

# ES1AFL-AT THRU ES1JFL-AT

## SURFACE MOUNT SUPERFAST RECOVERY RECTIFIERS

Forward Current-1.0A

Reverse Voltage-50V to 600V

### FEATURES

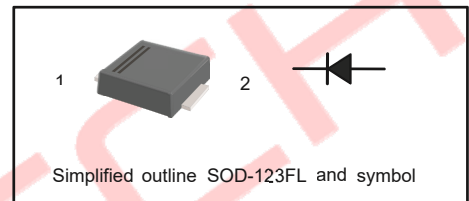
- ◆ For surface mount applications
- ◆ Glass passivated chip junction
- ◆ Low profile package
- ◆ Superfast reverse recovery time
- ◆ Lead free in comply with EU RoHS2011/65/EU directives

### PINNING

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

### MECHANICAL DATA

- ◆ Case: SOD-123FL molded plastic body
- ◆ Terminals: Solderable per MIL-STD-750 , Method2026
- ◆ Weight: Approximated 0.015 grams



### 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 derating by 20 %.

| PARAMETER  | SYMBOL          | ES1AFL<br>-AT | ES1BFL<br>-AT | ES1CFL<br>-AT | ES1DFL<br>-AT | ES1EFL<br>-AT | ES1GFL<br>-AT | ES1JFL<br>-AT | UNIT |                    |
|--|-----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|------|--------------------|
| 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 $T_C=125^\circ\text{C}$   | $I_{F(AV)}$     | 1             |               |               |               |               |               |               |      | A                  |
| Peak Forward Surge Current (Note1)   | $I_{FSM}$       | 30            |               |               |               |               |               |               |      | A                  |
| Maximum Forward Voltage at 1.0 A   | $V_F$           | 1             |               |               |               | 1.25          |               | 1.68          | V    |                    |
| Maximum DC Reverse Current at Rated DC Blocking Voltage at $T_A=25^\circ\text{C}$<br>$T_A=125^\circ\text{C}$ | $I_R$           | 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 (Note2)  | $T_{rr}$        | 35            |               |               |               |               |               |               |      | nS                 |
| Typical Thermal Resistance (Note3)   | $R_{\theta JA}$ | 85            |               |               |               |               |               |               |      | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range  | $T_J, T_{STG}$  | -55 to +150   |               |               |               |               |               |               |      | $^\circ\text{C}$   |

Notes: 1. Measured at 8.3 ms single half sine wave superimposed on rated load (JEDEC Method).

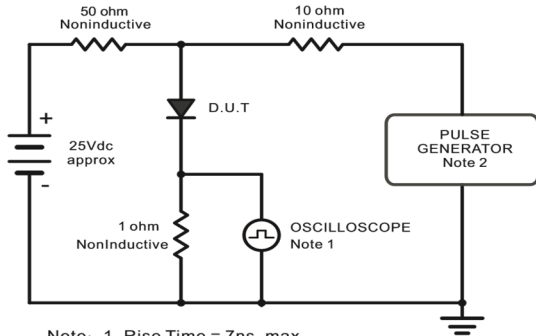
2. Measured with  $I_F=0.5\text{A}$ ,  $I_R=1\text{A}$ ,  $I_{rr}=0.25\text{A}$ .

3. P.C.B. mounted with 2.0" X 2.0" (5 X 5 cm) copper pad areas.

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## RATINGS AND CHARACTERISTIC CURVES

