



# FR107W

## Surface Mount Fast Recovery Rectifiers

Reverse Voltage - 1000 V

Forward Current - 1 A

### FEATURES

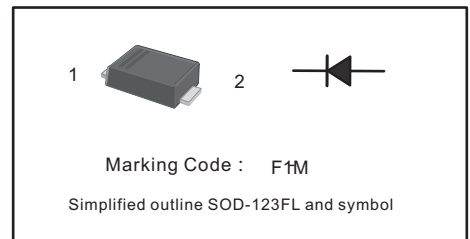
- For surface mounted applications
- Low profile package
- Glass Passivated Chip Junction
- Ideal for automated placement
- Fast reverse recovery time
- Lead free in comply with EU RoHS 2011/65/EU directives

### MECHANICAL DATA

- Case: SOD-123FL
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 15mg 0.00048oz

### 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         | FR107W     | Units                |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------|------------|----------------------|
| Maximum Repetitive Peak Reverse Voltage                                                                                           | $V_{RRM}$       | 1000       | V                    |
| Maximum RMS voltage                                                                                                               | $V_{RMS}$       | 700        | V                    |
| Maximum DC Blocking Voltage                                                                                                       | $V_{DC}$        | 1000       | V                    |
| Maximum Average Forward Rectified Current at $T_a = 65\text{ }^{\circ}\text{C}$                                                   | $I_{F(AV)}$     | 1          | A                    |
| Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method)                                 | $I_{FSM}$       | 30         | A                    |
| Maximum Instantaneous Forward Voltage at 1 A                                                                                      | $V_F$           | 1.3        | V                    |
| Maximum DC Reverse Current $T_a = 25\text{ }^{\circ}\text{C}$<br>at Rated DC Blocking Voltage $T_a = 125\text{ }^{\circ}\text{C}$ | $I_R$           | 5<br>100   | $\mu\text{A}$        |
| Maximum Reverse Recovery Time <sup>1)</sup>                                                                                       | $t_{rr}$        | 500        | ns                   |
| Typical Junction Capacitance <sup>2)</sup>                                                                                        | $C_j$           | 15         | pF                   |
| Typical Thermal Resistance <sup>3)</sup>                                                                                          | $R_{\theta JA}$ | 85         | $^{\circ}\text{C/W}$ |
| 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) Measured at 1MHz and applied reverse voltage of 4V D.C

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



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### Characteristic Curves ( $T_A=25^\circ\text{C}$ unless otherwise noted)

