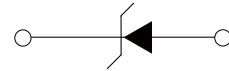


## FEATURES

- | 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

## MECHANICAL DATA

- | 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          | SS 12D                   | SS 13D | SS 14D | SS 15D | SS 16D | SS 17D                    | SS 18D      | SS 19D | SS 110D | SS 115D | SS 120D | Unit                        |                    |
|--|-----------------|--------------------------|--------|--------|--------|--------|---------------------------|-------------|--------|---------|---------|---------|-----------------------------|--------------------|
| Marking  |                 | D12                      | D13    | D14    | D15    | D16    | D17                       | D18         | D19    | D110    | D115    | D120    |                             |                    |
| Maximum Repetitive Peak Reverse Voltage  | $V_{RRM}$       | 20                       | 30     | 40     | 50     | 60     | 70                        | 80          | 90     | 100     | 150     | 200     | V                           |                    |
| Maximum RMS Voltage  | $V_{RMS}$       | 14                       | 21     | 28     | 35     | 42     | 49                        | 56          | 63     | 70      | 105     | 140     | V                           |                    |
| Maximum DC Blocking Voltage  | $V_{DC}$        | 20                       | 30     | 40     | 50     | 60     | 70                        | 80          | 90     | 100     | 150     | 200     | V                           |                    |
| Maximum Average Forward Rectified Current at $T_L=100^{\circ}\text{C}$             | $I_{F(AV)}$     | 1.0                      |        |        |        |        |                           |             |        |         |         |         | A                           |                    |
| Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed On Rated Load | $I_{FSM}$       | 30                       |        |        |        |        |                           |             |        |         |         |         | A                           |                    |
| Maximum Instantaneous Forward Voltage at 1.0A                                      | $V_F$           | 0.55                     |        |        | 0.70   |        |                           | 0.85        |        |         | 0.95    |         |                             | V                  |
| Maximum DC Reverse Current at Rated DC Blocking Voltage                            | $I_R$           | $T_A=25^{\circ}\text{C}$ |        |        |        |        | $T_A=100^{\circ}\text{C}$ |             |        |         |         |         |                             |                    |
|  |                 | 0.2                      |        |        |        |        | 0.05                      |             |        |         |         | mA      |                             |                    |
|  |                 | 20                       |        |        |        |        | 5                         |             |        |         |         | mA      |                             |                    |
| Typical Thermal Resistance   | $R_{\theta JA}$ | 85                       |        |        |        |        |                           |             |        |         |         |         | $^{\circ}\text{C}/\text{W}$ |                    |
| Operating Junction Temperature Range   | $T_J$           | -55 to +125              |        |        |        |        |                           | -55 to +150 |        |         |         |         |                             | $^{\circ}\text{C}$ |
| Storage Temperature Range  | $T_{STG}$       | -55 to +150              |        |        |        |        |                           |             |        |         |         |         | $^{\circ}\text{C}$          |                    |

