

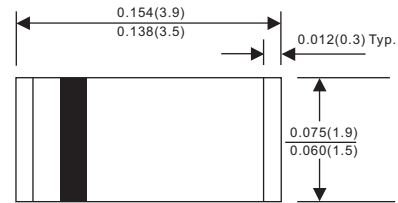


1.0A SUFRACE MOUNT SUPER FAST RECTIFIERS - 50-600V SOD-123-L PACKAGE

Features

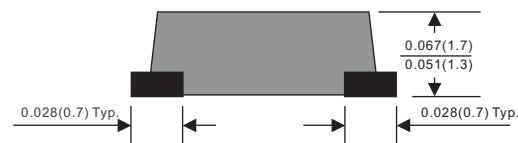
- Batch process design, excellent power dissipation offers better reverse leakage current and thermal resistance.
- Low profile surface mounted application in order to optimize board space.
- Tiny plastic SMD package.
- High current capability.
- Superfast recovery time for switching mode application.
- High surge current capability.
- Glass passivated chip junction.
- Moisture Sensitivity Level 1

SOD-123-L



Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-123 / MINI SMA
- Terminals : Plated terminals, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.018 gram



Dimensions in inches and (millimeters)

Maximum ratings (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

| PARAMETER | CONDITIONS | Symbol | MIN. | TYP. | MAX. | UNIT |
|----------------------------|--|-----------------|------|------|------|--------------------|
| Forward rectified current | Ambient temperature = 50°C | I_O | | | 1.0 | A |
| Forward surge current | 8.3ms single halfsine-wave superimposed on rate load (JEDEC methode) | I_{FSM} | | | 25 | A |
| Reverse current | $V_R = V_{RRM}$ $T_A = 25^\circ\text{C}$ | I_R | | | 5.0 | uA |
| | $V_R = V_{RRM}$ $T_A = 100^\circ\text{C}$ | | | | 100 | |
| Thermal resistance | Junction to ambient | $R_{\theta JA}$ | | 42 | | $^\circ\text{C/W}$ |
| Diode junction capacitance | f=1MHz and applied 4V DC reverse voltage | C_J | | 10 | | pF |
| Storage temperature | | T_{STG} | -65 | | +175 | $^\circ\text{C}$ |

| SYMBOLS | V_{RRM}^{*1} (V) | V_{RMS}^{*2} (V) | V_R^{*3} (V) | V_F^{*4} (V) | T_{RR}^{*5} (nS) | Operating temperature T_J , ($^\circ\text{C}$) |
|---------|-----------------------|-----------------------|-------------------|-------------------|-----------------------|---|
| SFM11-M | 50 | 35 | 50 | 0.95 | 35 | -55 to +150 |
| SFM12-M | 100 | 70 | 100 | | | |
| SFM13-M | 150 | 105 | 150 | | | |
| SFM14-M | 200 | 140 | 200 | | | |
| SFM15-M | 300 | 210 | 300 | 1.25 | | |
| SFM16-M | 400 | 280 | 400 | 1.70 | | |
| SFM17-M | 500 | 350 | 500 | | | |
| SFM18-M | 600 | 420 | 600 | | | |

- *1 Repetitive peak reverse voltage
- *2 RMS voltage
- *3 Continuous reverse voltage
- *4 Maximum forward voltage
- *5 Reverse recovery time

Reel packing

| PACKAGE | REEL SIZE | REEL (pcs) | COMPONENT SPACING (m/m) | BOX (pcs) | INNER BOX (m/m) | REEL DIA, (m/m) | CARTON SIZE (m/m) | CARTON (pcs) | APPROX. GROSS WEIGHT (kg) |
|-----------|-----------|------------|-------------------------|-----------|-----------------|-----------------|-------------------|--------------|---------------------------|
| SOD-123-L | 7" | 2,500 | 4.0 | 25,000 | 183*183*123 | 178 | 382*262*387 | 200,000 | 9.5 |



Rating and characteristic curves (SFM11-M THRU SFM18-M)

