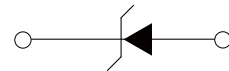


## FEATURES

- For surface mounted applications
- Built-in strain relief, ideal for automated placement
- Low reverse leakage
- High forward surge current capability
- terminals



SOD-123FL



Schematic Symbol

## APPLICATIONS

- Case : Molded plastic body
- Polarity : Polarity symbol marking on body
- Mounting Position : Any

## APPROVALS

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

## MAXIMUM RATINGS ( $T_A=25^{\circ}\text{C}$ )

| Parameter                                                                          |                       | Symbol             | SS12D       | SS13D | SS14D | SS15D | SS16D | SS17D       | SS18D | SS19D | SS110D | SS115D | SS120D | Unit |
|------------------------------------------------------------------------------------|-----------------------|--------------------|-------------|-------|-------|-------|-------|-------------|-------|-------|--------|--------|--------|------|
| Marking                                                                            |                       |                    | D12         | D13   | D14   | D15   | D16   | D17         | D18   | D19   | D110   | D115   | D120   |      |
| Maximum repetitive peak reverse voltage                                            |                       | V <sub>RRM</sub>   | 20          | 30    | 40    | 50    | 60    | 70          | 80    | 90    | 100    | 150    | 200    | V    |
| Maximum RMS voltage                                                                |                       | V <sub>RMS</sub>   | 14          | 21    | 28    | 35    | 42    | 49          | 56    | 63    | 70     | 105    | 140    | V    |
| Maximum DC blocking voltage                                                        |                       | V <sub>DC</sub>    | 20          | 30    | 40    | 50    | 60    | 70          | 80    | 90    | 100    | 150    | 200    | V    |
| Maximum average forward rectified current at T <sub>L</sub> =100 C                 |                       | I <sub>F(AV)</sub> | 1.0         |       |       |       |       |             |       |       |        |        |        | A    |
| Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load |                       | I <sub>FSM</sub>   | 30          |       |       |       |       |             |       |       |        |        |        | A    |
| Maximum instantaneous forward voltage at 1.0A                                      |                       | V <sub>F</sub>     | 0.55        |       |       | 0.70  |       | 0.85        |       |       |        | 0.95   |        | V    |
| Maximum DC reverse current at rated DC blocking voltage                            | T <sub>A</sub> =25°C  | I <sub>R</sub>     | 0.2         |       |       |       |       | 0.05        |       |       |        |        | mA     |      |
|                                                                                    | T <sub>A</sub> =100°C |                    | 20          |       |       |       |       | 5           |       |       |        |        | mA     |      |
| Typical thermal resistance                                                         |                       | R <sub>θJA</sub>   | 85          |       |       |       |       |             |       |       |        |        |        | °C/W |
| Operating junction temperature range                                               |                       | T <sub>J</sub>     | -55 to +125 |       |       |       |       | -55 to +150 |       |       |        |        | °C     |      |
| Storage temperature range                                                          |                       | T <sub>STG</sub>   | -55 to +150 |       |       |       |       |             |       |       |        |        |        | °C   |

