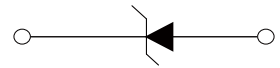


## FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- High forward surge capability
- Meets MSL level 1, per J-STD-020



SOD-123FL



Schematic Symbol

## MECHANICAL DATA

- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Polarity: Cathode line denotes the cathode end

## APPROVALS

|             |                                    |
|-------------|------------------------------------|
| <b>RoHS</b> | Compliance with 2011/65/EU         |
| <b>HF</b>   | Compliance with IEC61249-2-21:2003 |

## MAXIMUM RATINGS AND CHARACTERISTICS (T<sub>A</sub>=25°C)

| Parameter                                                                                   |                       | Symbol             | RS1000FL-SW | RS1001FL-SW | RS1002FL-SW | RS1004FL-SW | RS1006FL-SW | RS1008FL-SW | RS1010FL-SW | Unit |
|---------------------------------------------------------------------------------------------|-----------------------|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------|
| Marking                                                                                     |                       |                    | R1A         | R1B         | R1D         | R1G         | R1J         | R1K         | R1M         |      |
| 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         |      |
| Maximum DC blocking voltage                                                                 |                       | V <sub>DC</sub>    | 50          | 100         | 200         | 400         | 600         | 800         | 1000        |      |
| Maximum average forward rectified current                                                   |                       | I <sub>F(AV)</sub> | 1           |             |             |             |             |             |             | A    |
| Surge peak forward current,8.3ms single half sine-wave superimposed on rated load per diode |                       | I <sub>FSM</sub>   | 30          |             |             |             |             |             |             |      |
| Maximum forward voltage @I <sub>F</sub> =1A,T <sub>J</sub> =25°C(Note1)                     |                       | V <sub>F</sub>     | 1.3         |             |             |             |             |             |             | V    |
| Maximum reverse current @rated V <sub>R</sub>                                               | T <sub>J</sub> =25°C  | I <sub>R</sub>     | 5           |             |             |             |             |             |             | uA   |
|                                                                                             | T <sub>J</sub> =125°C |                    | 200         |             |             |             |             |             |             |      |
| Typical Thermal Resistance                                                                  |                       | R <sub>θJA</sub>   | 105         |             |             |             |             |             |             | °C/W |
|                                                                                             |                       | R <sub>θJL</sub>   | 32          |             |             |             |             |             |             |      |
| Typical junction capacitance (Note 3)                                                       |                       | C <sub>J</sub>     | 10          |             |             |             |             |             |             | pF   |
| Operating junction temperature rang                                                         |                       | T <sub>J</sub>     | -55 to +150 |             |             |             |             |             |             | °C   |
| Storage temperature rang                                                                    |                       | T <sub>STG</sub>   | -55 to +150 |             |             |             |             |             |             |      |
| Maximum reverse recovery time (Note 2)                                                      |                       | t <sub>rr</sub>    | 150         |             |             |             | 250         | 500         |             | ns   |

Note 1: Pulse test with PW=0.3ms

Note 2: Reverse Recovery Test Conditions : I<sub>F</sub>=0.5A, I<sub>R</sub>=1.0A, I<sub>RR</sub>=0.25A

