# SS1040LFL

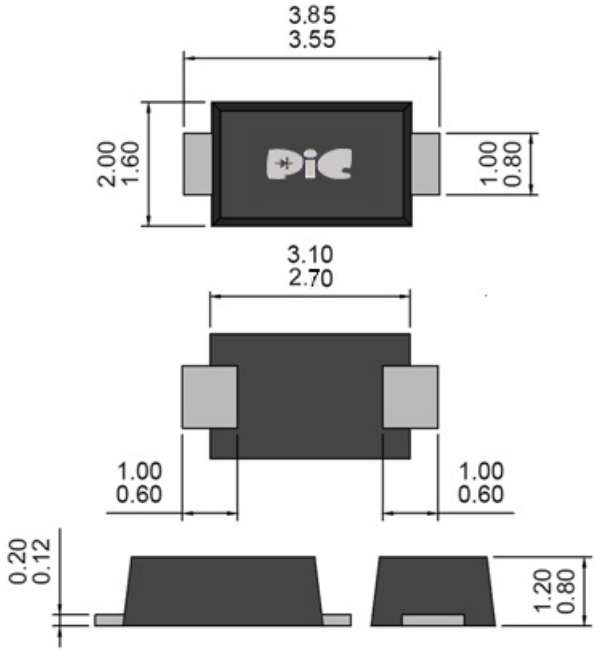
## 1.0A Low $V_F$ Schottky Barrier Rectifier

### Primary Characteristics

| | | |
|---|---|---|
| $I_F$ | 1.0 | A |
| $V_{RRM}$ | 40 | V |
| $I_{FSM}$ | 25.0 | A |
| $V_F$ | 0.45 | V |

### Package Outline Dimensions

SOD-123FL




Unit: millimeters

### Features

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- High Surge Capability
- High Current Capability and Low Forward Voltage Drop
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Green molding compound as per IEC61249 Std. . (Halogen Free)

### Mechanical Data

- Case: Molded plastic, SOD-123FL
- Terminals: Solderable per MIL-STD-750, Method 2026
- Polarity : Color band cathode

### Maximum Ratings (TA=25$^{O}$C unless otherwise noted)

| Parameter | Symbol | SS1040LFL | UNITS |
|---|---|---|---|
| Marking Code | - | 40L | - |
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage @$I_R$=1.0mA<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 40 | Volts |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 28 | Volts |
| Average Rectified Output Current | $I_O$ | 1 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms s ingle half sine-wave superimposed on rated load | $I_{FSM}$ | 25 | A |
| Power Dissipation (Note 1) | $P_D$ | 450 | mW |
| Typical Thermal Resistance Junction to Ambient (Note 1) | $R_{\theta JA}$ | 222 | $^{O}$C /W |
| Operating and Storage Temperature Range | $T_J$ , $T_{STG}$ | -55 to +125 | $^{O}$C |
| Reverse Breakdown Voltage @ $I_R$=1mA (Note 2) | $V_{(BR)R}$ | 40 | V |
| Forward Voltage @ $I_F$=1A | $V_F$ | 0.45 | V |
| Reverse Leakage Current @ $V_R$=40V (Note 2) | $I_R$ | 1.0 | mA |

Notes:

(1) FR-4 Board = 70 x 60 x 1mm.

(2) Short duration pulse test used to minimize self-heating effect.

