

MMSD103T1

High Voltage Switching Diode

Features

- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|----------------------------|-----------------|-------|------|
| Continuous Reverse Voltage | V_R | 250 | V |
| Peak Forward Current | I_F | 200 | mA |
| Peak Forward Surge Current | $I_{FM(surge)}$ | 625 | mA |

THERMAL CHARACTERISTICS

| Characteristic | Symbol | Value | Unit |
|---|-----------------|-------------|----------------------------|
| Forward Power Dissipation, FR-5 Board (Note 1) @ $T_A = 25^\circ\text{C}$ Derate above 25°C | P_F | 400 3.2 | mW mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction-to-Case | $R_{\theta JL}$ | 174 | $^\circ\text{C}/\text{W}$ |
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ | 492 | $^\circ\text{C}/\text{W}$ |
| Junction and Storage Temperature Range | T_J, T_{stg} | -55 to +150 | $^\circ\text{C}$ |

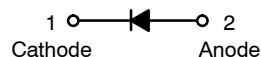
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. FR-5 = $1.0 \times 0.75 \times 0.062$ in.



ON Semiconductor®

<http://onsemi.com>



SOD-123
CASE 425
STYLE 1

MARKING DIAGRAM



JS = Device Code
M = Date Code
▪ = Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

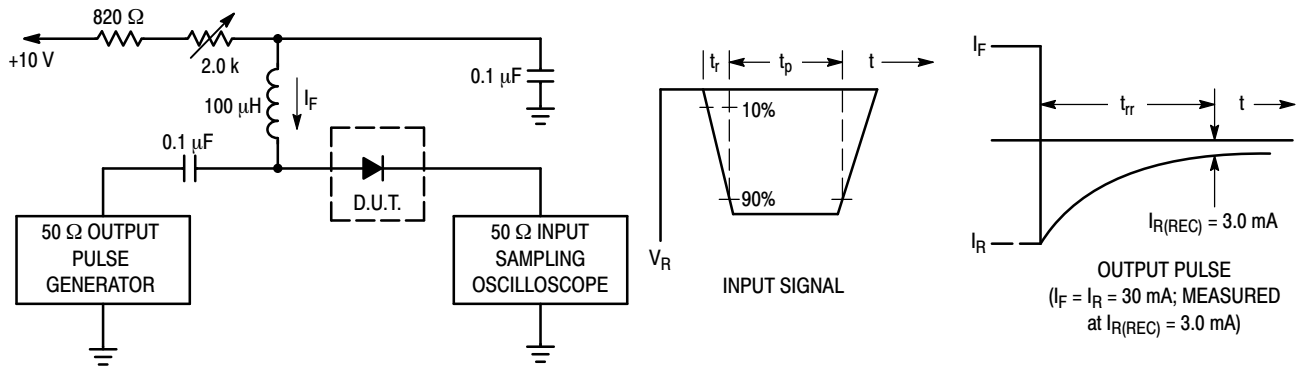
| Device | Package | Shipping† |
|------------|----------------------|--------------------|
| MMSD103T1G | SOD-123 (Pb-Free) | 3000 / Tape & Reel |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| Characteristic | Symbol | Min | Max | Unit |
|--|------------|-----|--------------|---------------|
| OFF CHARACTERISTICS | | | | |
| Reverse Voltage Leakage Current ($V_R = 200\text{ V}$) ($V_R = 200\text{ V}, T_J = 150^\circ\text{C}$) | I_R | - | 1.0 100 | μA |
| Reverse Breakdown Voltage ($I_{BR} = 100\ \mu\text{A}$) | $V_{(BR)}$ | 250 | - | V |
| Forward Voltage ($I_F = 100\text{ mA}$) ($I_F = 200\text{ mA}$) | V_F | - | 1000 1250 | mV |
| Diode Capacitance ($V_R = 0, f = 1.0\text{ MHz}$) | C_D | - | 5.0 | pF |
| Reverse Recovery Time ($I_F = I_R = 30\text{ mA}, R_L = 100\ \Omega$) | t_{rr} | - | 50 | ns |



- Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current (I_F) of 30 mA.
 2. Input pulse is adjusted so $I_{R(\text{peak})}$ is equal to 30 mA.
 3. $t_p \gg t_{rr}$

Figure 1. Recovery Time Equivalent Test Circuit

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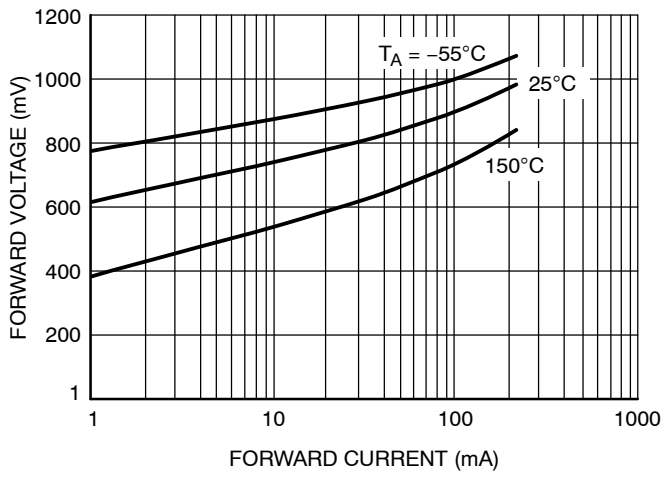