Note 3: Measured at 1 MHz and Applied Reverse Voltage of 4.0V D.C

## CHARACTERISTIC CURVES

Fig. 1- Typical Forward Characteristics

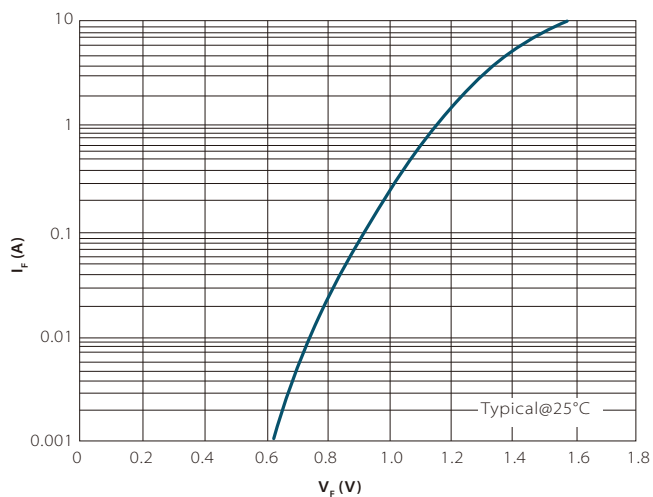


Fig. 2-Typical Junction Capacitance

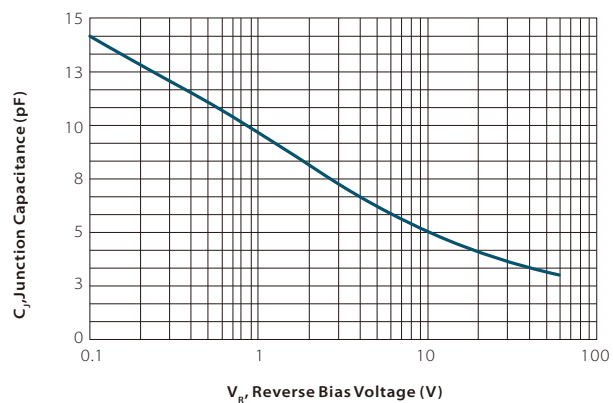


Fig. 3-Forward Surge Current Derating Curve

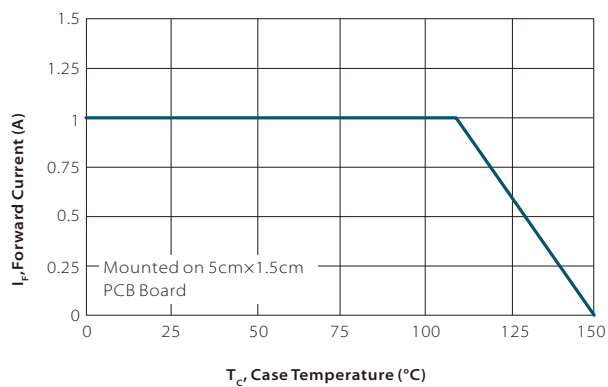
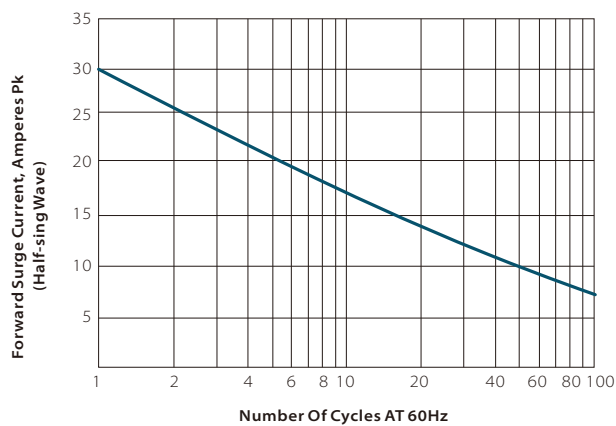
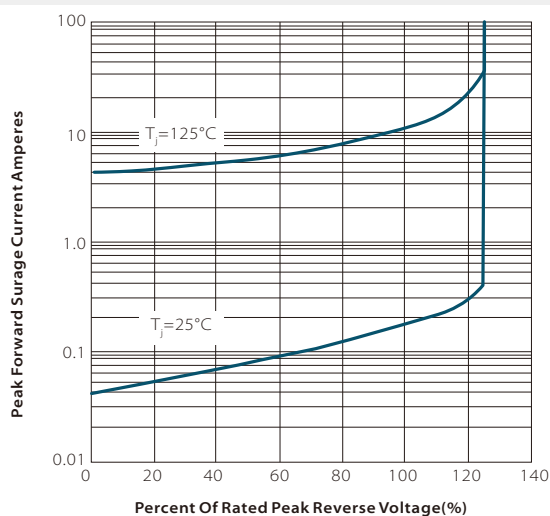


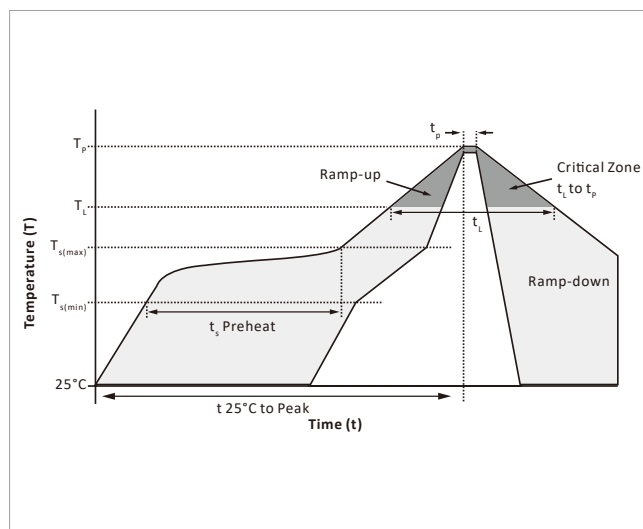
Fig. 4-Maximum Non-repetitive Surge Current