## Rating & Characteristic Curves

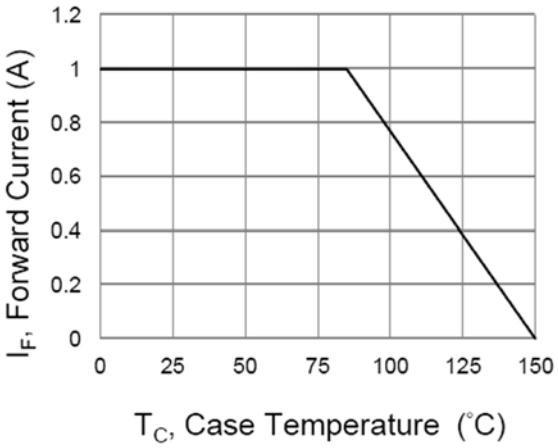



Fig. 1 Forward Current Derating Curve

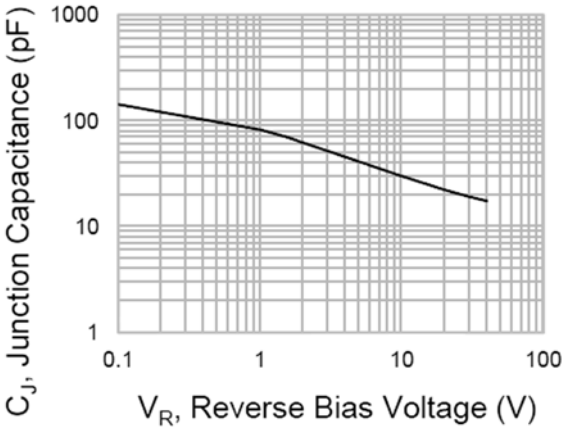



Fig. 2 Typical Junction Capacitance

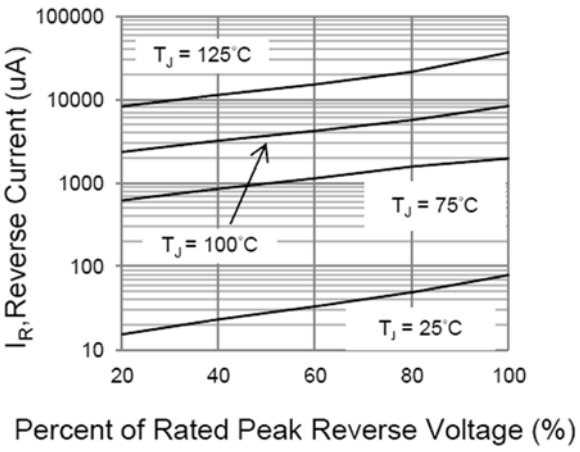



Fig. 3 Typical Reverse Characteristics

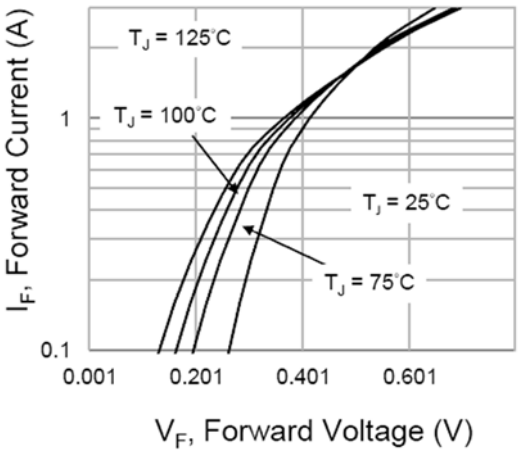



Fig. 4 Typical Forward Characteristics

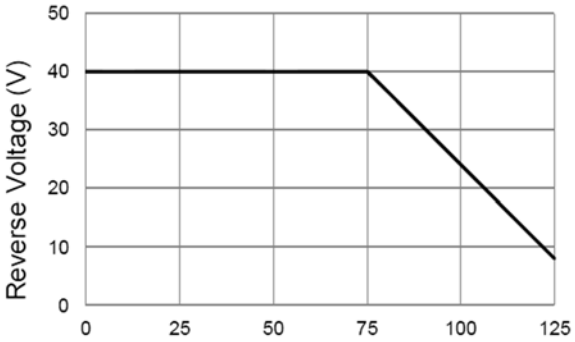
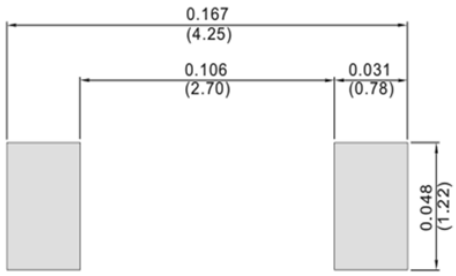