# CHARACTERISTIC CURVES

Fig. 1- Derating Curve Output Rectified Current

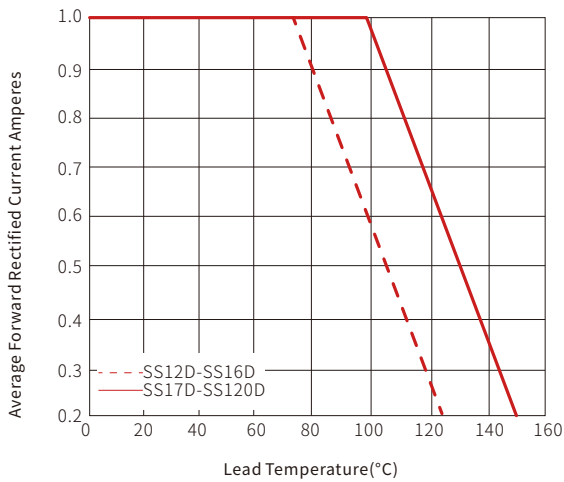


Fig. 2-Maximum Non-repetitive Peak Forward Surge Current Perleg

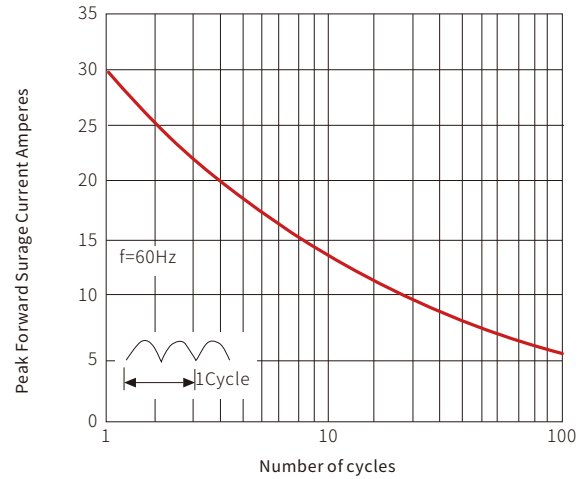


Fig. 3-Typical Forward Voltage Characteristics

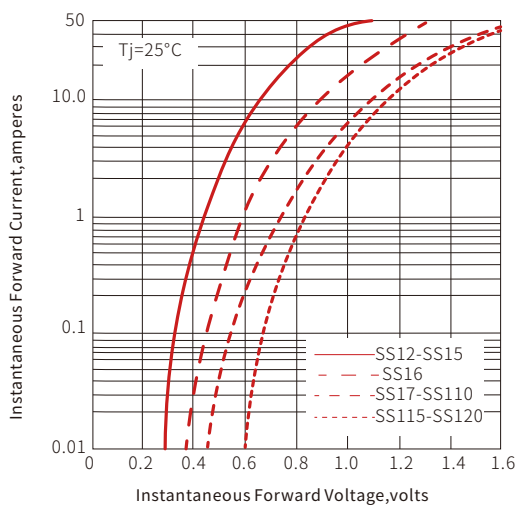
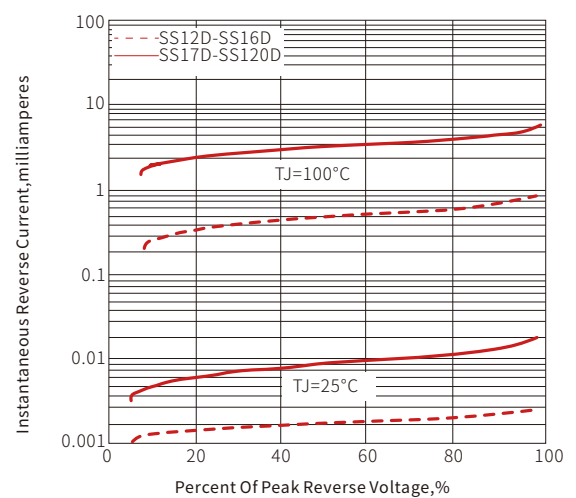
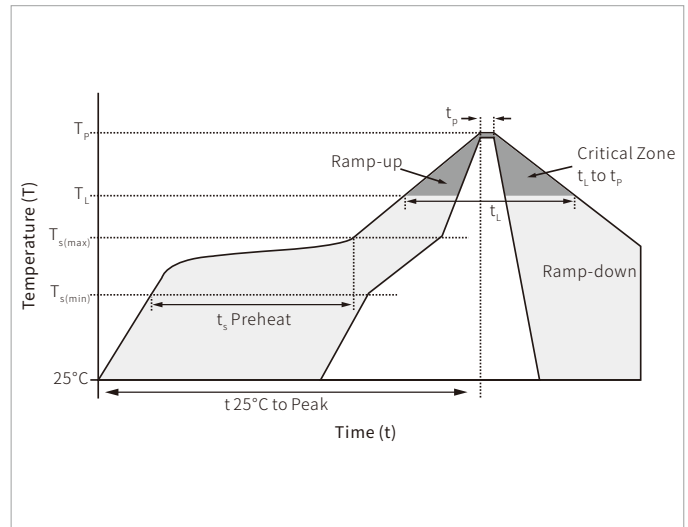


Fig. 4-Typical Reverse Leakage Characteristics

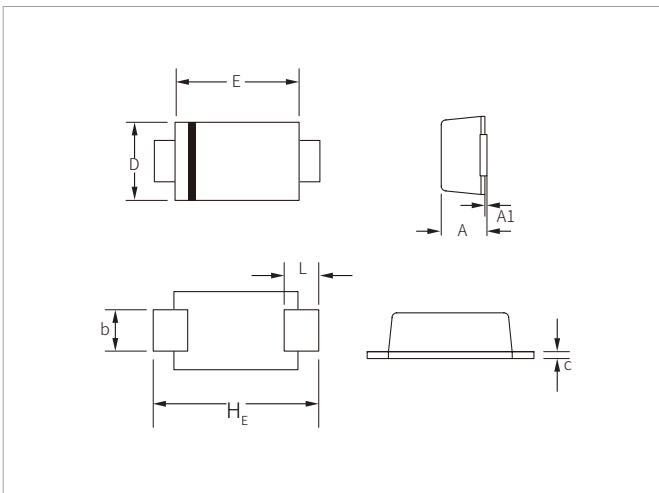


## SOLDERING PARAMETERS

| 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              |

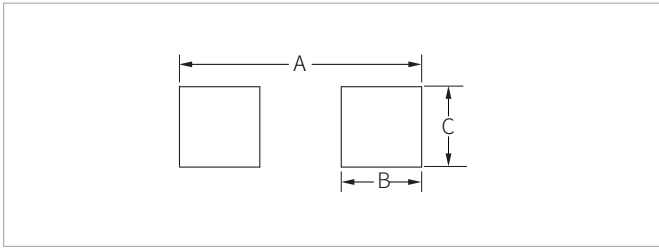


## SOD-123FL PACKAGE INFORMATION



| 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 |
| $H_E$ | 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"        |

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