

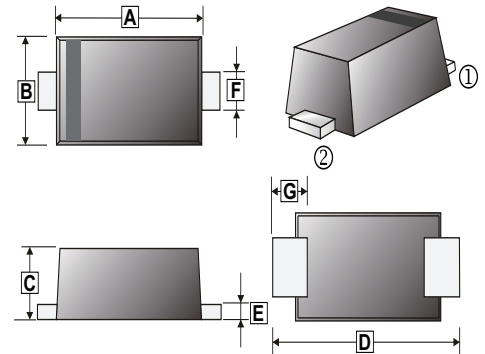
RoHS Compliant Product

A suffix of "-C" specifies halogen-free and lead-free

## FEATURES

- Glass passivated junction
- Solder dip 260°C, 10s
- Low profile, typical thickness 1.0mm
- Moisture sensitivity: level 1, per J-STD-020
- Excellent clamping capability
- Fast response time
- 400W peak pulse power capability with a 10/1000µs waveform
- Polarity: Uni-directional

## SOD-123FL



## PACKAGE INFORMATION

| Package   | MPQ | Leader Size |
|-----------|-----|-------------|
| SOD-123FL | 3K  | 7 inch      |

| REF. | Millimeter |      | REF. | Millimeter |      |
|------|------------|------|------|------------|------|
|      | Min.       | Max. |      | Min.       | Max. |
| A    | 2.9        | 3.1  | E    | 0.1        | 0.25 |
| B    | 1.7        | 2    | F    | 0.85       | 1.05 |
| C    | 0.9        | 1.08 | G    | 0.43       | 0.83 |
| D    | 3.5        | 3.9  |      |            |      |

## ORDER INFORMATION

| Part Number            | Type                            |
|------------------------|---------------------------------|
| SFL4J10A-C~SFL4J180A-C | Lead (Pb)-free and Halogen-free |

## MAXIMUM RATINGS (T<sub>A</sub>=25 °C unless otherwise noted)

| Parameter                                                                                |              | Symbol                            | Value          | Unit |
|------------------------------------------------------------------------------------------|--------------|-----------------------------------|----------------|------|
| Peak power dissipation with a 10/1000µs waveform <sup>1</sup>                            |              | P <sub>PP</sub>                   | 400            | W    |
| Peak pulse current with a 10/1000µs waveform <sup>1</sup>                                |              | I <sub>PP</sub>                   | See Next Table | A    |
| power dissipation <sup>2</sup>                                                           | Steady state | P <sub>D</sub>                    | 1              | W    |
| Peak forward surge current, 8.3ms single half sine-wave unidirectional only <sup>2</sup> |              | I <sub>FSM</sub>                  | 30             | A    |
| Maximum instantaneous forward clamping voltage at 25A                                    |              | V <sub>F</sub>                    | 2              | V    |
| Operating junction and storage temperature range                                         |              | T <sub>J</sub> , T <sub>STG</sub> | -55 ~ 150      | °C   |

Notes:

1. Non-repetitive current pulse per Fig.3 and derated above T<sub>A</sub>= 25°C per Fig.4.
2. Power dissipation mounted on recommended pad layout

