



# ES5ABG THRU ES5JBG

## Surface Mount Superfast Recovery Rectifier

Reverse Voltage – 50 to 600 V Forward Current – 5 A

### FEATURES

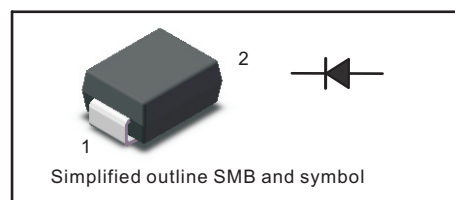
- For surface mounted applications
- Low profile package
- Glass Passivated Chip Junction
- Superfast reverse recovery time
- Lead free in comply with EU RoHS 2011/65/EU directives

### 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       |



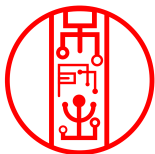
### Absolute Maximum Ratings and Characteristics

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<br>G | ES5BB<br>G | ES5CB<br>G | ES5DB<br>G | ES5EB<br>G | ES5GB<br>G | ES5JB<br>G | 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<br>at $T_c=115\text{ }^{\circ}\text{C}$                                             | $I_{F(AV)}$                        | 5          |            |            |            |            |            |            | A                    |
| Peak Forward Surge Current 8.3 ms Single Half<br>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 $T_a=25\text{ }^{\circ}\text{C}$<br>at Rated DC Blocking Voltage $T_a=125\text{ }^{\circ}\text{C}$ | $I_R$                              | 5<br>100   |            |            |            |            |            |            | $\mu\text{A}$        |
| Typical Junction Capacitance<br>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.



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**Fig.1 Reverse Recovery Time Characteristic And Test Circuit Diagram**

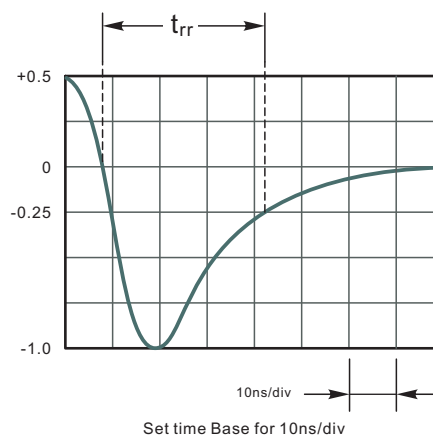
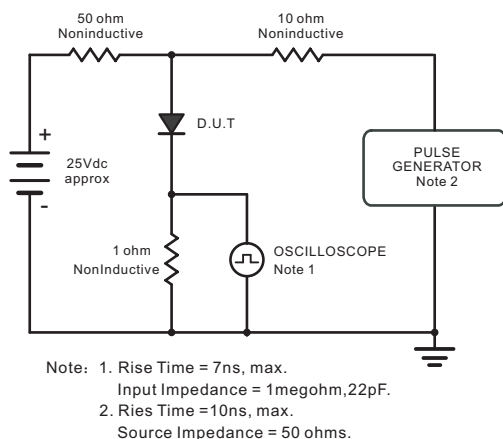