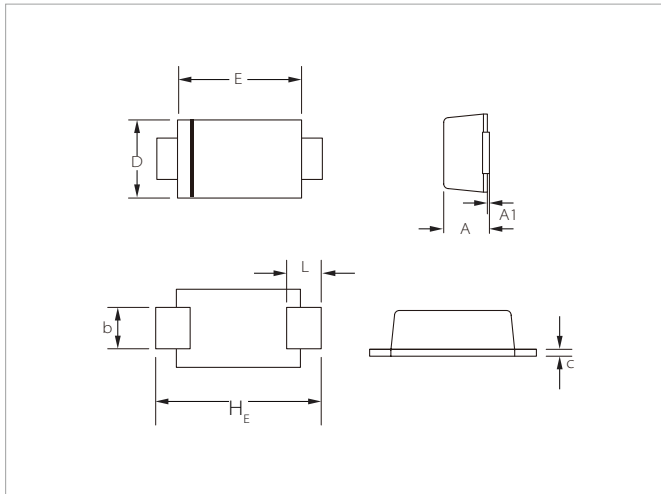
**Fig. 5-Typical Reverse Leakage Characteristics**


## SOLDERING PARAMETERS

| Reflow Condition                                      |                                  | Lead-free assembly |
|-------------------------------------------------------|----------------------------------|--------------------|
| Pre Heat                                              | Temperature Max ( $T_{s(min)}$ ) | 150°C              |
|                                                       | Temperature Max ( $T_{s(max)}$ ) | 200°C              |
|                                                       | Time (min to max) ( $t_s$ )      | 60 – 180 secs      |
| Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak |                                  | 3°C/second max     |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate                  |                                  | 3°C/second max     |
| Reflow                                                | Temperature ( $T_L$ ) (Liquidus) | 217°C              |
|                                                       | Time (min to max) ( $t_L$ )      | 60 – 150 seconds   |
| Peak Temperature ( $T_p$ )                            |                                  | 260°C              |
| Time within 5°C of actual peak Temperature ( $t_p$ )  |                                  | 20 – 40 seconds    |
| Ramp-down Rate                                        |                                  | 6°C/second max     |
| Time 25°C to peak Temperature ( $T_p$ )               |                                  | 8 minutes max.     |
| Do not exceed                                         |                                  | 260°C              |

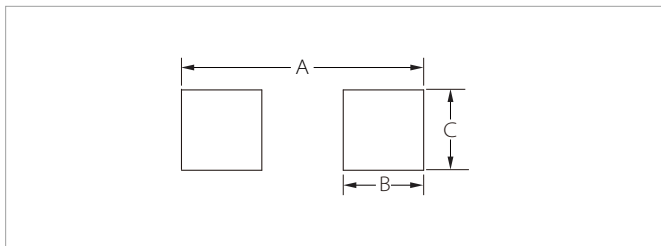


## SOD-123FL PACKAGE INFORMATION



| Ref.           | Millimeters |      | Inches |       |
|----------------|-------------|------|--------|-------|
|                | Min.        | Max. | Min.   | Max.  |
| A              | 0.95        | 1.45 | 0.037  | 0.057 |
| A1             | 0.00        | 0.10 | 0.000  | 0.004 |
| b              | 0.70        | 1.20 | 0.028  | 0.047 |
| c              | 0.05        | 0.30 | 0.002  | 0.012 |
| D              | 1.50        | 2.00 | 0.059  | 0.079 |
| E              | 2.50        | 2.90 | 0.098  | 0.114 |
| L              | 0.35        | 0.90 | 0.014  | 0.035 |
| H <sub>E</sub> | 3.40        | 3.90 | 0.134  | 0.154 |

## RECOMMENDED PAD LAYOUT DIMENSIONS



| Ref. | Millimeters | Inches |
|------|-------------|--------|
| A    | 4.20        | 0.165  |
| B    | 1.50        | 0.059  |
| C    | 1.20        | 0.047  |

## ORDERING INFORMATION

| Part Number             | Component Package | QTY/Reel | Reel Size |
|-------------------------|-------------------|----------|-----------|
| RS1000FL-SW-RS1010FL-SW | SOD-123FL         | 3000PCS  | 7"        |
|                         |                   | 10000PCS | 13"       |

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