**ELECTRICAL CHARACTERISTICS** (Rating  $T_A=25^{\circ}\text{C}$  unless otherwise specified)

| Part Number | Marking Code | Reverse Stand-Off Voltage | Breakdown Voltage $V_{BR}$ @ $I_T$ |      | Test Current | Maximum Reverse Leakage $I_D$ @ $V_{RWM}$ | Maximum Peak Pulse Current | Maximum Clamping Voltage $V_C$ @ $I_{PP}$ |
|-------------|--------------|---------------------------|------------------------------------|------|--------------|-------------------------------------------|----------------------------|-------------------------------------------|
|             |              |                           | Min                                | Max  |              |                                           |                            |                                           |
|             |              | $V_{RWM}$                 | $V_{BR}$                           |      | $I_T$        | $I_D$                                     | $I_{PP}$                   | $V_C$                                     |
| Uni         | Uni          | V                         | V                                  | V    | mA           | $\mu\text{A}$                             | A                          | V                                         |
| SFL4J10A-C  | AX           | 10                        | 11.1                               | 12.3 | 1            | 1                                         | 23.5                       | 17                                        |
| SFL4J11A-C  | AZ           | 11                        | 12.2                               | 13.5 | 1            | 1                                         | 22                         | 18.2                                      |
| SFL4J12A-C  | BE           | 12                        | 13.3                               | 14.7 | 1            | 1                                         | 20.1                       | 19.9                                      |
| SFL4J13A-C  | BG           | 13                        | 14.4                               | 15.9 | 1            | 1                                         | 18.6                       | 21.5                                      |
| SFL4J14A-C  | BK           | 14                        | 15.6                               | 17.2 | 1            | 1                                         | 17.2                       | 23.2                                      |
| SFL4J15A-C  | BM           | 15                        | 16.7                               | 18.5 | 1            | 1                                         | 16.4                       | 24.4                                      |
| SFL4J16A-C  | BP           | 16                        | 17.8                               | 19.7 | 1            | 1                                         | 15.4                       | 26                                        |
| SFL4J17A-C  | BR           | 17                        | 18.9                               | 20.9 | 1            | 1                                         | 14.5                       | 27.6                                      |
| SFL4J18A-C  | BT           | 18                        | 20                                 | 22.1 | 1            | 1                                         | 13.7                       | 29.2                                      |
| SFL4J20A-C  | BV           | 20                        | 22.2                               | 24.5 | 1            | 1                                         | 12.3                       | 32.4                                      |
| SFL4J22A-C  | BX           | 22                        | 24.4                               | 26.9 | 1            | 1                                         | 11.3                       | 35.5                                      |
| SFL4J24A-C  | BZ           | 24                        | 26.7                               | 29.5 | 1            | 1                                         | 10.3                       | 38.9                                      |
| SFL4J26A-C  | CE           | 26                        | 28.9                               | 31.9 | 1            | 1                                         | 9.5                        | 42.1                                      |
| SFL4J28A-C  | CG           | 28                        | 31.1                               | 34.4 | 1            | 1                                         | 8.8                        | 45.4                                      |
| SFL4J30A-C  | CK           | 30                        | 33.3                               | 36.8 | 1            | 1                                         | 8.3                        | 48.4                                      |
| SFL4J33A-C  | CM           | 33                        | 36.7                               | 40.6 | 1            | 1                                         | 7.5                        | 53.3                                      |
| SFL4J36A-C  | CP           | 36                        | 40                                 | 44.4 | 1            | 1                                         | 6.9                        | 58.1                                      |
| SFL4J40A-C  | CR           | 40                        | 44.4                               | 49.1 | 1            | 1                                         | 6.2                        | 64.5                                      |
| SFL4J43A-C  | CT           | 43                        | 47.8                               | 52.8 | 1            | 1                                         | 5.8                        | 69.4                                      |
| SFL4J45A-C  | CV           | 45                        | 50                                 | 55.3 | 1            | 1                                         | 5.5                        | 72.7                                      |
| SFL4J48A-C  | CX           | 48                        | 53.3                               | 58.9 | 1            | 1                                         | 5.2                        | 77.4                                      |
| SFL4J51A-C  | CZ           | 51                        | 56.7                               | 62.7 | 1            | 1                                         | 4.9                        | 82.4                                      |
| SFL4J54A-C  | RE           | 54                        | 60                                 | 66.3 | 1            | 1                                         | 4.6                        | 87.1                                      |
| SFL4J58A-C  | RG           | 58                        | 64.4                               | 71.2 | 1            | 1                                         | 4.3                        | 93.6                                      |
| SFL4J60A-C  | RK           | 60                        | 66.7                               | 73.7 | 1            | 1                                         | 4.1                        | 96.8                                      |
| SFL4J64A-C  | RM           | 64                        | 71.1                               | 78.6 | 1            | 1                                         | 3.9                        | 103                                       |
| SFL4J70A-C  | RP           | 70                        | 77.8                               | 96   | 1            | 1                                         | 3.5                        | 113                                       |
| SFL4J75A-C  | RR           | 75                        | 83.3                               | 92.1 | 1            | 1                                         | 3.3                        | 121                                       |
| SFL4J78A-C  | RT           | 78                        | 86.7                               | 95.8 | 1            | 1                                         | 3.2                        | 126                                       |
| SFL4J85A-C  | RV           | 85                        | 94.4                               | 104  | 1            | 1                                         | 2.2                        | 137                                       |
| SFL4J90A-C  | RX           | 90                        | 100                                | 111  | 1            | 1                                         | 2.1                        | 146                                       |

