# RS1000-1010FL

Ultra-Fast Recovery Rectifier Diode

## FEATURES

- Ideal For Automated Placement
- Glass Passivated Chip Junction
- High Forward Surge Capability
- Meets MSL Level1,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

| | |
|---|---|
| **RoHS** | Compliance with 2011/65/EU |
| **HF** | Compliance with IEC61249-2-21:2003 |

## MAXIMUM RATINGS AND CHARACTERISTICS ($T_A$=25°C )

| Parameter | | Symbol | RS1000 FL | RS1001 FL | RS1002 FL | RS1004 FL | RS1006 FL | RS1008 FL | RS1010 FL | Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| Marking | | | R1A | R1B | R1D | R1G | R1J | R1K | R1M | |
| Maximum Repetitive Peak Reverse Voltage | | $V_{RRM}$ | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Maximum RMS Voltage | | $V_{RMS}$ | 35 | 70 | 140 | 280 | 420 | 560 | 700 | |
| Maximum DC Blocking Voltage | | $V_{DC}$ | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | |
| Maximum Average Forward Rectified Current | | $I_{F(AV)}$ | 1 | | | | | | | A |
| Surge Peak Forward Current,8.3ms Single Half Sine-Wave Superimposed On Rated Load Per Diode | | $I_{FSM}$ | 30 | | | | | | | |
| Maximum Forward Voltage @$I_F$=1A,$T_J$=25°C(Note1) | | $V_F$ | 1.3 | | | | | | | V |
| Maximum Reverse Current @Rated $V_R$ | $T_J$=25°C | $I_R$ | 5 | | | | | | | μA |
| | $T_J$=125°C | | 200 | | | | | | | |
| Typical Thermal Resistance | | $R_{\theta J-A}$ | 105 | | | | | | | °C/W |
| | | $R_{\theta J-L}$ | 32 | | | | | | | |
| Typical Junction Capacitance (Note 3) | | $C_J$ | 10 | | | | | | | pF |
| Operating Junction Temperature Rang | | $T_J$ | -55 to +150 | | | | | | | °C |
| Storage Temperature Rang | | $T_{STG}$ | -55 to +150 | | | | | | | |
| Maximum Reverse Recovery Time (Note 2) | | $t_{rr}$ | 150 | | | | 250 | 500 | | ns |

Note 1: Pulse test with PW=0.3mS
Note 2: Reverse Recovery Test Conditions :$I_F$=0.5A,$I_R$=1.0A,$I_{RR}$=0.25A
Note 3: Measured at 1 MHz and Applied Reverse Voltage of 4.0V D.C