Fig. 5 Operating Temperature Derating Curve

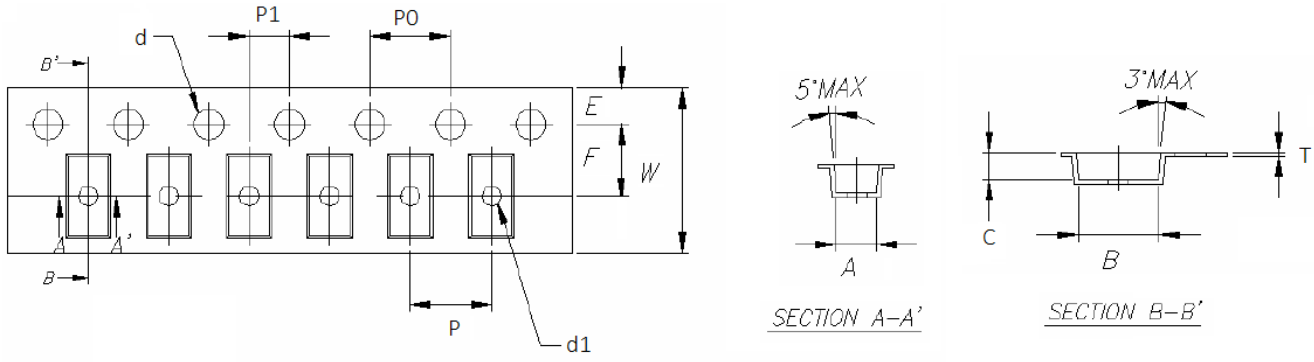
## Pad Layout

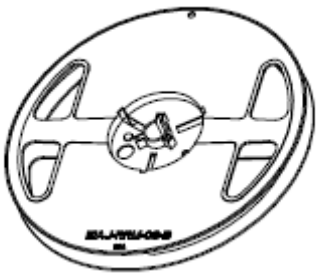



Unit: mm

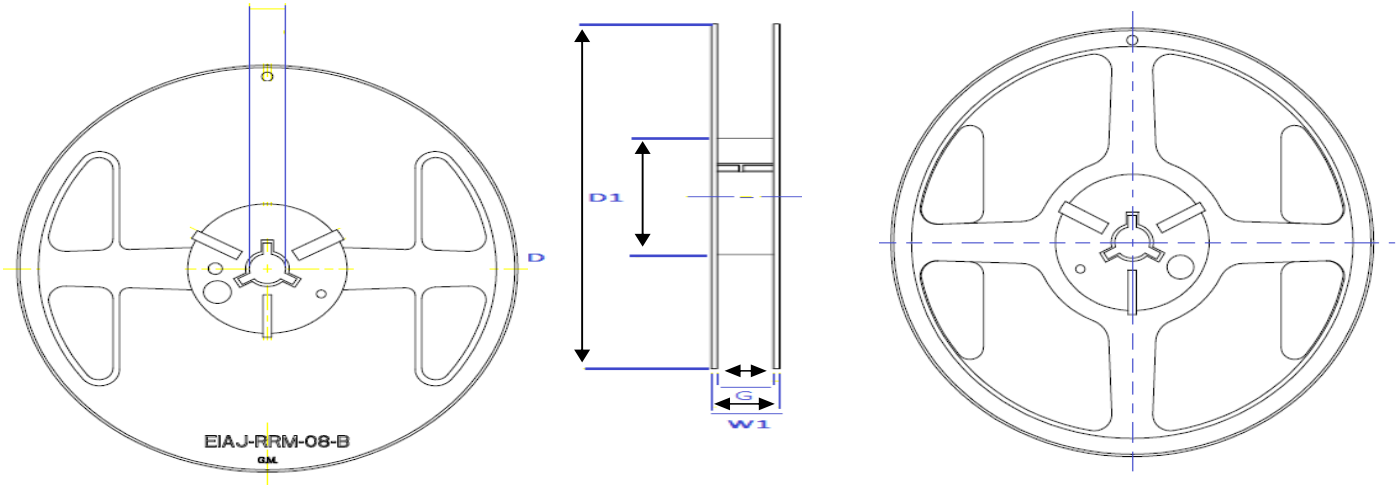
## Packaging Specifications

| Package | W (mm) | A (mm) | B (mm) | C (mm) | d1 (mm) | d (mm) | E (mm) | F (mm) | P (mm) | P0 (mm) | P1 (mm) | T (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SOD-123FL | 8±0.2 | 2.00±0.1 | 3.85±0.1 | 1.1±0.1 | 1.0 | 1.50±0.1 | 1.75±0.1 | 3.5±0.05 | 4±0.1 | 4±0.05 | 2±0.05 | 0.23±0.05 |
| SOD-123HE | 8±0.3 | 2.00±0.1 | 4.00±0.1 | 1.45±0.1 | 1.0 | 1.55±0.1 | 1.75±0.1 | 3.5±0.05 | 4±0.1 | 4±0.10 | 2±0.05 | 0.23±0.10 |