**ELECTRICAL CHARACTERISTICS** (Rating  $T_A=25^\circ\text{C}$  unless otherwise specified)

| Part Number | Marking Code | Reverse Stand-Off Voltage | Breakdown Voltage $V_{BR}$ @ $I_T$ |     | Test Current | Maximum Reverse Leakage $I_D$ @ $V_{RWM}$ | Maximum Peak Pulse Current | Maximum Clamping Voltage $V_C$ @ $I_{PP}$ |
|-------------|--------------|---------------------------|------------------------------------|-----|--------------|-------------------------------------------|----------------------------|-------------------------------------------|
|             |              |                           | Min                                | Max |              |                                           |                            |                                           |
|             |              | $V_{RWM}$                 | $V_{BR}$                           |     | $I_T$        | $I_D$                                     | $I_{PP}$                   | $V_C$                                     |
| Uni         | Uni          | V                         | V                                  | V   | mA           | $\mu\text{A}$                             | A                          | V                                         |
| SFL4J100A-C | RZ           | 100                       | 111                                | 123 | 1            | 1                                         | 1.9                        | 162                                       |
| SFL4J110A-C | SE           | 110                       | 122                                | 135 | 1            | 1                                         | 1.7                        | 177                                       |
| SFL4J120A-C | SG           | 120                       | 133                                | 147 | 1            | 1                                         | 1.6                        | 193                                       |
| SFL4J130A-C | SK           | 130                       | 144                                | 159 | 1            | 1                                         | 1.4                        | 209                                       |
| SFL4J150A-C | SM           | 150                       | 167                                | 185 | 1            | 1                                         | 1.2                        | 243                                       |
| SFL4J160A-C | SP           | 160                       | 178                                | 197 | 1            | 1                                         | 1.2                        | 259                                       |
| SFL4J170A-C | SR           | 170                       | 189                                | 209 | 1            | 1                                         | 1.09                       | 275                                       |
| SFL4J180A-C | ST           | 180                       | 201                                | 222 | 1            | 1                                         | 1.4                        | 292                                       |

## RATINGS AND CHARACTERISTIC CURVES

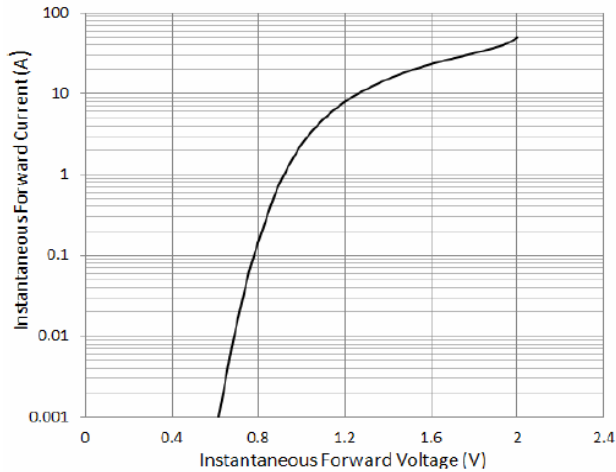


Figure 1.

Typical Instantaneous Forward Characteristics

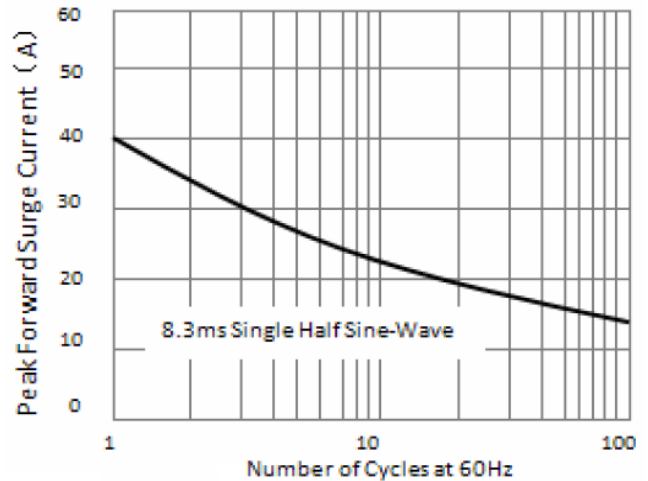


Figure 2.

