

## Surface Mount Superfast Recovery Rectifier

Reverse Voltage – 50 to 600 V Forward Current – 1 A

### FEATURES

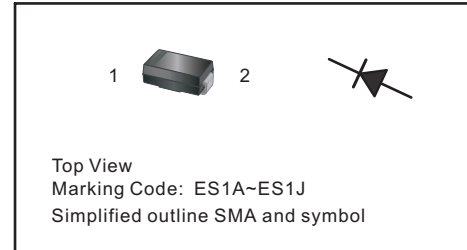
- For surface mounted applications
- Low profile package
- Glass Passivated Chip Junction
- Superfast reverse recovery time
- Lead free in comply with EU RoHS 2011/65/EU directives

### MECHANICAL DATA

- Case: SMA
- 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

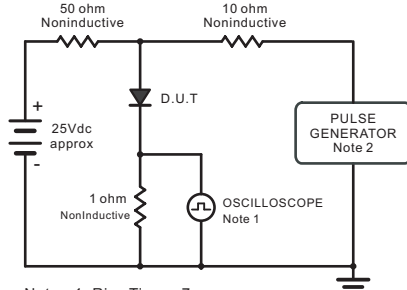
Ratings at 25 °C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

| Parameter  | Symbols         | ES1AG      | ES1BG | ES1CG | ES1DG | ES1EG | ES1GG | ES1JG | 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 $T_L = 100\text{ }^\circ\text{C}$   | $I_{F(AV)}$     | 1          |       |       |       |       |       |       | A                  |
| Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method)                                | $I_{FSM}$       | 30         |       |       |       |       |       |       | A                  |
| Maximum Forward Voltage at 1 A   | $V_F$           | 1          |       |       | 1.25  |       | 1.70  |       | 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 $V_R = 4\text{V}$ , $f = 1\text{MHz}$  | $C_j$           | 15         |       |       |       |       |       |       | pF                 |
| Maximum Reverse Recovery Time <sup>(1)</sup>   | $t_{rr}$        | 35         |       |       |       |       |       |       | ns                 |
| Typical Thermal Resistance <sup>(2)</sup>  | $R_{\theta JA}$ | 110        |       |       |       |       |       |       | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range  | $T_j, T_{stg}$  | -55 ~ +150 |       |       |       |       |       |       | $^\circ\text{C}$   |

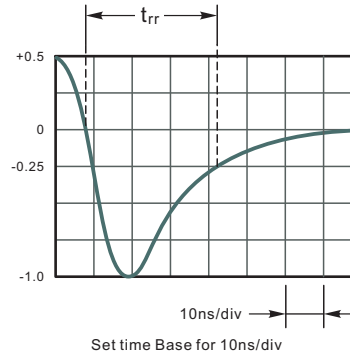
(1) Measured with  $I_F = 0.5\text{ A}$ ,  $I_R = 1\text{ A}$ ,  $I_{rr} = 0.25\text{ A}$ .

(2) P.C.B. mounted with 1.0 X 1.0" (2.54 X 2.54 cm) copper pad areas.

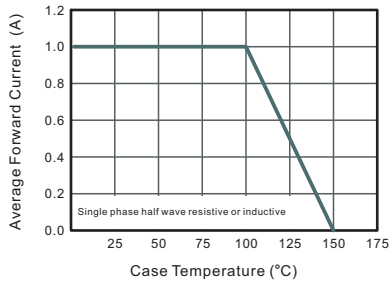
**Fig.1 Reverse Recovery Time Characteristic And Test Circuit Diagram**



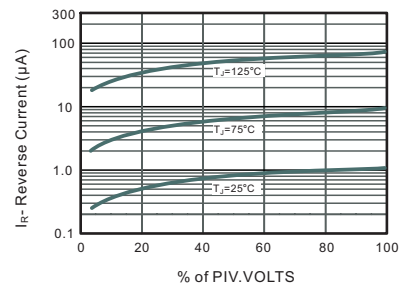
Note: 1. Rise Time = 7ns, max.  
Input Impedance = 1megohm, 22pF.  
2. Rise Time = 10ns, max.  
Source Impedance = 50 ohms.



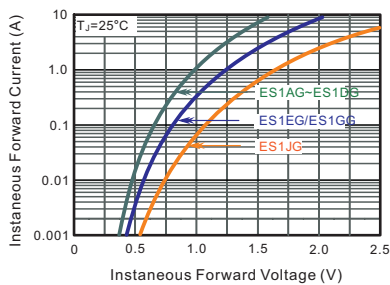
**Fig.2 Maximum Average Forward Current Rating**



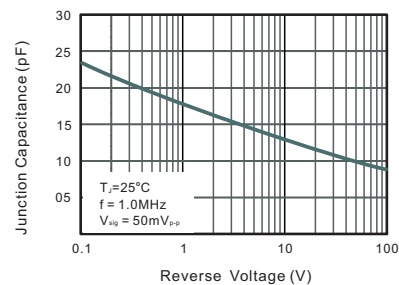
**Fig.3 Typical Reverse Characteristics**



