

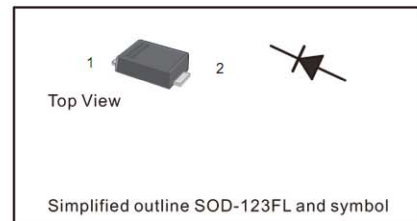
● Surface Mount Superfast Recovery Rectifier

Reverse Voltage – 50 to 600 V

Forward Current – 1 A

● Features

- Easy pick and place
- For surface mounted applications
- Low profile package
- Built-in strain relief
- Superfast recovery times for high efficiency



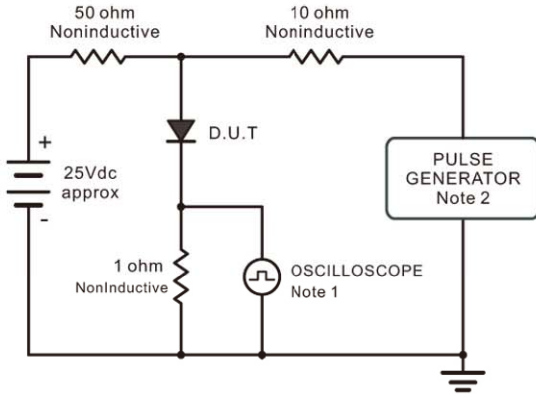
● Absolute Maximum Ratings and Characteristics

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        | ES1AW      | ES1BW | ES1CW | ES1DW | ES1EW | ES1GW | ES1JW | 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 $T_L = 100\text{ °C}$                                       | $I_{F(AV)}$    | 1          |       |       |       |       |       |       | A                  |
| Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method)        | $I_{FSM}$      | 25         |       |       |       |       |       |       | A                  |
| Maximum Forward Voltage at 1 A   | $V_F$          | 1          |       |       |       | 1.25  |       | 1.7   | V                  |
| Maximum DC Reverse Current at Rated DC Blocking Voltage<br>$T_a = 25\text{ °C}$<br>$T_a = 125\text{ °C}$ | $I_R$          | 5<br>100   |       |       |       |       |       |       | $\mu\text{A}$      |
| Typical Junction Capacitance at $V_R=4\text{V}$ , $f=1\text{MHz}$  | $C_j$          | 10         |       |       |       |       |       |       | 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                 |
| Operating and Storage Temperature Range  | $T_j, T_{stg}$ | -55 ~ +150 |       |       |       |       |       |       | $^{\circ}\text{C}$ |



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.

