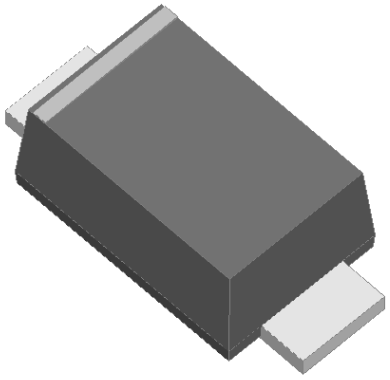
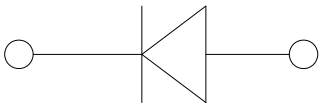
# Surface Mount Fast Recovery Rectifier





## Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- Fast switching for fast recovery
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C

## Typical Applications

For use in fast switching rectification of power supply, inverters, converters, and freewheeling diodes for consumer, and telecommunication.

## Mechanical Date

- **Package**: SOD-123FL
  Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals**: Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** Cathode line denotes the cathode end

## ■Maximum Ratings ($T_a$=25℃ Unless otherwise specified）

| PARAMETER | SYMBOL | UNIT | F1A | F1B | F1D | F1G | F1J | F1K | F1M |
|---|---|---|---|---|---|---|---|---|---|
| Device marking code | | | F1A | F1B | F1D | F1G | F1J | F1K | F1M |
| Maximum Repetitive Peak Reverse Voltage | $V_{RRM}$ | V | 50 | 100 | 200 | 400 | 600 | 800 | 1000 |
| Maximum RMS Voltage | $V_{RMS}$ | V | 35 | 70 | 140 | 280 | 420 | 560 | 700 |
| Maximum DC blocking Voltage | $V_{DC}$ | V | 50 | 100 | 200 | 400 | 600 | 800 | 1000 |
| Average rectified output current @60Hz sine wave, Resistance load, TL (FIG.1) | $I_O$ | A | 1.0 | | | | | | |
| Forward Surge Current (Non-repetitive) @60Hz Half-sine wave,1 cycle, Tj=25℃ | $I_{FSM}$ | A | 30 | | | | | | |
| Forward Surge Current (Non-repetitive) @1ms, square wave, 1 cycle, Tj=25℃ | | | 60 | | | | | | |
| Current squared time @1ms≤t≤8.3ms Tj=25℃ | $I^2t$ | $A^2s$ | 3.735 | | | | | | |
| Storage temperature | $T_{stg}$ | ℃ | -55 ~ +150 | | | | | | |
| Junction temperature | $T_j$ | ℃ | -55 ~ +150 | | | | | | |

## ■Electrical Characteristics（$T_a$=25℃ Unless otherwise specified）

| PARAMETER | SYMBOL | UNIT | TEST CONDITIONS | F1A | F1B | F1D | F1G | F1J | F1K | F1M |
|---|---|---|---|---|---|---|---|---|---|---|
| Maximum instantaneous forward voltage | $V_F$ | V | $I_{FM}$=1.0A | 1.3 | | | | | | |
| Maximum reverse recovery time | $t_{rr}$ | ns | $I_F$=0.5A, $I_R$=1.0A, $I_{rr}$=0.25A | 150 | | | | 250 | 500 | |
| Maximum DC reverse current at rated DC blocking voltage | $I_R$ | μA | $T_j$=25℃ | 5 | | | | | | |
| | | | $T_j$=125℃ | 100 | | | | | | |
| Typical junction capacitance | Cj | pF | Measured at 1MHz and Applied Reverse Voltage of 4.0 V.D.C | 11 | | | | 6 | | |

## ■Thermal Characteristics （$T_a$=25℃ Unless otherwise specified）

| PARAMETER | SYMBOL | UNIT | F1A | F1B | F1D | F1G | F1J | F1K | F1M |
|---|---|---|---|---|---|---|---|---|---|
| Typical Thermal resistance | $R_{\theta J-A}$(1) | ℃/W | 68 | | | | | | |
| | $R_{\theta J-L}$(1) | | 20 | | | | | | |
| | $R_{\theta J-C}$(1) | | 18 | | | | | | |

Note：

（1）Thermal resistance between junction and ambient and between junction and lead mounted on P.C.B with 3mm*3mm copper pad areas.