Fig.1 Test Circuit Diagram And Reverse Recovery Time Curve



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

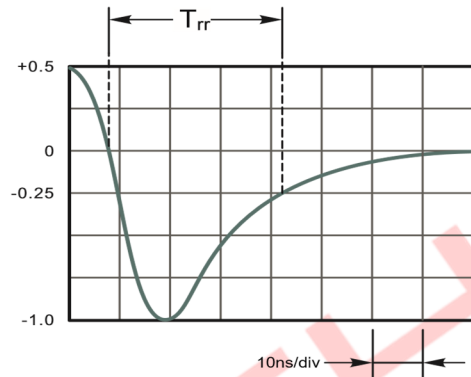


Fig.2 Maximum Average Forward Current Rating

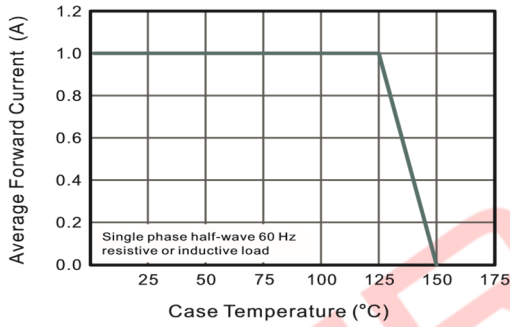


Fig.3 Typical Reverse Characteristics

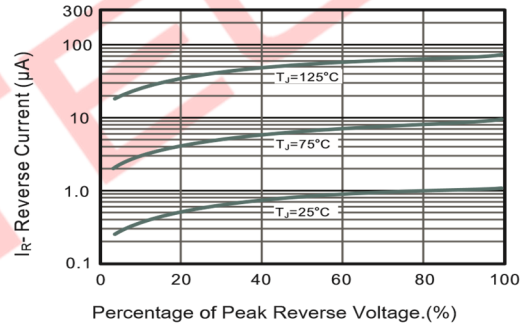


Fig.4 Typical Forward Characteristics

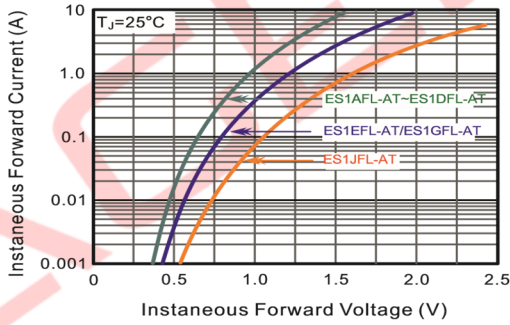


Fig.5 Typical Junction Capacitance

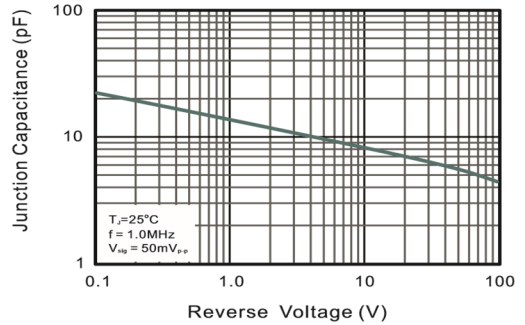
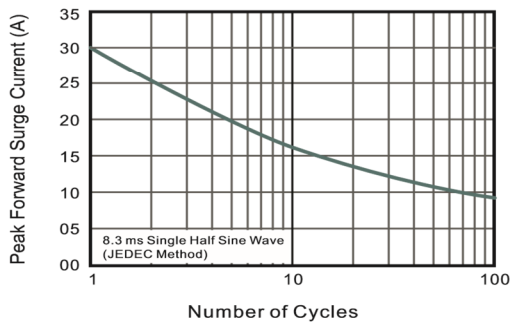


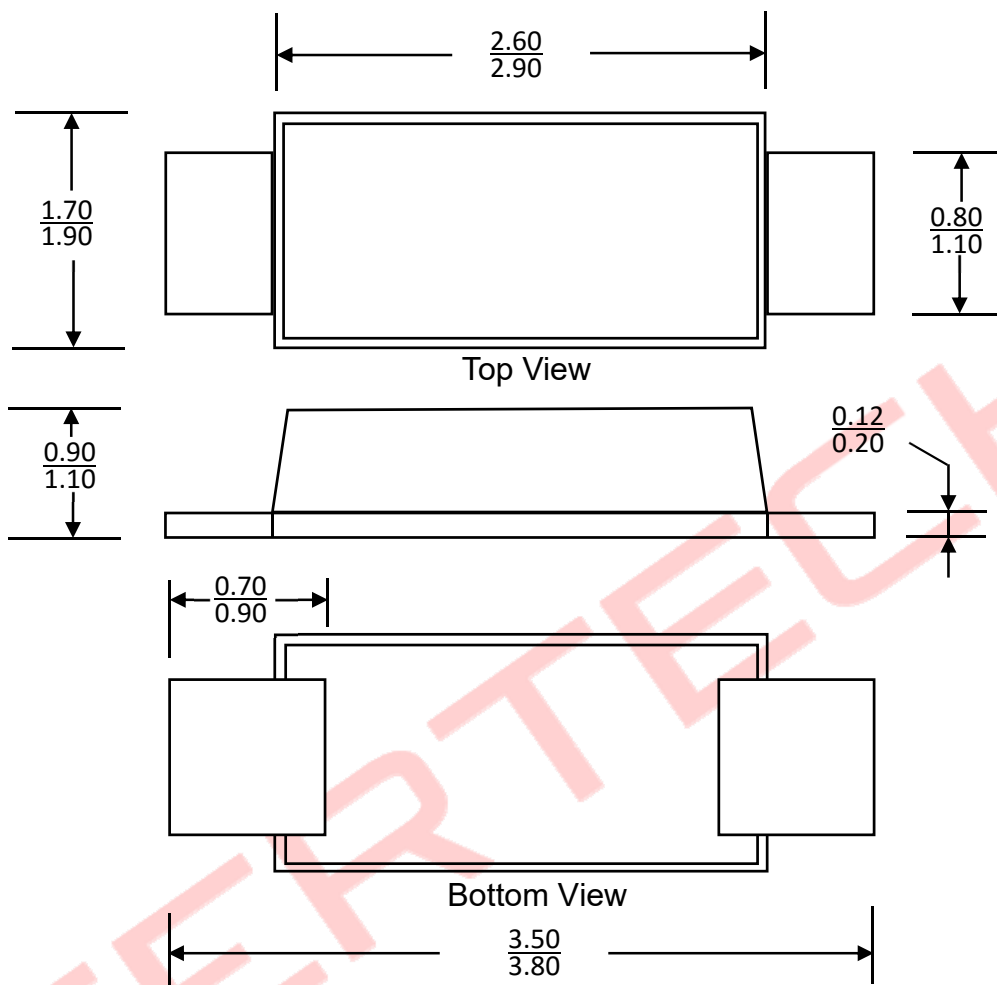
Fig.6 Maximum Non-Repetitive Peak Forward Surge Current



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## PACKAGE OUTLINE

SOD-123FL



Dimensions in millimeters

### ORDERING INFORMATION

| Device                   | Package   | Shipping                     |
|--------------------------|-----------|------------------------------|
| ES1AFL-AT thru ES1JFL-AT | SOD-123FL | 3,000/Tape & Reel (7 inches) |

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