

# US1AFL-AT THRU US1MFL-AT

## SURFACE ULTRAFAST RECOVERY RECTIFIERS

Forward Current-1A

Reverse Voltage-50V to 1000V

### FEATURES

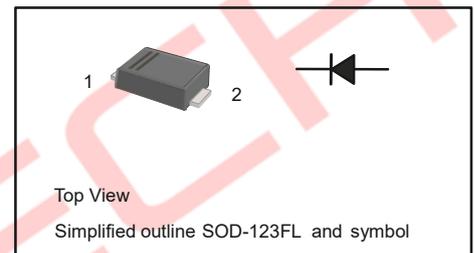
- ◆ For surface mount applications
- ◆ Glass passivated chip junction
- ◆ Low profile package
- ◆ Easy to pick and place
- ◆ Lead free in comply with EU RoHS 2011/65/EU directives

### PINNING

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

### MECHANICAL DATA

- ◆ Case: SOD-123FL molded plastic body
- ◆ Terminals: Solderable per MIL-STD- 750, Method 2026
- ◆ 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          | US1AFL<br>-AT | US1BFL<br>-AT | US1DFL<br>-AT | US1GF<br>-AT | US1JFL<br>-AT | US1KFL<br>-AT | US1MFL<br>-AT | UNIT               |
|---|-----------------|---------------|---------------|---------------|--------------|---------------|---------------|---------------|--------------------|
| Maximum Repetitive Peak Reverse Voltage   | $V_{RRM}$       | 50            | 100           | 200           | 400          | 600           | 800           | 1000          | V                  |
| Maximum RMS Voltage   | $V_{RMS}$       | 35            | 70            | 140           | 280          | 420           | 560           | 700           | V                  |
| Maximum DC Blocking Voltage   | $V_{DC}$        | 50            | 100           | 200           | 400          | 600           | 800           | 1000          | 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  | $V_F$           | 1.0           |               | 1.3           |              | 1.65          |               | V             |                    |
| Maximum DC Reverse Current at Rated DC Blocking Voltage $T_A=25^\circ\text{C}$<br>$T_A=125^\circ\text{C}$ | $I_R$           | 5<br>100      |               |               |              |               |               |               | $\mu\text{A}$      |
| Maximum Reverse Recovery Time (Note2)   | $T_{rr}$        | 50            |               |               |              | 75            |               |               | nS                 |
| Typical Thermal Resistance (Note3)  | $R_{\theta JA}$ | 80            |               |               |              |               |               |               | $^\circ\text{C/W}$ |
| 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 at with  $I_F=0.5\text{A}$ ,  $I_{rr}=0.25\text{A}$ .

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

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## RATINGS AND CHARACTERISTIC CURVES