**Fig.2 Maximum Average Forward Current Rating**

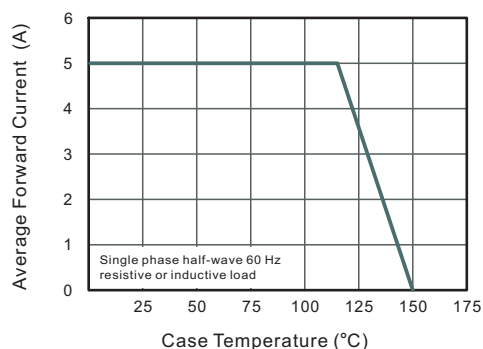


**Fig.3 Typical Reverse Characteristics**

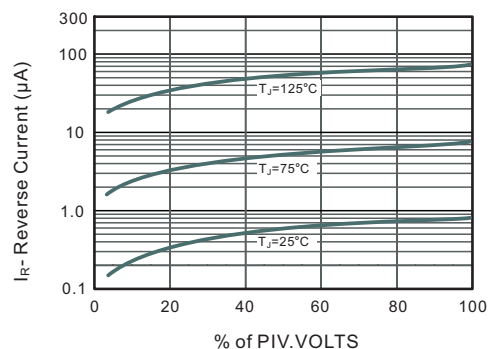


**Fig.4 Typical Forward Characteristics**

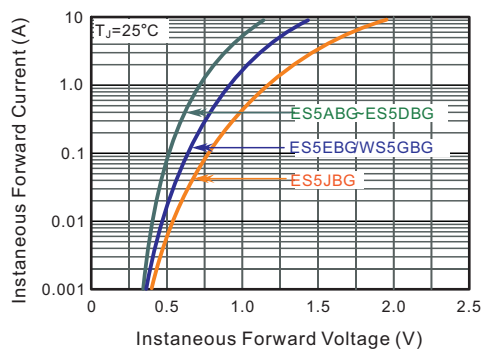


**Fig.5 Typical Junction Capacitance**

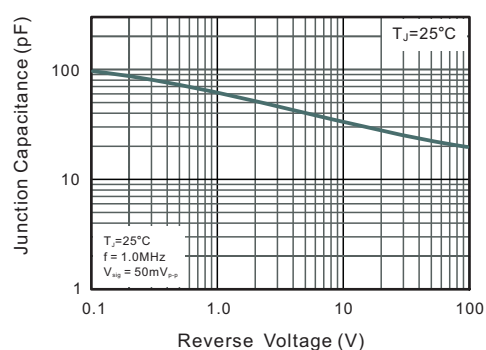
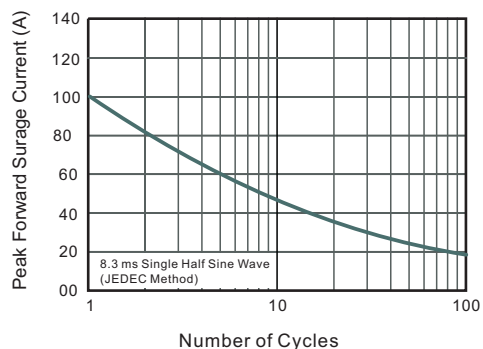
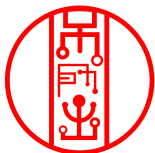


**Fig.6 Maximum Non-Repetitive Peak Forward Surge Current**



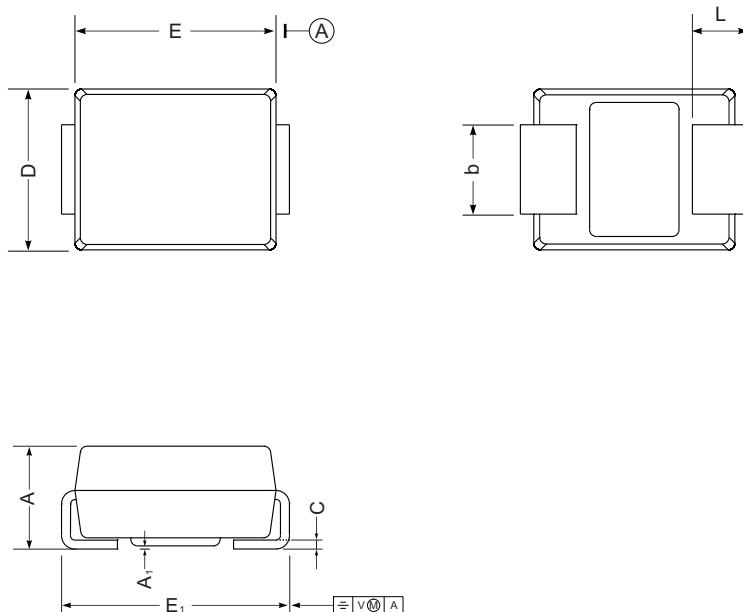


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## PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

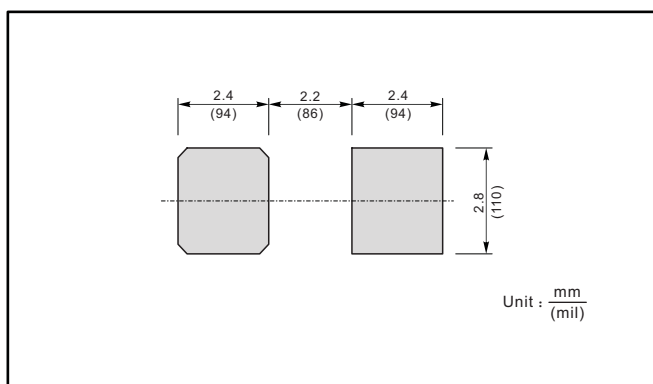
SMB



SMB mechanical data

| UNIT |     | A    | E    | D    | E <sub>1</sub> | A <sub>1</sub> | L   | C     | b    |
|------|-----|------|------|------|----------------|----------------|-----|-------|------|
| mm   | max | 2.44 | 4.70 | 3.94 | 5.59           | 0.20           | 1.5 | 0.305 | 2.11 |
|      | min | 2.13 | 4.06 | 3.3  | 5.08           | 0.05           | 0.8 | 0.152 | 1.91 |
| mil  | max | 96   | 185  | 155  | 220            | 7.9            | 59  | 12    | 83   |
|      | min | 84   | 160  | 130  | 200            | 2.0            | 32  | 6     | 75   |

## The recommended mounting pad size



## Marking

| Type number | Marking code |
|-------------|--------------|
| ES5ABG      | ES5A         |
| ES5BBG      | ES5B         |
| ES5CBG      | ES5C         |
| ES5DBG      | ES5D         |
| ES5EBG      | ES5E         |
| ES5GBG      | ES5G         |
| ES5JBG      | ES5J         |