

## Surface Mount Fast Recovery Rectifiers

Reverse Voltage - 50 to 1000 V Forward

Current - 0.5A

### FEATURES

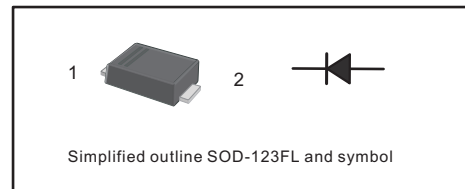
- For surface mounted applications
- Low profile package
- Glass Passivated Chip Junction
- Ideal for automated placement
- Fast reverse recovery time
- Lead free in comply with EU RoHS 2011/65/EU directives

### MECHANICAL DATA

- Case: SOD-123FL
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 15mg 0.00053oz

### PINNING

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



### Maximum Ratings and Electrical characteristics

Ratings at 25 °C ambient temperature unless otherwise specified.

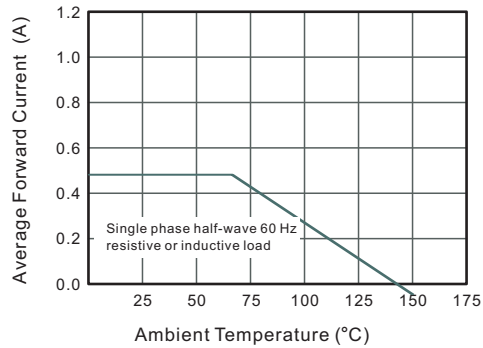
Single phase half-wave 60 Hz, resistive or inductive load, for capacitive load current derate by 20 %.

| Parameter                                                                                         | Symbols                           | F1         | F2  | F3  | F4  | F5  | F6  | F7   | Units |
|---------------------------------------------------------------------------------------------------|-----------------------------------|------------|-----|-----|-----|-----|-----|------|-------|
| Maximum Repetitive Peak Reverse Voltage                                                           | V <sub>RRM</sub>                  | 50         | 100 | 200 | 400 | 600 | 800 | 1000 | V     |
| Maximum RMS voltage                                                                               | V <sub>RMS</sub>                  | 35         | 70  | 140 | 280 | 420 | 560 | 700  | V     |
| Maximum DC Blocking Voltage                                                                       | V <sub>DC</sub>                   | 50         | 100 | 200 | 400 | 600 | 800 | 1000 | V     |
| Maximum Average Forward Rectified Current at Ta = 65 °C                                           | I <sub>F(AV)</sub>                | 0.5        |     |     |     |     |     |      | A     |
| Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) | I <sub>FSM</sub>                  | 30         |     |     |     |     |     |      | A     |
| Maximum Instantaneous Forward Voltage at 1 A                                                      | V <sub>F</sub>                    | 1.3        |     |     |     |     |     |      | V     |
| Maximum DC Reverse Current Ta = 25 °C<br>at Rated DC Blocking Voltage Ta =125 °C                  | I <sub>R</sub>                    | 5<br>100   |     |     |     |     |     |      | μA    |
| Maximum Reverse Recovery Time <sup>1)</sup>                                                       | t <sub>rr</sub>                   | 150        |     |     |     | 250 | 500 |      | ns    |
| Typical Junction Capacitance at V <sub>R</sub> =4V, f=1MHz                                        | C <sub>j</sub>                    | 15         |     |     |     |     |     |      | pF    |
| Typical Thermal Resistance <sup>2)</sup>                                                          | R <sub>θJA</sub>                  | 120        |     |     |     |     |     |      | °C/W  |
| Operating and Storage Temperature Range                                                           | T <sub>j</sub> , T <sub>stg</sub> | -55 ~ +150 |     |     |     |     |     |      | °C    |

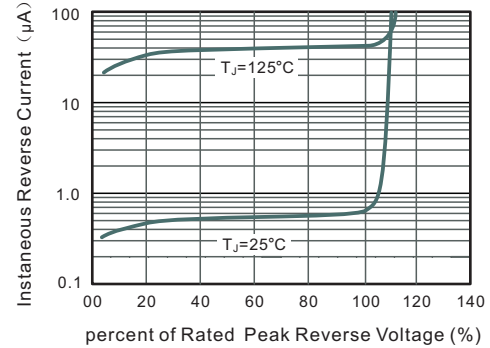
1 ) Measured with  $I_F = 0.5\text{ A}$ ,  $I_R = 1\text{ A}$ ,  $I_{rr} = 0.25\text{ A}$ .

2 ) P.C.B. mounted with 0.2 X 0.2" (5 X 5 mm) copper pad areas.