Fig.1 Forward Current Derating Curve

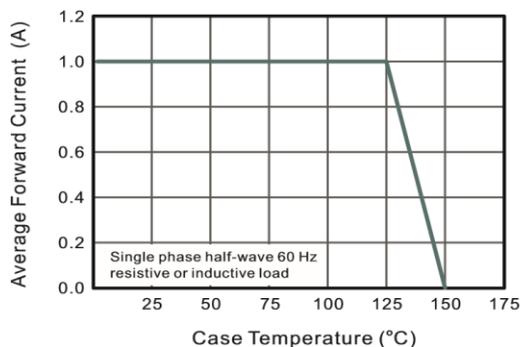


Fig.2 Typical Reverse Characteristics

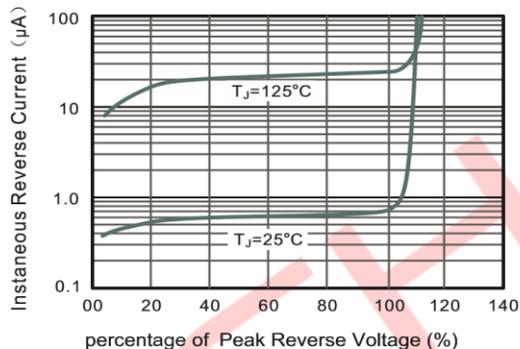


Fig.3 Typical Forward Characteristics

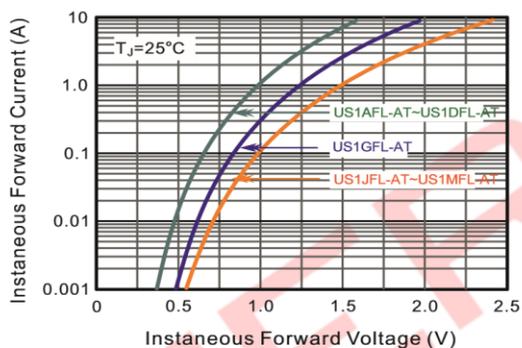
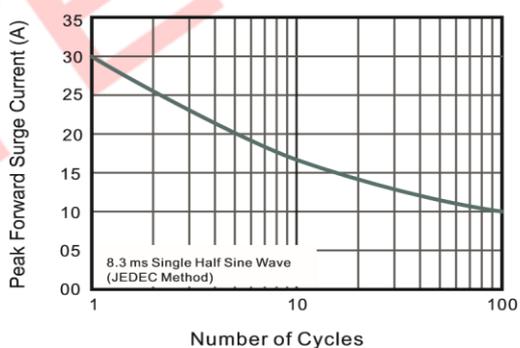


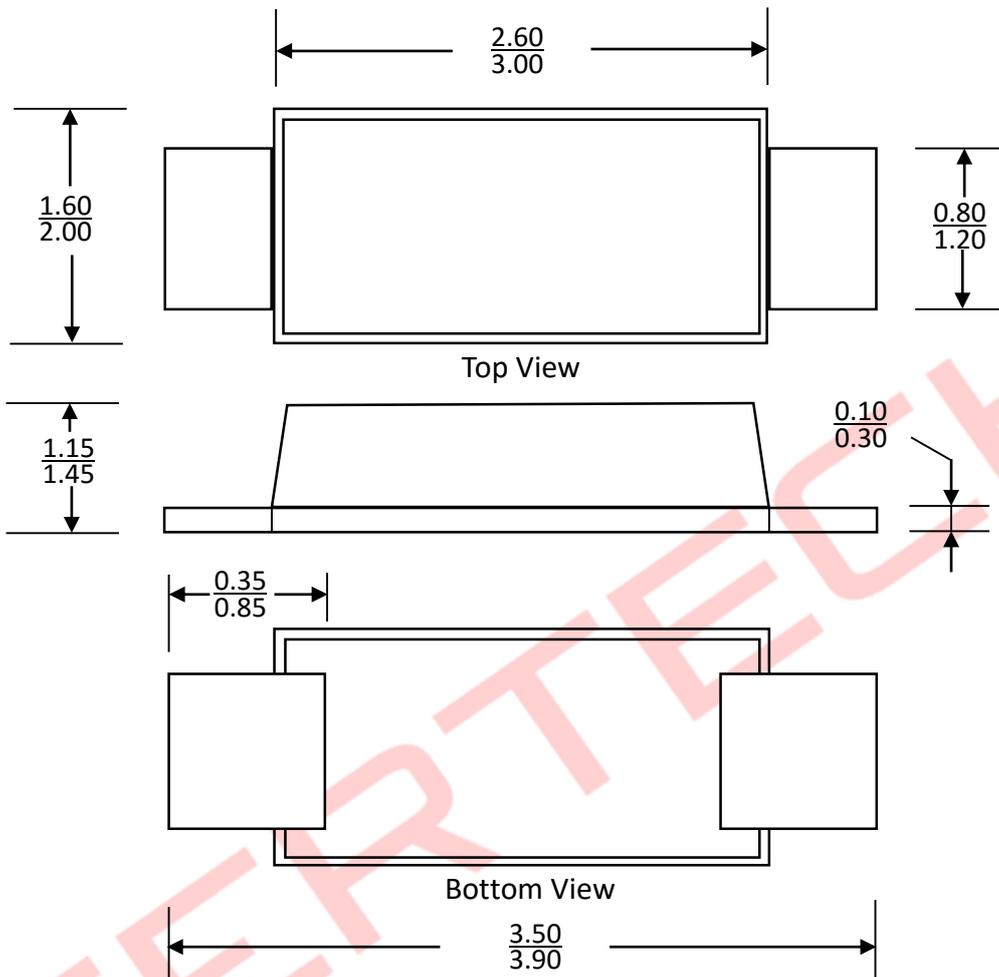
Fig.4 Maximum Non-Repetitive Peak Forward Surge Current



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## PACKAGE OUTLINE

SOD-123FL



Dimensions in millimeters

### ORDERING INFORMATION

| Device                   | Package   | Shipping                     |
|--------------------------|-----------|------------------------------|
| US1AFL-AT thru US1MFL-AT | SOD-123FL | 3,000/Tape & Reel (7 inches) |