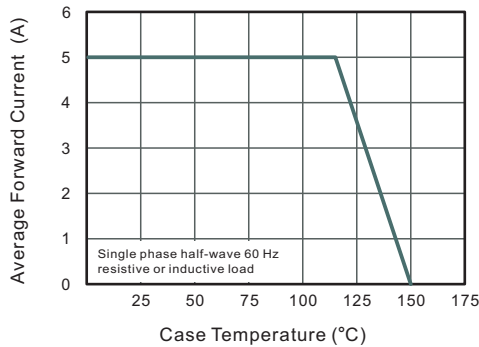


Fig.3 Typical Reverse Characteristics

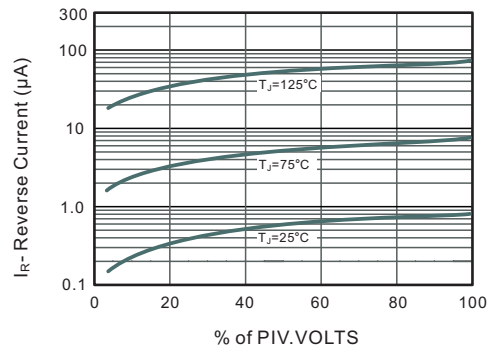


Fig.4 Typical Forward Characteristics

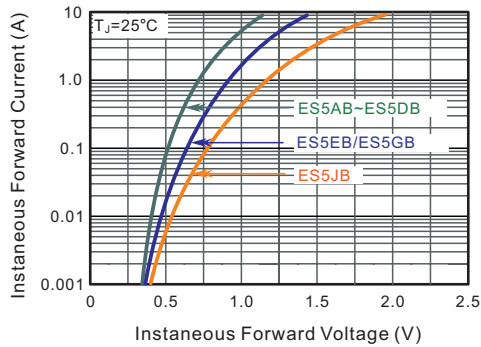


Fig.5 Typical Junction Capacitance

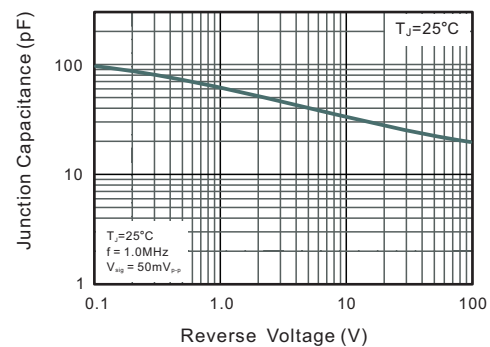
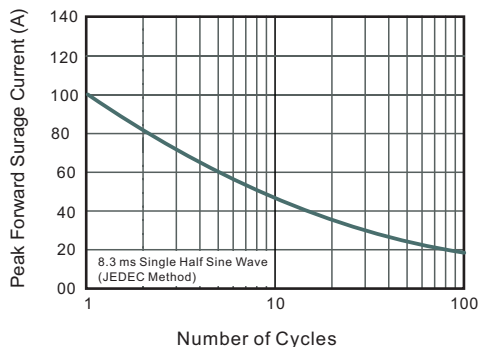