## CHARACTERISTIC CURVES

Fig. 1- Derating Curve Output Rectified Current

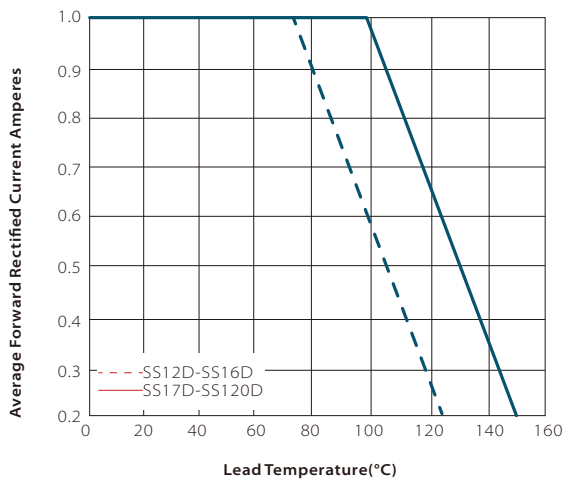


Fig. 2-maximum Non-repetitive Peak Forward Surge Current Perleg

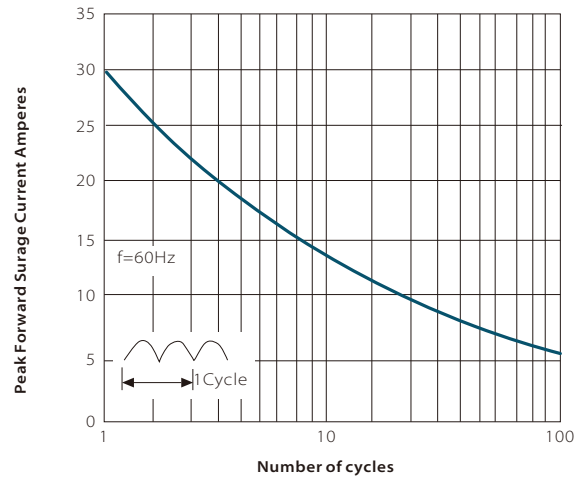


Fig. 3-typical Forward Voltage Characteristics

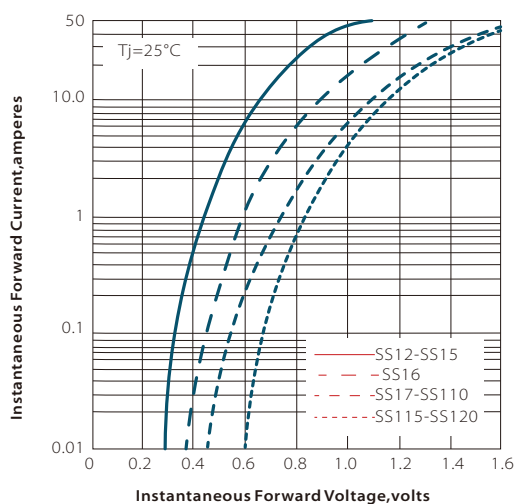
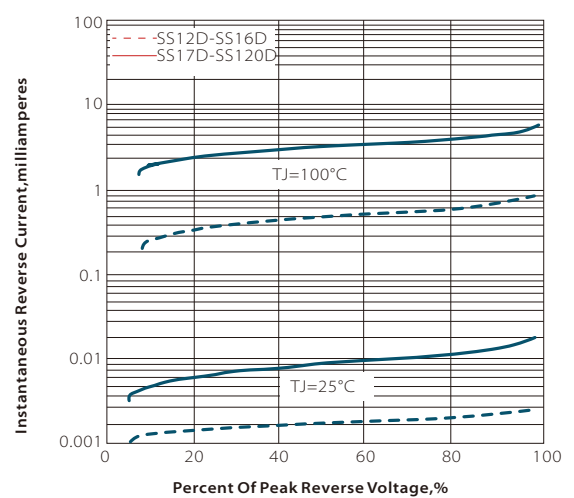
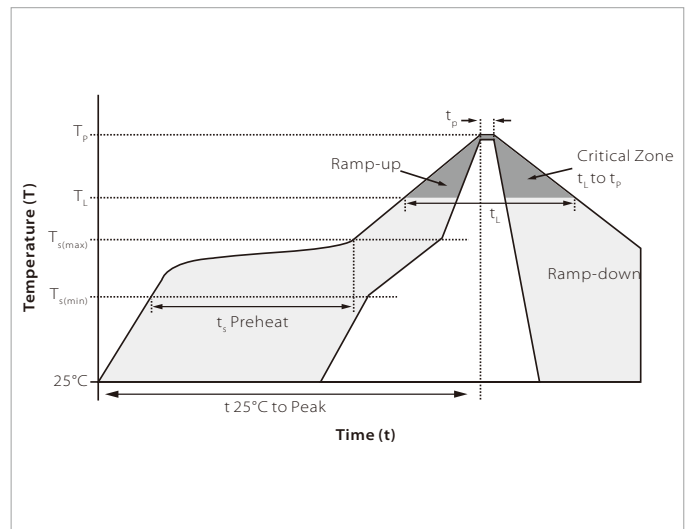


Fig. 4-typical Reverse Leakage Characteristics

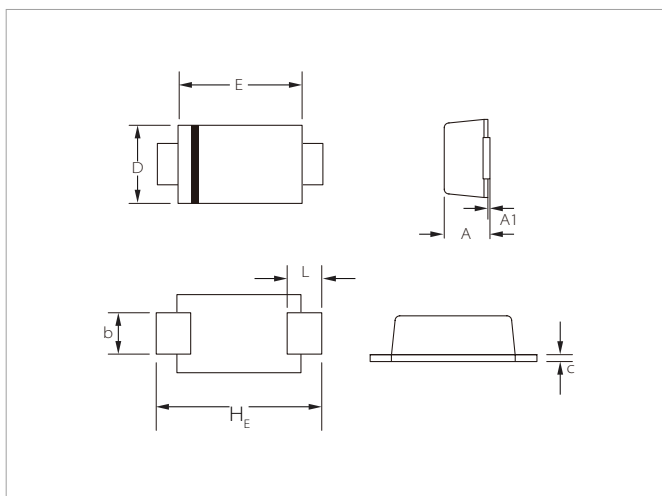


## SOLDERING PARAMETERS

| 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              |

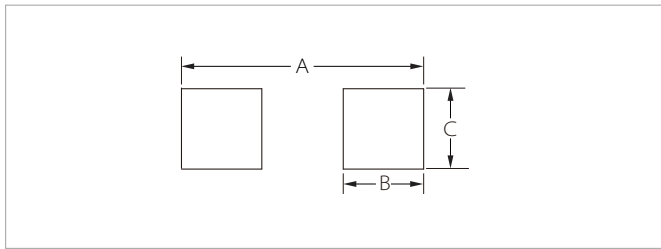


## SOD-123FL PACKAGE INFORMATION



| 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 |
|--------------|-------------------|----------|-----------|
| SS12D-SS120D | SOD-123FL         | 3000PCS  | 7"        |

To find your local partner within Semiwell's website : [www.semiwell.com.cn](http://www.semiwell.com.cn)

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