FIG.1-TYPICAL FORWARD CHARACTERISTICS

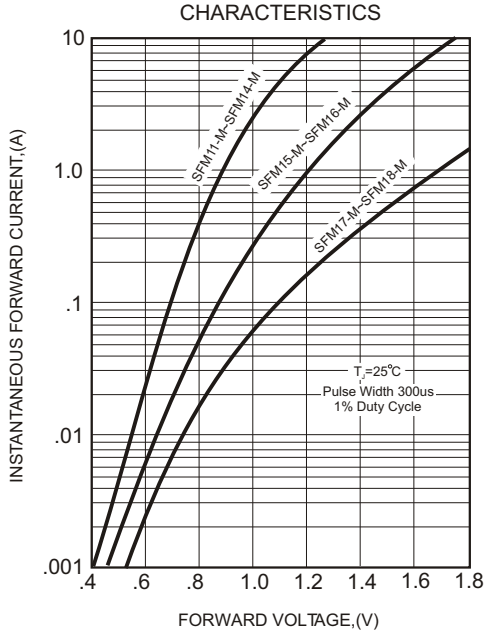


FIG.2-TYPICAL FORWARD CURRENT DERATING CURVE

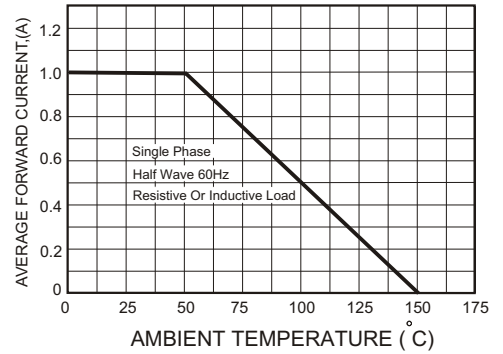


FIG.4-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

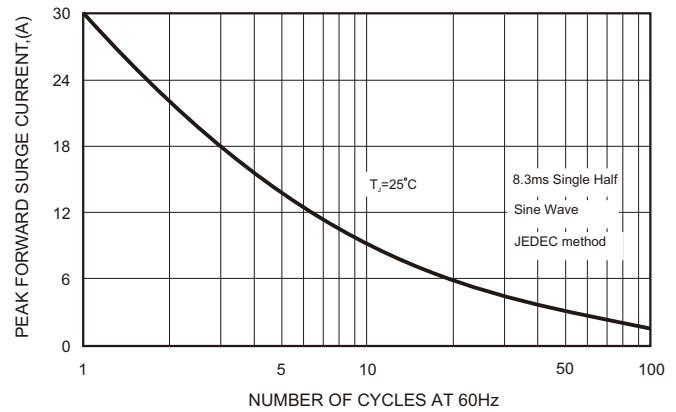
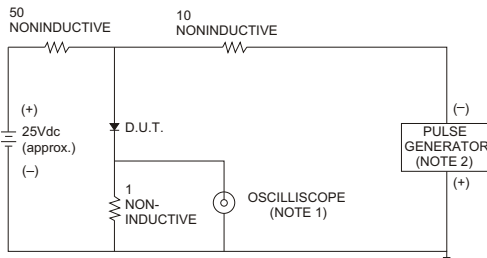


FIG.3- TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTICS



NOTES: 1. Rise Time= 7ns max., Input Impedance= 1 megohm, 22pF.
 2. Rise Time= 10ns max., Source Impedance= 50 ohms.

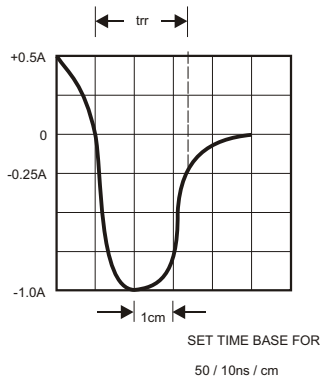
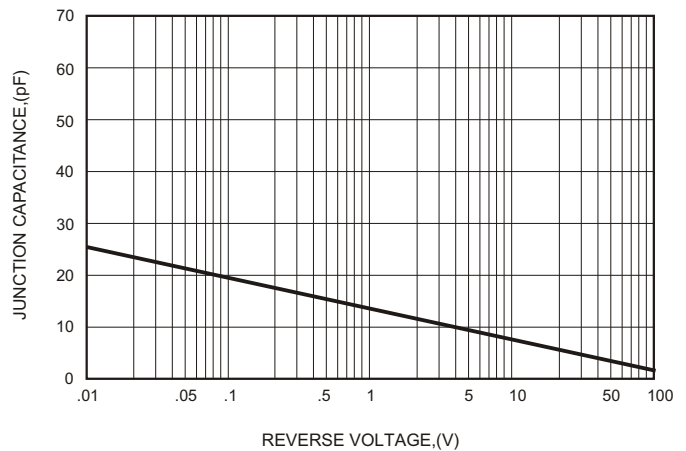


FIG.5-TYPICAL JUNCTION CAPACITANCE





Pinning information

| Pin | Simplified outline | Symbol |
|----------------------------|--------------------|--------|
| Pin1 cathode Pin2 anode | | |

Marking

| Type number | Marking code |
|-------------|--------------|
| SFM11-M | S1 |
| SFM12-M | S2 |
| SFM13-M | S3 |
| SFM14-M | S4 |
| SFM15-M | S5 |
| SFM16-M | S6 |
| SFM17-M | S7 |
| SFM18-M | S8 |

Note: -M: Package code, SOD-123-L

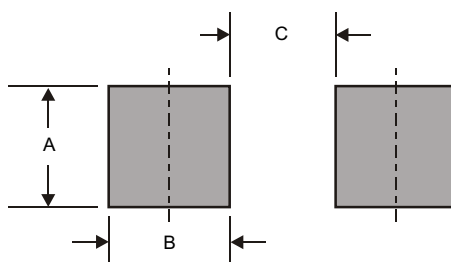
-T: Taping Reel

Pb-Free package is available

RoHS product for packing code suffix "G"