## ■ Characteristics (Typical)

FIG.1: Io-TL Curve

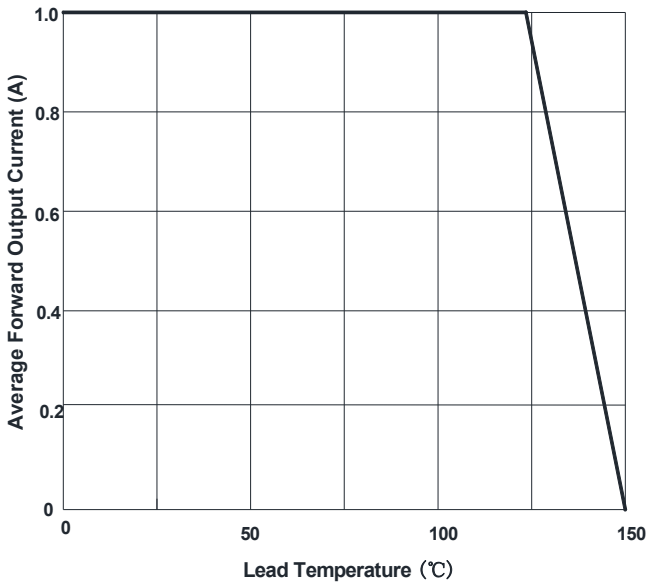



FIG.2: Forward Surge Current Capability

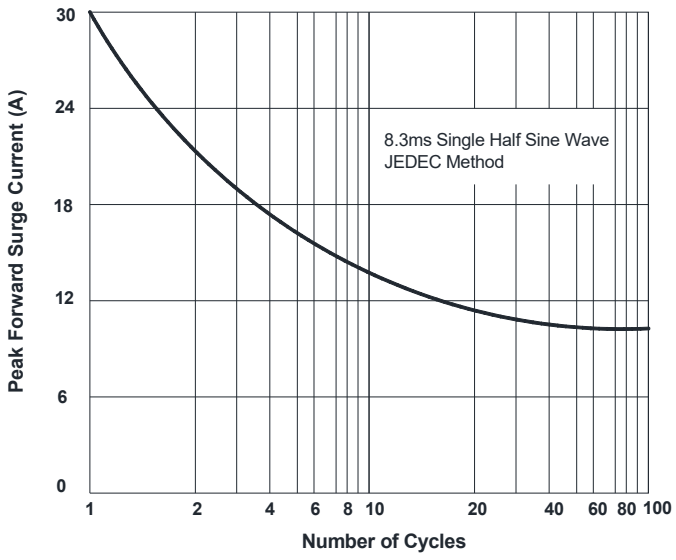