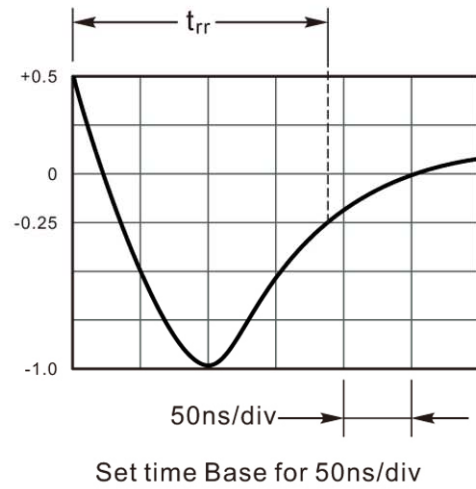


Fig.2 Maximum Average Forward Current Rating

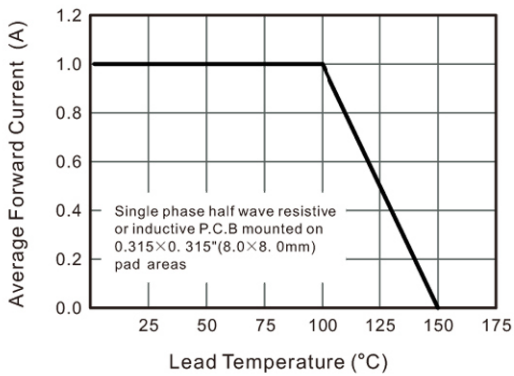


Fig.3 Typical Reverse Characteristics

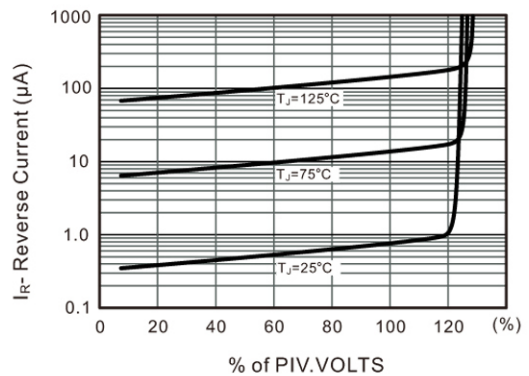


Fig.4 Typical Forward Characteristics

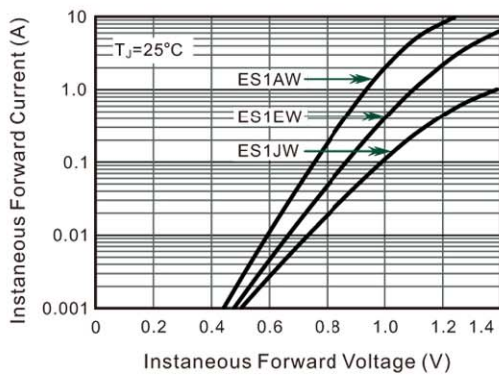
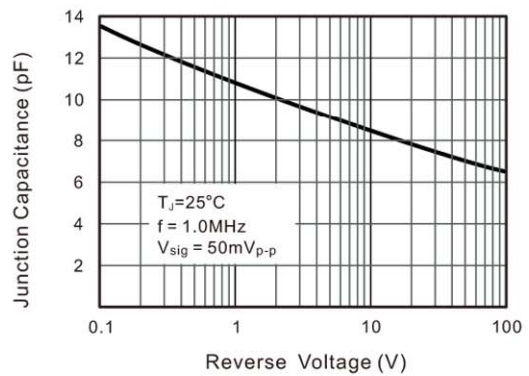
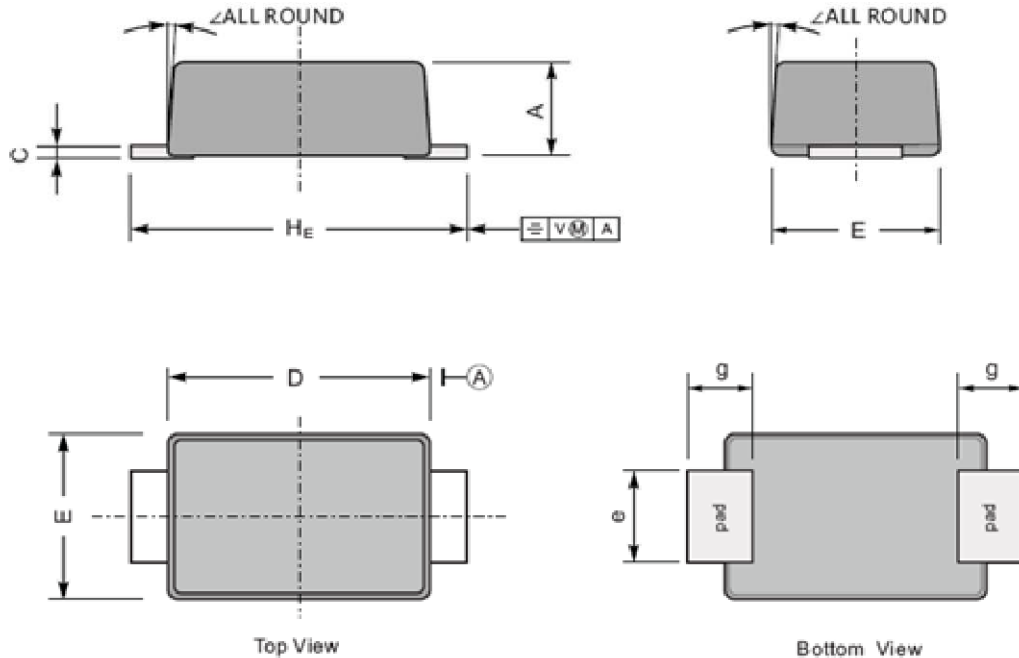