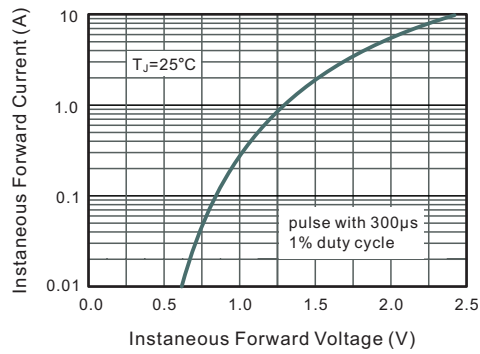
**Fig.1 Forward Current Derating Curve**



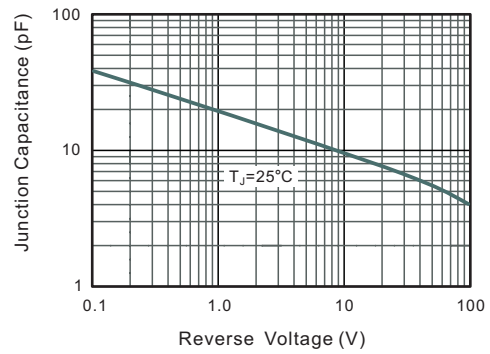
**Fig.2 Typical Reverse Characteristics**



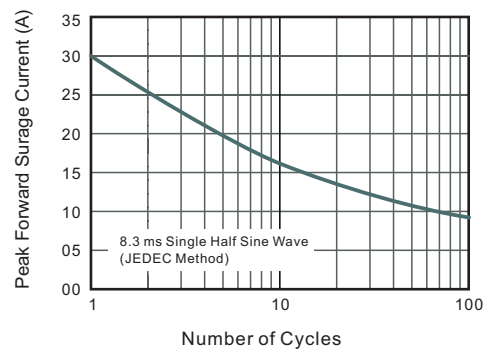
**Fig.3 Typical Instantaneous Forward Characteristics**



**Fig.4 Typical Junction Capacitance**



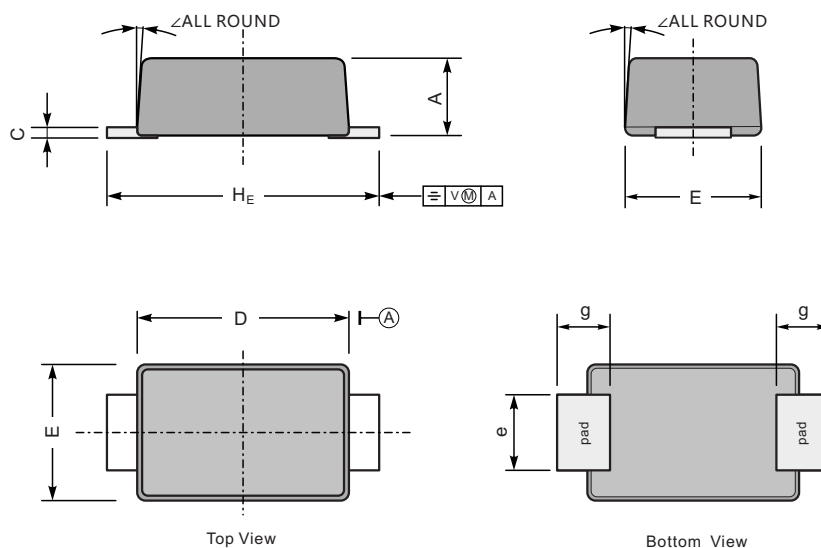
**Fig.5 Maximum Non-Repetitive Peak Forward Surge Current**



## PACKAGE OUTLINE

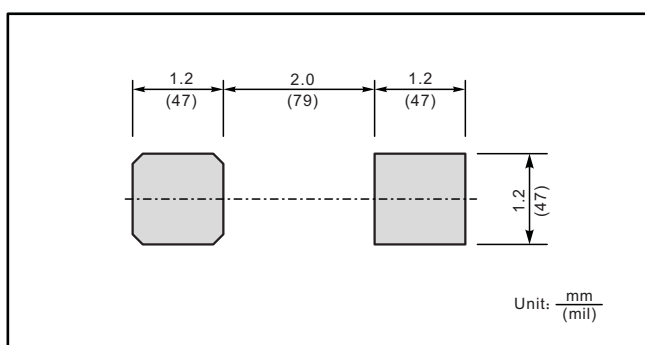
Plastic surface mounted package; 2 leads

SOD-123FL



| UNIT |     | A   | C    | D   | E   | e   | g   | H <sub>E</sub> | ∠  |
|------|-----|-----|------|-----|-----|-----|-----|----------------|----|
| 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 |
|-------------|--------------|
| FR101W      | F2           |
| FR102W      |              |
| FR103W      |              |
| FR104W      |              |
| FR105W      | F5           |
| FR106W      | F7           |
| FR107W      |              |