# CHARACTERISTIC CURVES

Fig. 1- Typical Forward Characteristics

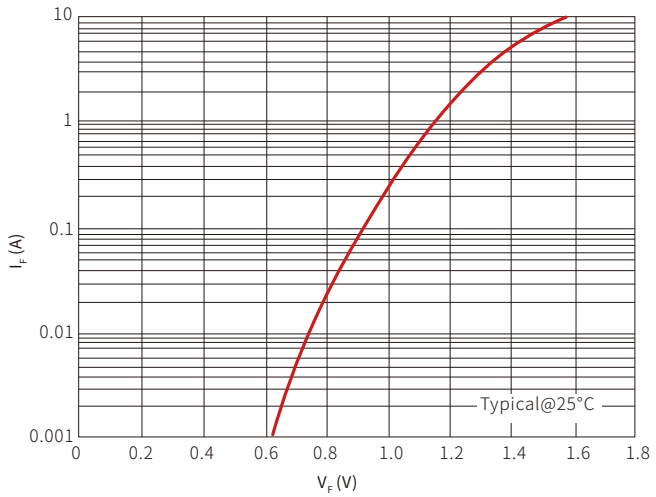



Fig. 2-Typical Junction Capacitance

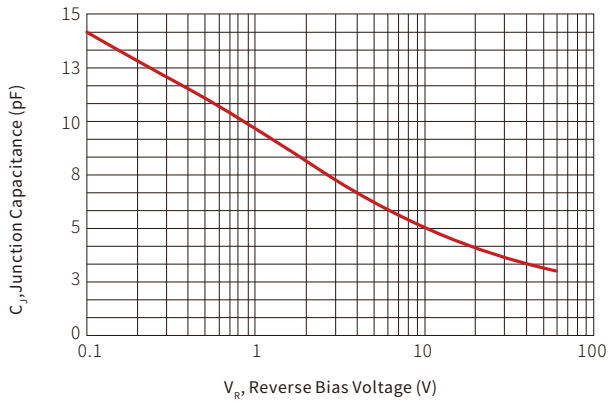



Fig. 3-Forward Surge Current Derating Curve

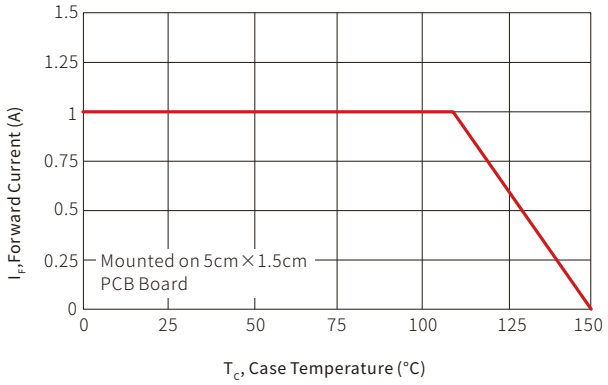



Fig. 4-Maximuim Non-Repetitive Surge Current

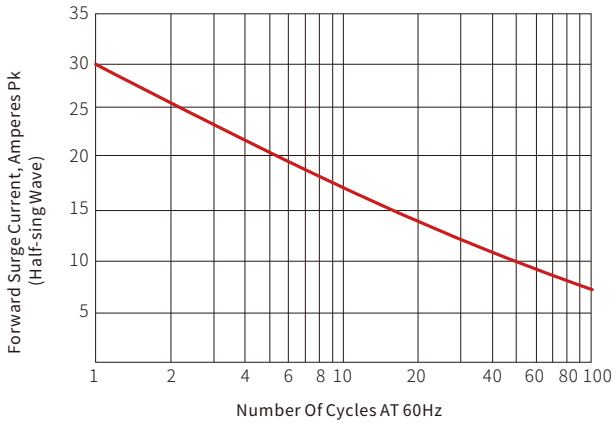
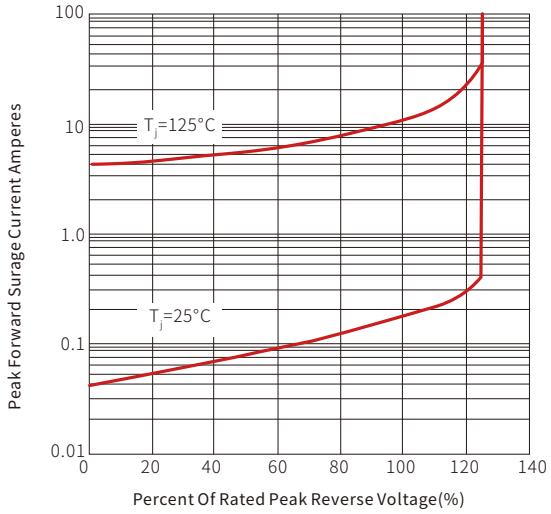
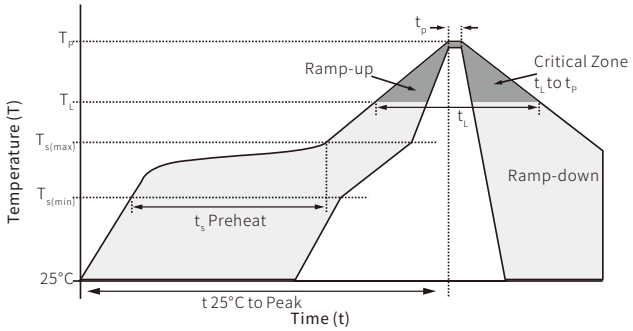


Fig. 5-Typical Reverse Leakage Characteristics

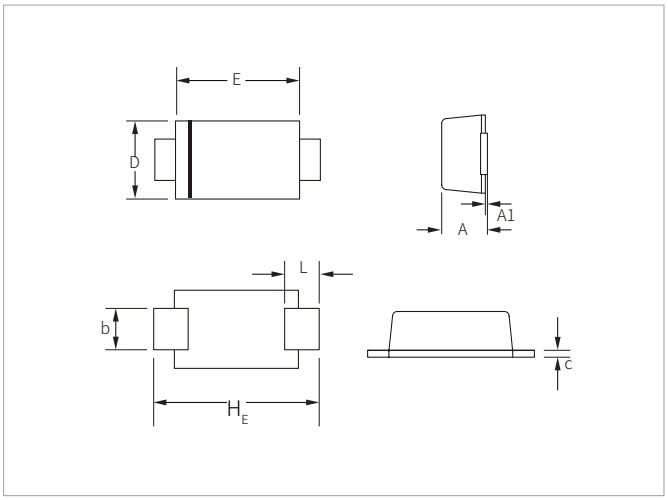



# SOLDERING PARAMETERS

| 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 |

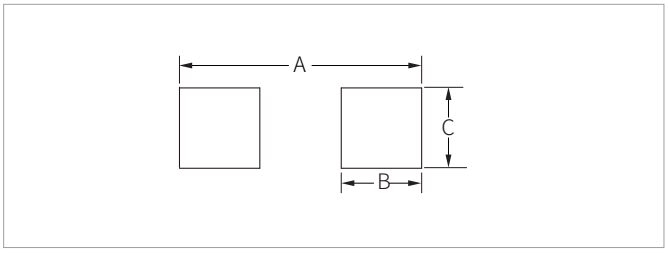


# SOD-123FL PACKAGE INFORMATION




| 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 | 3.10 | 0.098 | 0.122 |
| 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 |
|---|---|---|---|
| RS1000-1010FL | SOD-123FL | 3000PCS | 7” |
| | | 10000PCS | 13” |

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