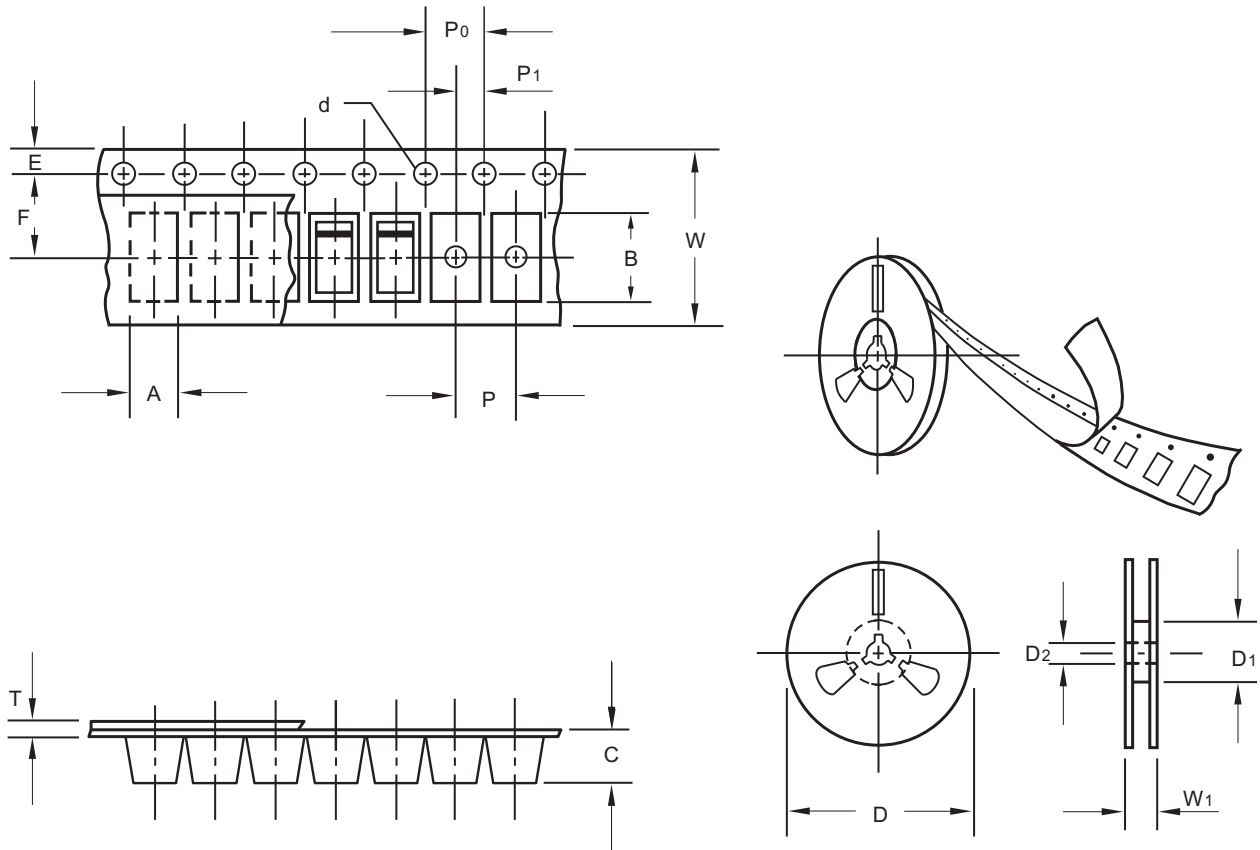
Halogen free product for packing code suffix "H"

Suggested solder pad layout



Dimensions in inches and (millimeters)

| PACKAGE | A | B | C |
|-----------|--------------|--------------|--------------|
| SOD-123-L | 0.075 (1.90) | 0.055 (1.40) | 0.075 (1.90) |

Packing information


unit:mm

| Item | Symbol | Tolerance | SOD-123-L |
|---------------------------|----------------|-----------|-----------|
| Carrier width | A | 0.1 | 1.90 |
| Carrier length | B | 0.1 | 3.90 |
| Carrier depth | C | 0.1 | 1.68 |
| Sprocket hole | d | 0.1 | 1.50 |
| 13" Reel outside diameter | D | 2.0 | - |
| 13" Reel inner diameter | D ₁ | min | - |
| 7" Reel outside diameter | D | 2.0 | 178.00 |
| 7" Reel inner diameter | D ₁ | min | 62.00 |
| Feed hole diameter | D ₂ | 0.5 | 13.00 |
| Sprocket hole position | E | 0.1 | 1.75 |
| Punch hole position | F | 0.1 | 3.50 |
| Punch hole pitch | P | 0.1 | 4.00 |
| Sprocket hole pitch | P ₀ | 0.1 | 4.00 |
| Embossment center | P ₁ | 0.1 | 2.00 |
| Overall tape thickness | T | 0.1 | 0.23 |
| Tape width | W | 0.3 | 8.00 |
| Reel width | W ₁ | 1.0 | 11.40 |

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.