| SOD-323FL | 8±0.2 | 1.37±0.1 | 2.75±0.1 | 0.85±0.1 | 1.00 | 1.60±0.1 | 1.75±0.1 | 3.50±0.05 | 4±0.1 | 4±0.10 | - | 0.20±0.10 |
| SOD-323HE | 8±0.3 | 1.60±0.1 | 2.80±0.1 | 0.95±0.1 | 1.0 | 1.50±0.1 | 1.75±0.1 | 3.5±0.05 | 4±0.1 | 4±0.10 | 2±0.05 | 0.23±0.10 |
| SMAF | 12±0.3 | 2.9±0.1 | 5.5±0.1 | 2.1±0.1 | 1.5 | 1.55±0.1 | 1.75±0.1 | 5.5±0.05 | 4±0.1 | 4±0.10 | 2±0.05 | 0.23±0.10 |
| SMA-S | 12±0.2 | 2.65±0.1 | 5.25±0.1 | 1.35±0.1 | 1.0 | 1.55±0.1 | 1.75±0.1 | 5.5±0.05 | 4±0.1 | 4±0.05 | 2±0.05 | 0.23±0.10 |
| SMA-HE | 12±0.2 | 2.65±0.1 | 5.25±0.1 | 1.35±0.1 | 1.0 | 1.55±0.1 | 1.75±0.1 | 5.5±0.05 | 4±0.1 | 4±0.05 | 2±0.05 | 0.23±0.10 |