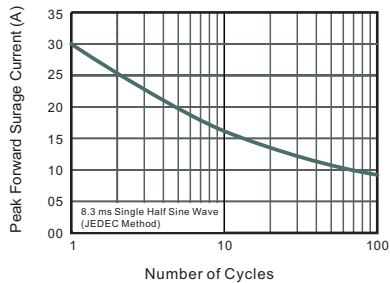
**Fig.4 Typical Forward Characteristics**



**Fig.5 Typical Junction Capacitance**



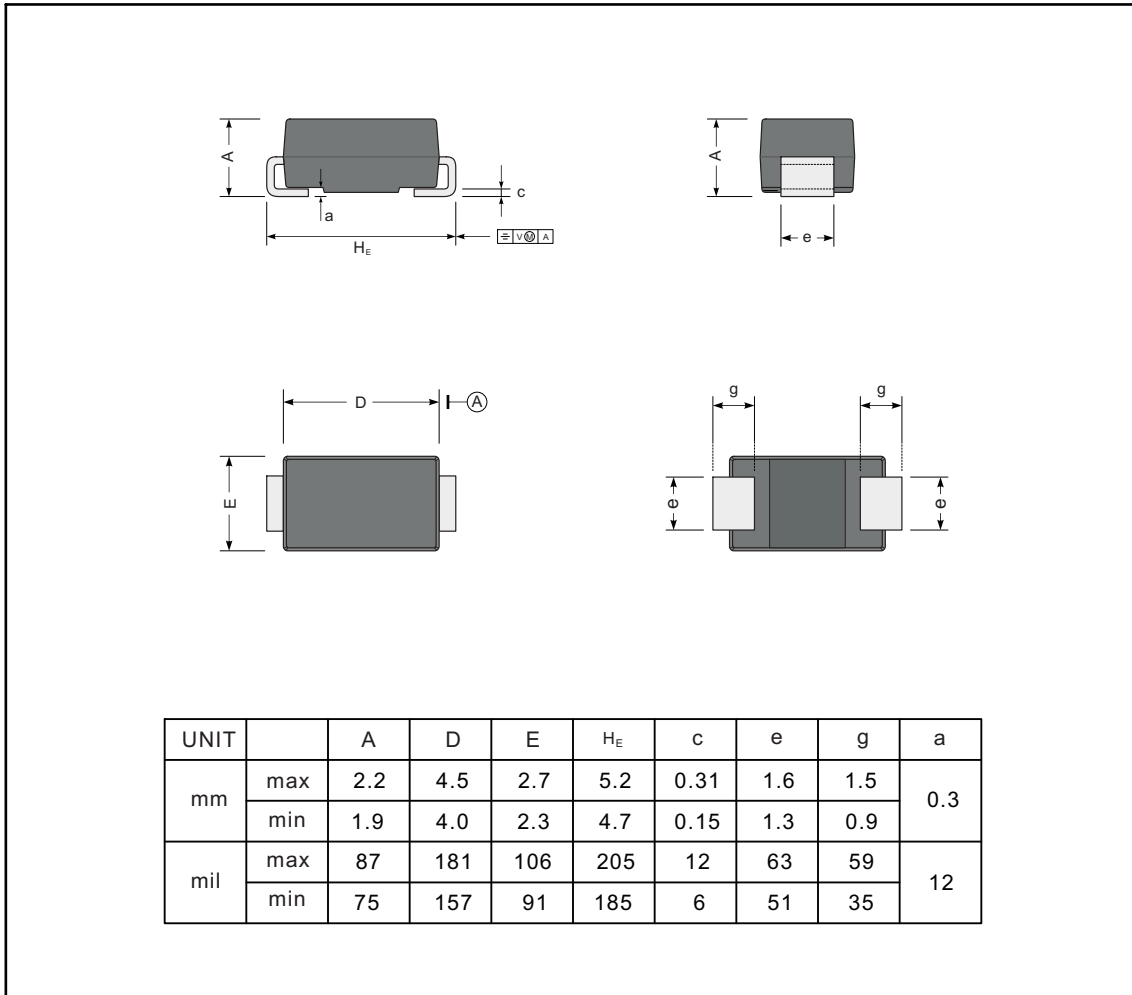
**Fig.6 Maximum Non-Repetitive Peak Forward Surge Current**



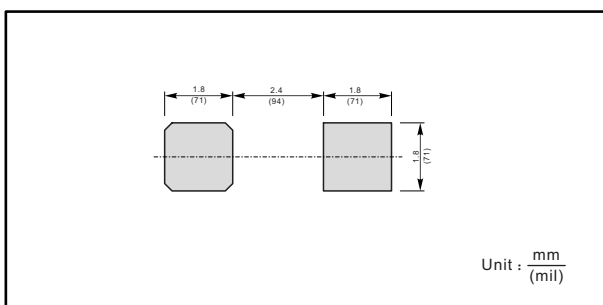
## PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SMA



### The recommended mounting pad size



### Marking

| Type number | Marking code |
|-------------|--------------|
| ES1AG       | ES1A         |
| ES1BG       | ES1B         |
| ES1CG       | ES1C         |
| ES1DG       | ES1D         |
| ES1EG       | ES1E         |
| ES1GG       | ES1G         |
| ES1JG       | ES1J         |

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