Fig.1 Forward Current Derating Curve

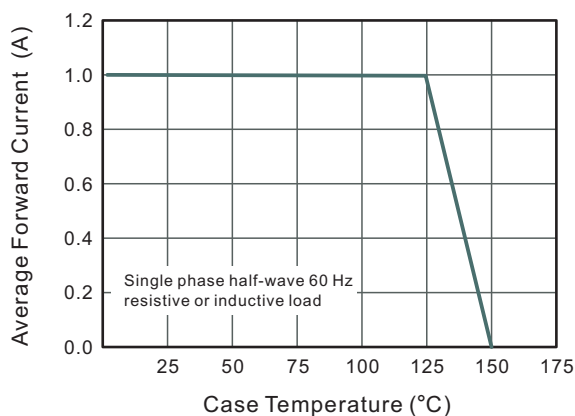


Fig.2 Typical Reverse Characteristics

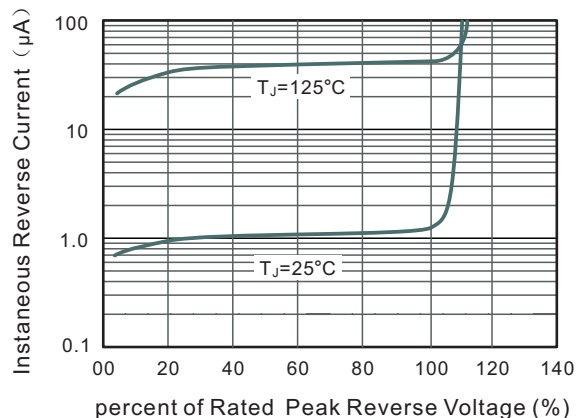


Fig.3 Typical Instantaneous Forward Characteristics

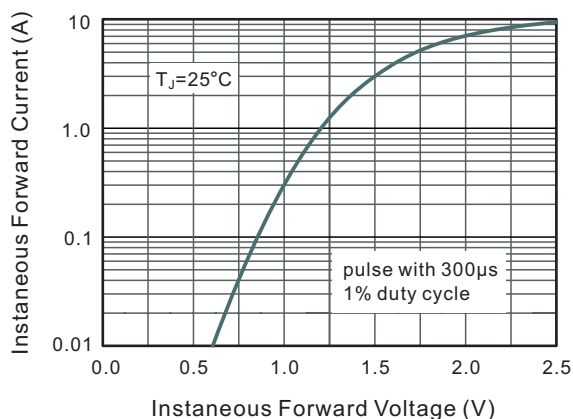


Fig.4 Typical Junction Capacitance

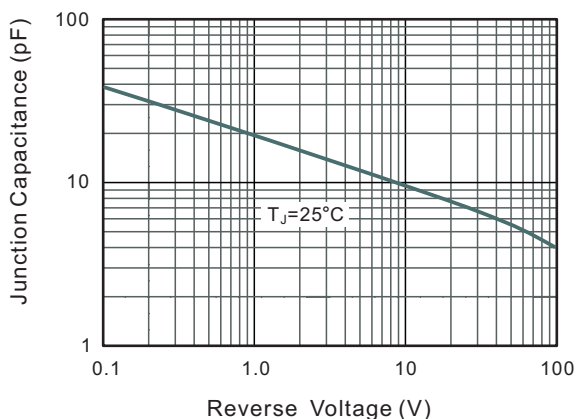
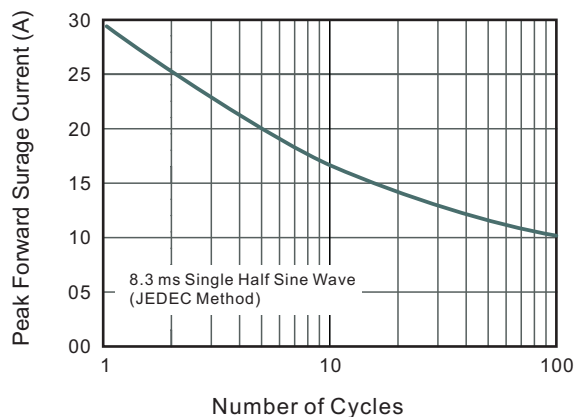


Fig.5 Maximum Non-Repetitive Peak Forward Surge Current





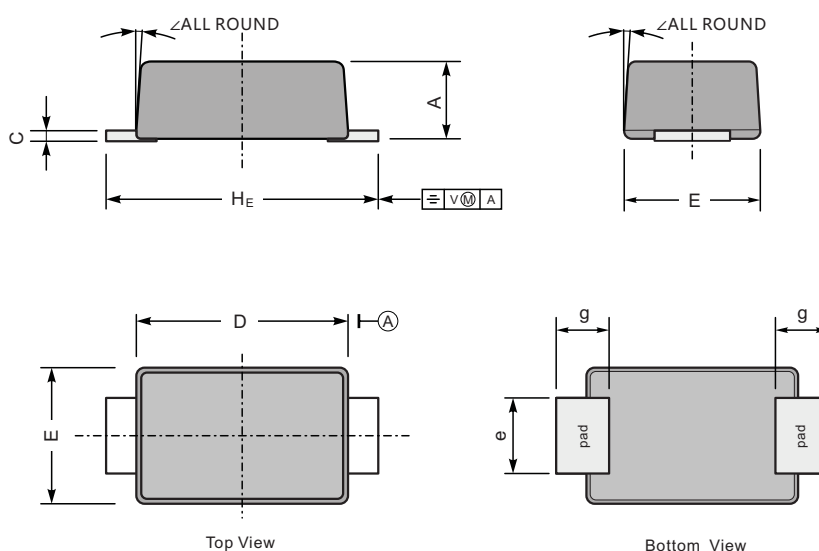
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### PACKAGE OUTLINE

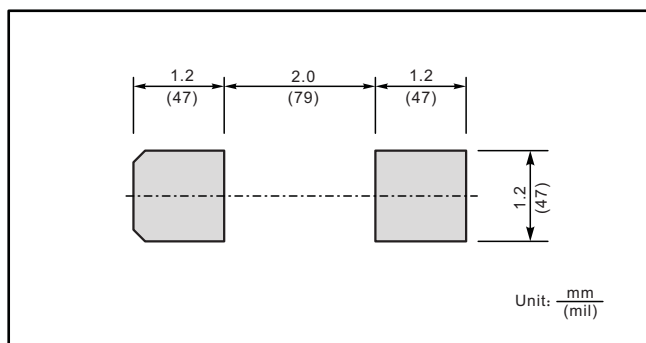
Plastic surface mounted package; 2 leads

SOD-123FL



| UNIT |     | A    | C    | D   | E    | e   | g    | H <sub>E</sub> | ∠  |
|------|-----|------|------|-----|------|-----|------|----------------|----|
| mm   | max | 1.30 | 0.20 | 2.9 | 1.95 | 1.1 | 0.9  | 3.8            | 7° |
|      | min | 0.9  | 0.12 | 2.5 | 1.60 | 0.7 | 0.7  | 3.5            |    |
| mil  | max | 51.2 | 7.9  | 114 | 77   | 43  | 35   | 150            |    |
|      | min | 35   | 4.7  | 98  | 63   | 31  | 27.6 | 138            |    |

### The recommended mounting pad size



### Marking

| Type number | Marking code |
|-------------|--------------|
| FR107W      | F1M          |