Fig.6 Maximum Non-Repetitive Peak Forward Surge Current

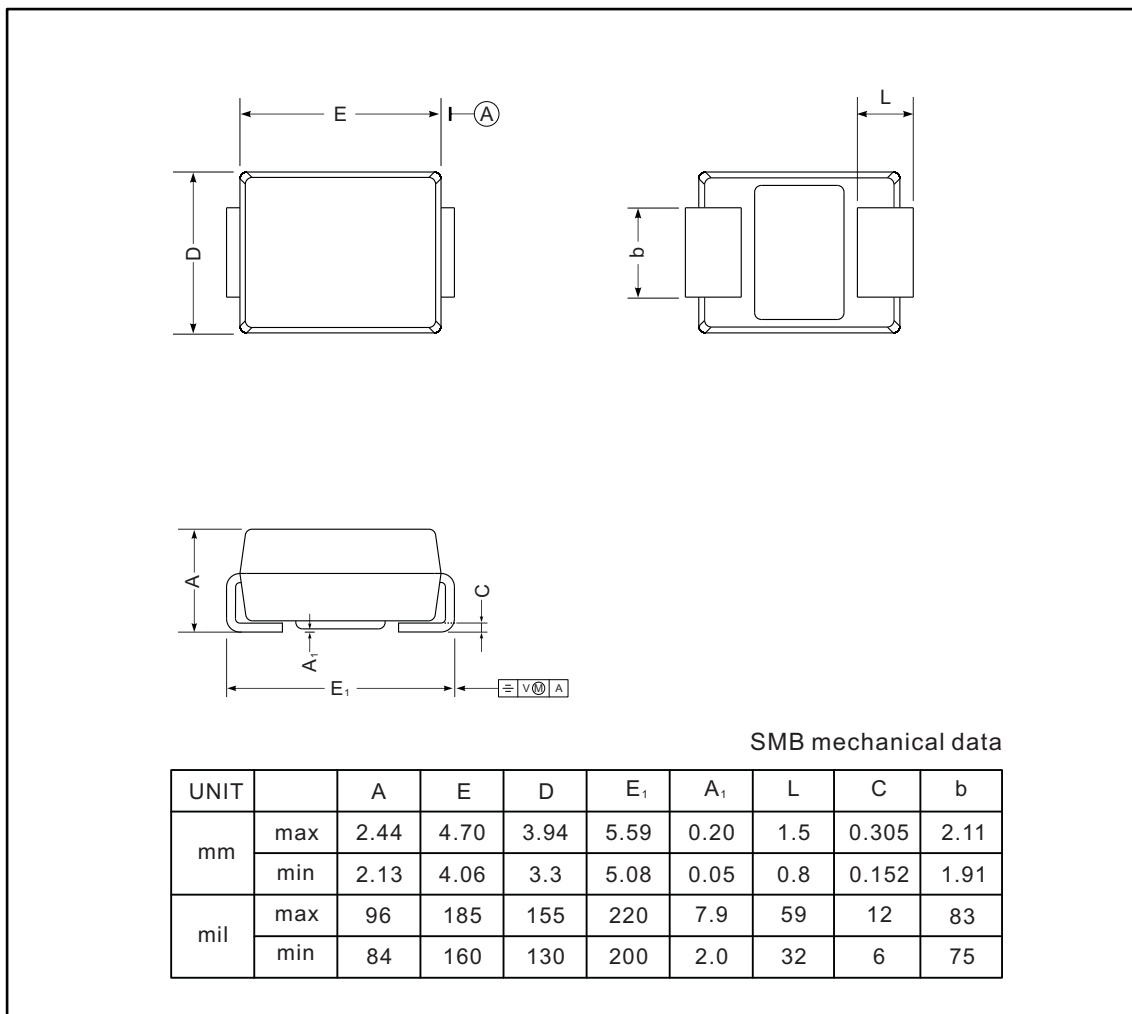




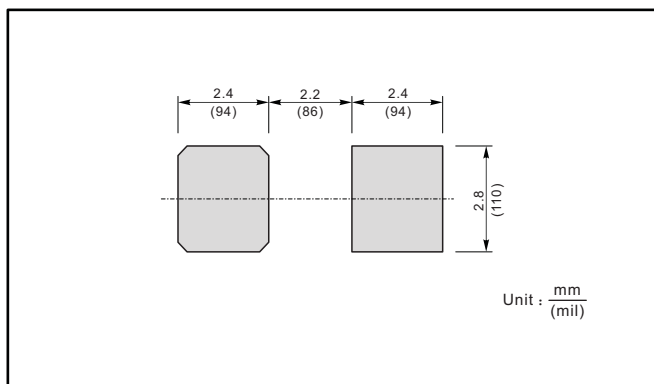
**PACKAGE OUTLINE**

Plastic surface mounted package; 2 leads

SMB



**The recommended mounting pad size**



**Marking**

| Type number | Marking code |
|-------------|--------------|
| ES5AB       | ES5A         |
| ES5BB       | ES5B         |
| ES5CB       | ES5C         |
| ES5DB       | ES5D         |
| ES5EB       | ES5E         |
| ES5GB       | ES5G         |
| ES5JB       | ES5J         |