FIG.3: Typical Forward Voltage

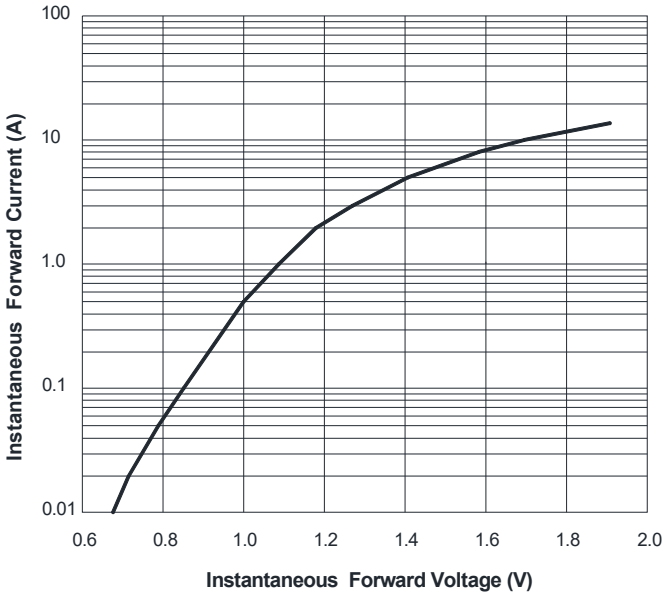



FIG.4: Typical Reverse Characteristics

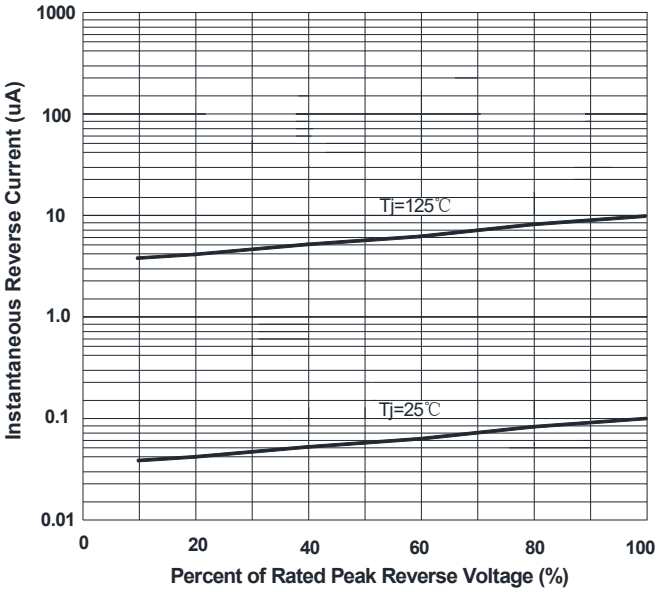
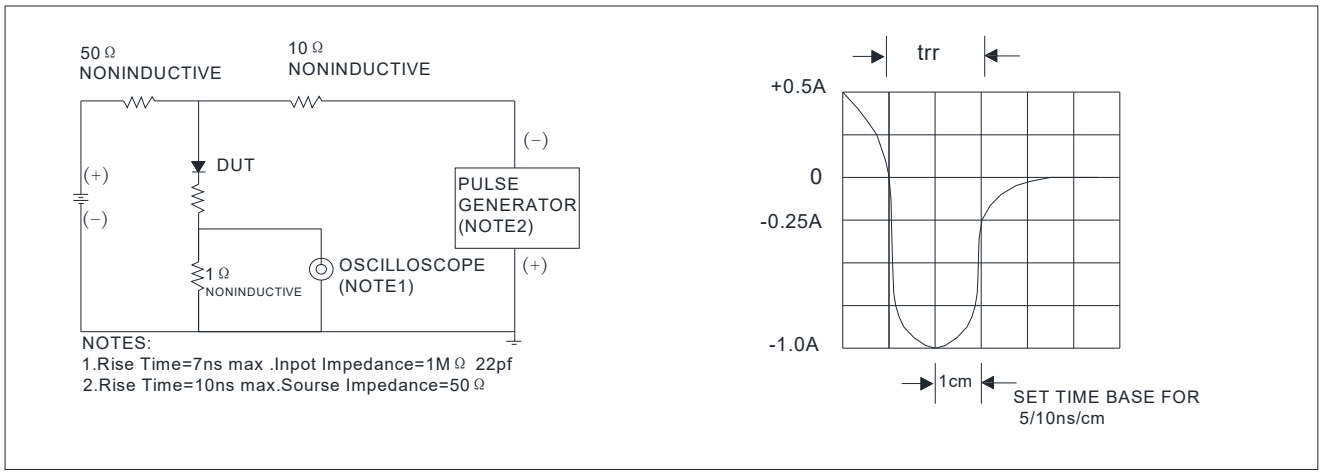