Fig.5 Typical Junction Capacitance



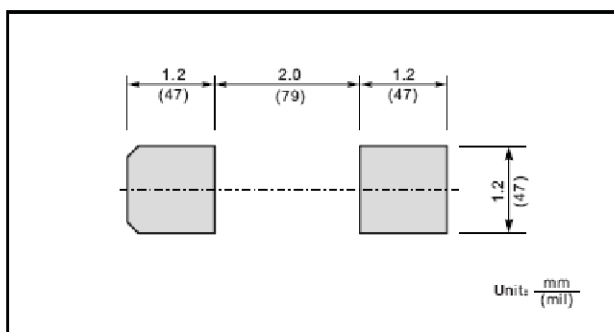
## PACKAGE OUTLINE

Plastic surface mounted package; 2 leads



| UNIT |     | A   | C    | D   | E   | e   | g   | $H_E$ | $\angle$ |
|------|-----|-----|------|-----|-----|-----|-----|-------|----------|
| mm   | max | 1.1 | 0.20 | 2.9 | 1.9 | 1.1 | 0.9 | 3.8   | 7°       |
|      | min | 0.9 | 0.12 | 2.6 | 1.7 | 0.8 | 0.7 | 3.5   |          |
| mil  | max | 43  | 7.9  | 114 | 75  | 43  | 35  | 150   |          |
|      | min | 35  | 4.7  | 102 | 67  | 31  | 28  | 138   |          |

The recommended mounting pad size

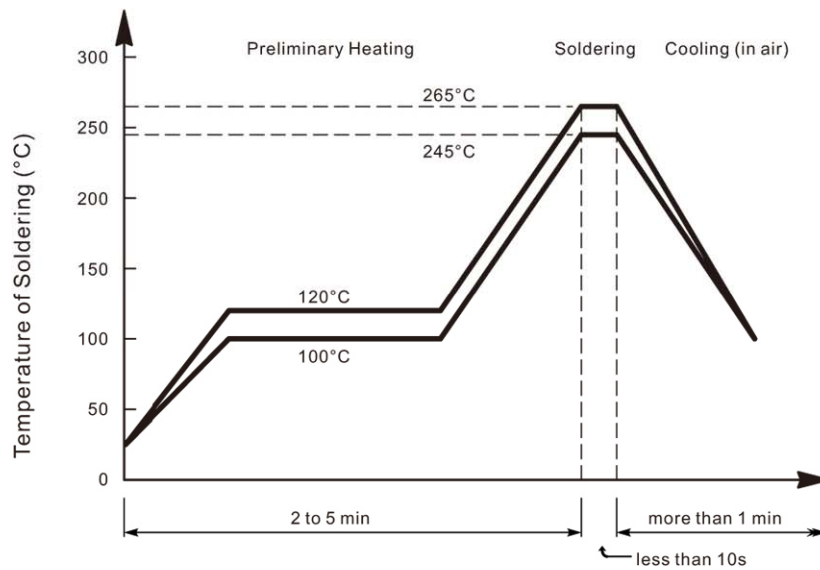


Marking

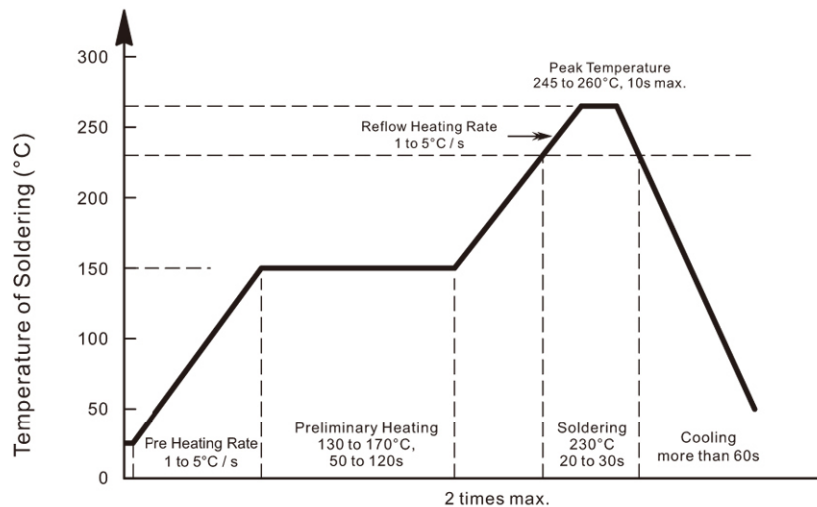
| Type number | Marking code |
|-------------|--------------|
| ES1AW       | E1A          |
| ES1BW       | E1B          |
| ES1CW       | E1C          |
| ES1DW       | E1D          |
| ES1EW       | E1E          |
| ES1GW       | E1G          |
| ES1JW       | E1J          |



• Recommended condition of flow soldering



• Recommended condition of reflow soldering



Recommended peak temperature is over 245 °C. If peak temperature is below 245 °C, you may adjust the following parameters; time length of peak temperature (longer), time length of soldering (longer), thickness of solder paste (thicker)

• Condition of hand soldering

Temperature: 370°C  
Time: 3s max.  
Times: one time

• Remark:

Lead free solder paste (96.5Sn/3.0Ag/0.5Cu)



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