Maximum Non-Repetitive Peak Forward Surge Current

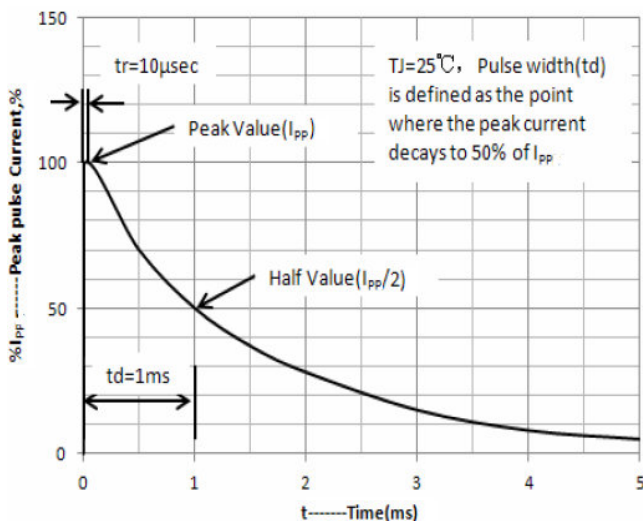


Figure 3. Pulse Waveform

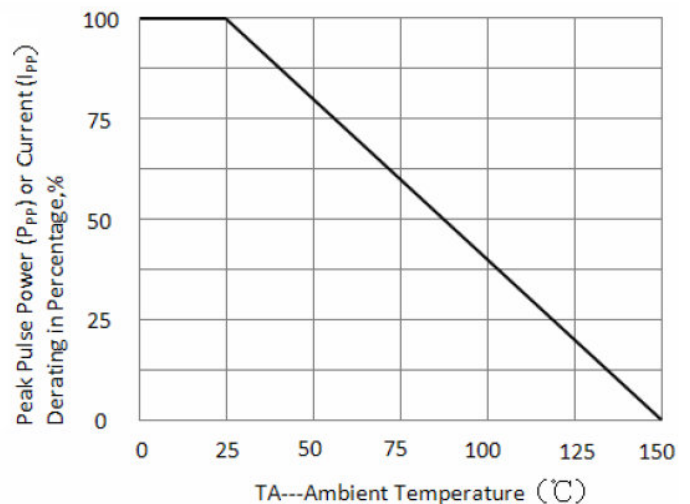


Figure 4. Peak Pulse Power Derating Curve

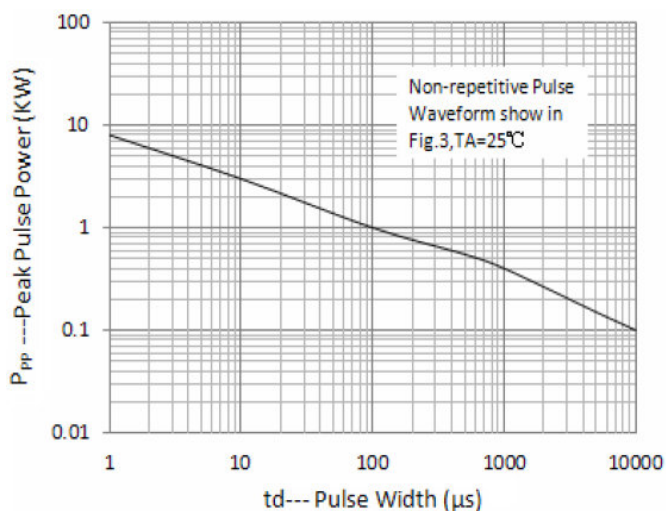


Figure 5. Peak Pulse Power Derating Curve