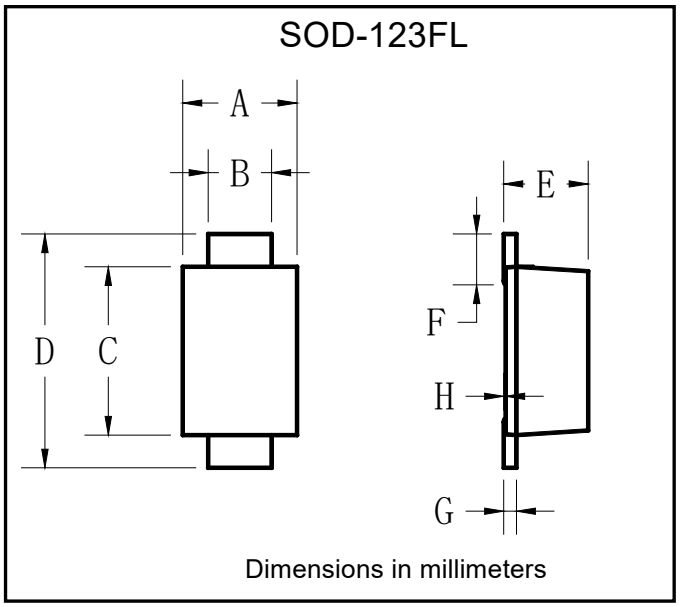
**FIG.5: Diagram of circuit and Testing wave form of reverse recovery time**




## ■Ordering Information (Example)

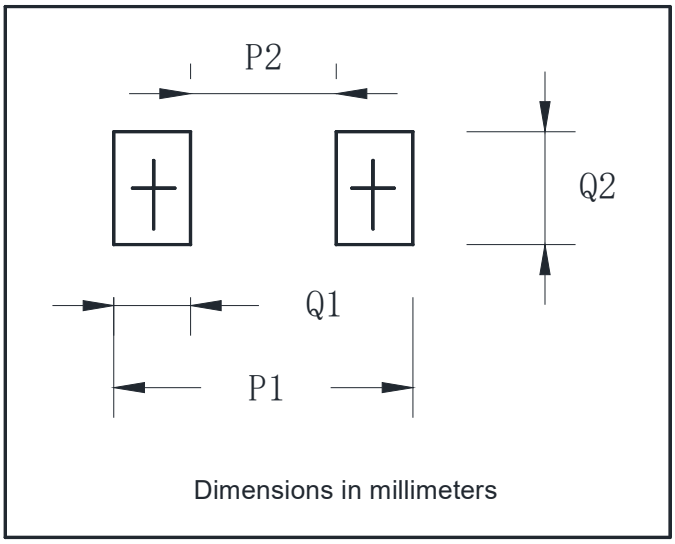
| PREFERED P/N | PACKING CODE | UNIT WEIGHT(g) | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---|---|---|---|---|---|---|
| F1A THRU F1M | F1 | Approximate 0.0169 | 3000 | 30000 | 120000 | 7” reel |
| F1A THRU F1M | F2 | Approximate 0.0169 | 2500 | 25000 | 100000 | 7” reel |
| F1A THRU F1M | F3 | Approximate 0.0169 | 10000 | / | 210000 | 13” reel |
| F1A THRU F1M | F4 | Approximate 0.0169 | 3000 | 54000 | 108000 | 7” reel |
| F1A THRU F1M | F5 | Approximate 0.0169 | 10000 | / | 160000 | 13” reel |
| F1A THRU F1M | F6 | Approximate 0.0169 | 3000 | 12000 | 60000 | 7” reel |

## ■ Outline Dimensions




| SOD-123FL | | |
|---|---|---|
| Dim | Min | Max |
| A | 1.60 | 1.90 |
| B | 0.90 | 1.10 |
| C | 2.55 | 2.85 |
| D | 3.60 | 3.90 |
| E | 1.00 | 1.20 |
| F | 0.40 | 0.90 |
| G | 0.10 | 0.25 |
| H | 0.00 | 0.05 |

## ■ Suggested pad layout




| SOD-123FL | |
|---|---|
| Dim | Millimeters |
| P1 | 3.90 |
| P2 | 1.90 |
| Q1 | 1.00 |
| Q2 | 1.50 |

## Disclaimer

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