Figure 2. Forward Voltage

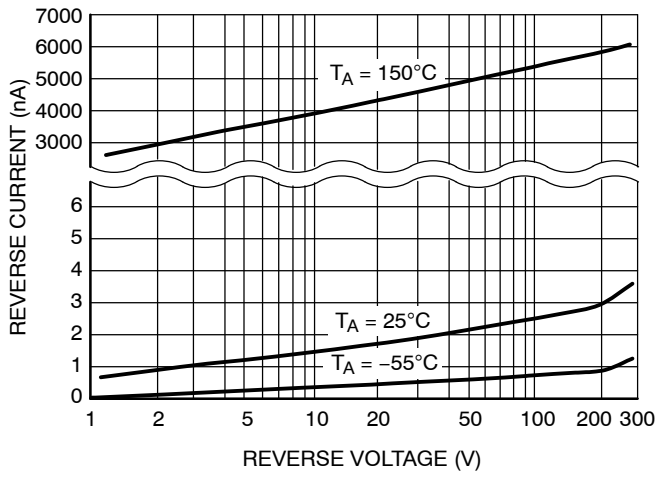


Figure 3. Reverse Leakage

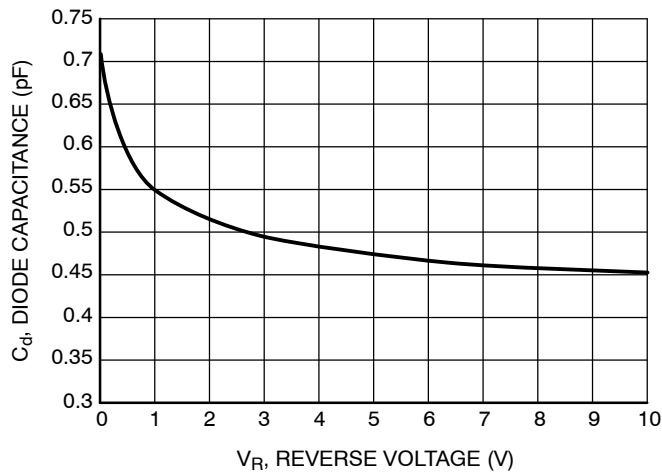
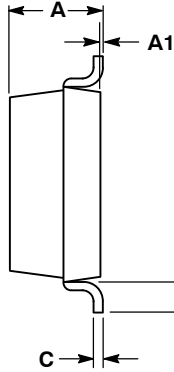
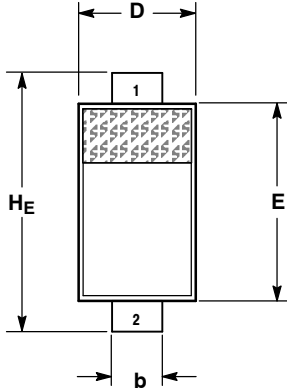


Figure 4. Diode Capacitance

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PACKAGE DIMENSIONS

SOD-123
CASE 425-04
ISSUE E

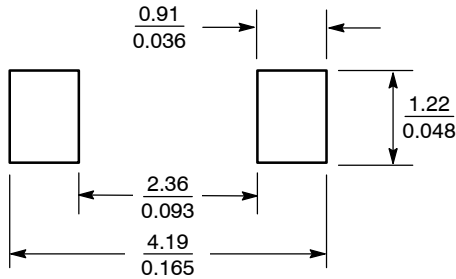


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

| DIM | MILLIMETERS | | | INCHES | | |
|-----|-------------|------|------|--------|-------|-------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.94 | 1.17 | 1.35 | 0.037 | 0.046 | 0.053 |
| A1 | 0.00 | 0.05 | 0.10 | 0.000 | 0.002 | 0.004 |
| b | 0.51 | 0.61 | 0.71 | 0.020 | 0.024 | 0.028 |
| c | --- | --- | 0.15 | --- | --- | 0.006 |
| D | 1.40 | 1.60 | 1.80 | 0.055 | 0.063 | 0.071 |
| E | 2.54 | 2.69 | 2.84 | 0.100 | 0.106 | 0.112 |
| HE | 3.56 | 3.68 | 3.86 | 0.140 | 0.145 | 0.152 |
| L | 0.25 | --- | --- | 0.010 | --- | --- |

- STYLE 1:
PIN 1. CATHODE
2. ANODE

SOLDERING FOOTPRINT*



SCALE 10:1 $\left(\frac{\text{mm}}{\text{inches}}\right)$

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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