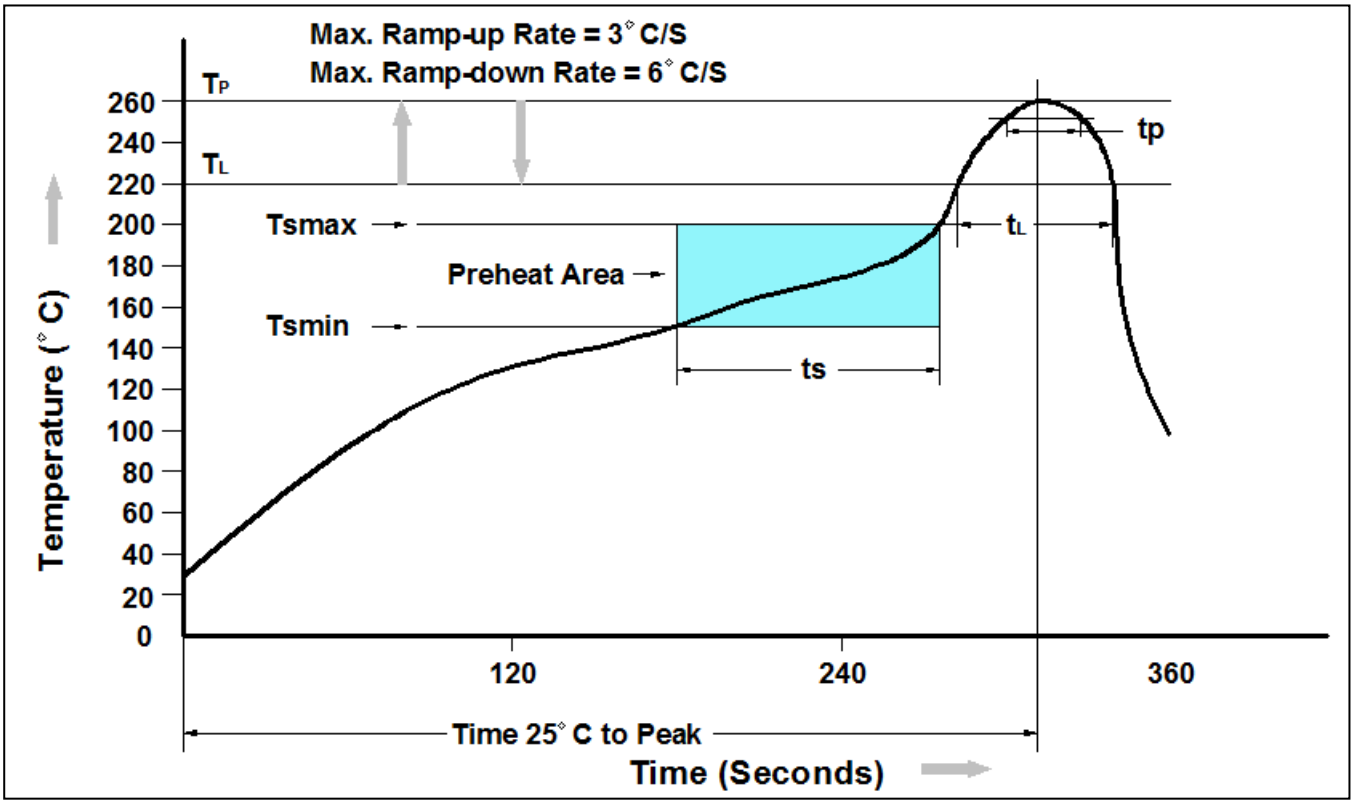


| Package | D (max.) (mm) | D1 (min.) (mm) | D2 (mm) | G (min.) (mm) | W1 (min.) (mm) |
|---|---|---|---|---|---|
| SOD-123FL | 178 | 50.0 | 13.0±0.2 | 8.4 | 11.4 |
| SOD-123HE | 178 | 50.0 | 13.0±0.2 | 8.4 | 11.4 |
| SOD-323FL | 178 | 50.2 | 13.0±0.2 | 8.0 | 11.5 |
| SOD-323HE | 178 | 50.0 | 13.0±0.2 | 8.4 | 11.4 |
| SMAF | 178 | 50.0 | 13.0±0.2 | 12.4 | 18.0 |
| | 330 | 50.0 | 13.0±0.2 | 12.4 | 18.0 |
| SMA-S | 178 | 50.0 | 13.0±0.2 | 12.4 | 18.0 |
| SMA-HE | 178 | 50.0 | 13.0±0.2 | 12.4 | 18.0 |



## Recommand IR Reflow Soldering Thermal Profile




| Profile Feature | Pb-Free Assembly Profile |
|---|---|
| Temperature Min. (Tsmin) | 150°C |
| Temperature Max. (Tsmax) | 200°C |
| Time (ts) from (Tsmin to Tsmax) | 60-120 seconds |
| Average Ramp-up Rate (tL to tP) | 3°C/second max. |
| Liquidous Temperature (TL) | 217°C |
| Time (tL) Maintained Above (TL) | 60 – 150 seconds |
| Peak Temperature | 260°C +0°C / -5°C |
| Time (tP) within 5°C of actual Peak Temperature | 30 seconds |
| Ramp-down Rate (TP to TL) | 6°C/second max |
| Time 25°C to Peak Temperature | 8 minutes max. |

## Ordering Information

| Part Number | Description | Quantity |
|---|---|---|
| SS1040LFL | SOD-123FL Reel | 3000 pcs |

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