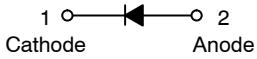
# High Voltage Switching Diode

# MMSD103T1G, SMMSD103T1G



**SOD−123**
**CASE 425**
**STYLE 1**




### Features

- AEC−Q101 Qualified and PPAP Capable
- S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- 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°C<br>Derate above 25°C | $P_F$ | 400<br>3.2 | mW<br>mW/°C |
| Thermal Resistance, Junction−to−Case | $R_{\theta JL}$ | 174 | °C/W |
| Thermal Resistance, Junction−to−Ambient | $R_{\theta JA}$ | 492 | °C/W |
| Junction and Storage Temperature Range | $T_J$, $T_{stg}$ | −55 to +150 | °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 × 0.75 × 0.062 in.

### 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) | 3,000 / Tape & Reel |
| SMMSD103T1G | SOD−123 (Pb−Free) | 3,000 / 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.

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

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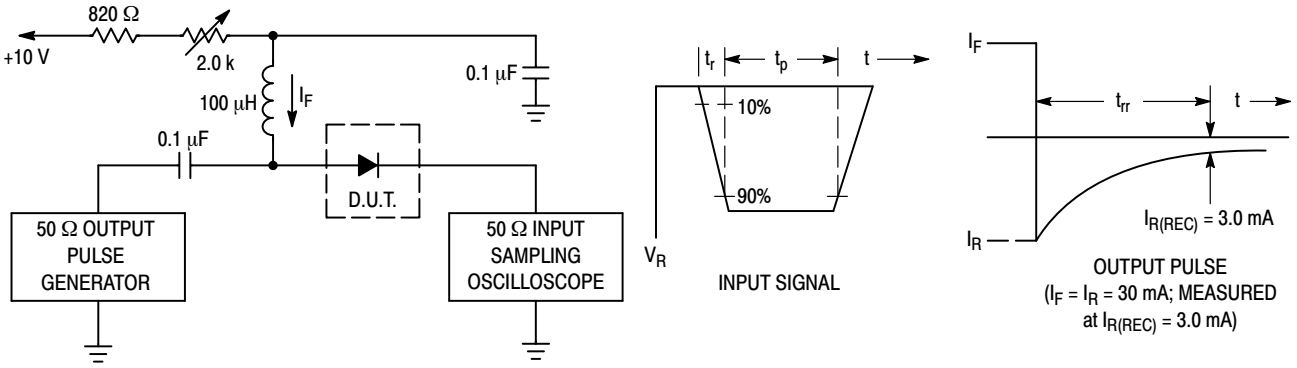
**ELECTRICAL CHARACTERISTICS** ($T_A$ = 25°C unless otherwise noted)

| Characteristic | Symbol | Min | Max | Unit |
|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | |
| Reverse Voltage Leakage Current<br>($V_R$ = 200 V)<br>($V_R$ = 200 V, $T_J$ = 150°C) | $I_R$ | <br>–<br>– | <br>1.0<br>100 | μA |
| Reverse Breakdown Voltage<br>($I_{BR}$ = 100 μA) | $V_{(BR)}$ | 250 | – | V |
| Forward Voltage<br>($I_F$ = 100 mA)<br>($I_F$ = 200 mA) | $V_F$ | <br>–<br>– | <br>1000<br>1250 | mV |
| Diode Capacitance<br>($V_R$ = 0, f = 1.0 MHz) | $C_D$ | – | 5.0 | pF |
| Reverse Recovery Time<br>($I_F$ = $I_R$ = 30 mA, $R_L$ = 100 Ω) | $t_{rr}$ | – | 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 $I_{R(peak)}$ is equal to 30 mA.
3. $t_p \gg t_{rr}$

**Figure 1. Recovery Time Equivalent Test Circuit**



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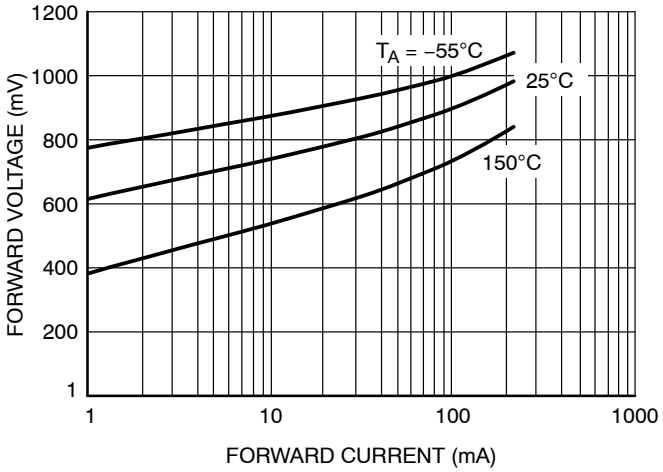


**Figure 2. Forward Voltage**

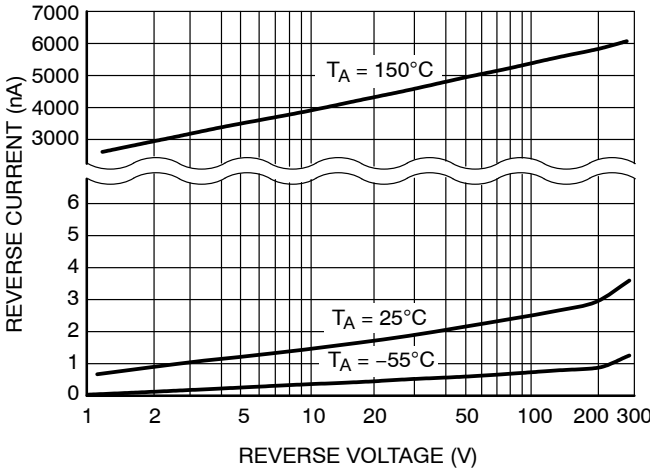


**Figure 3. Reverse Leakage**

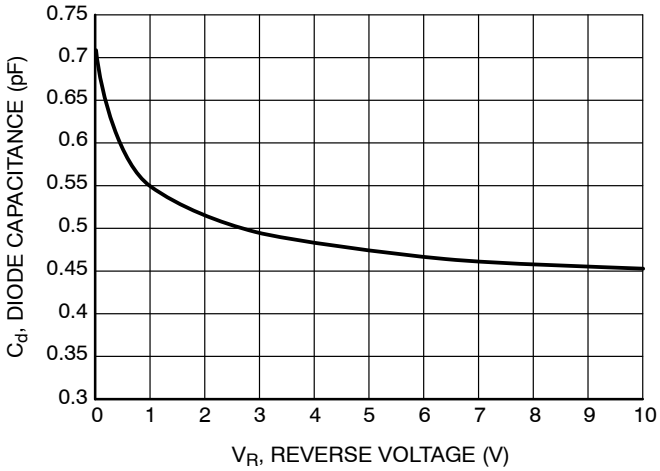


**Figure 4. Diode Capacitance**



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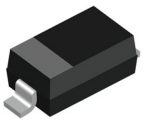
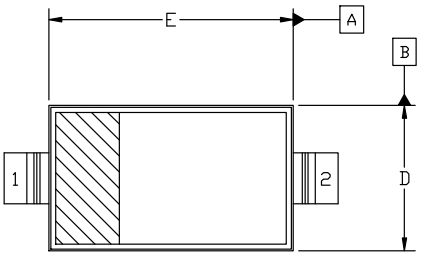
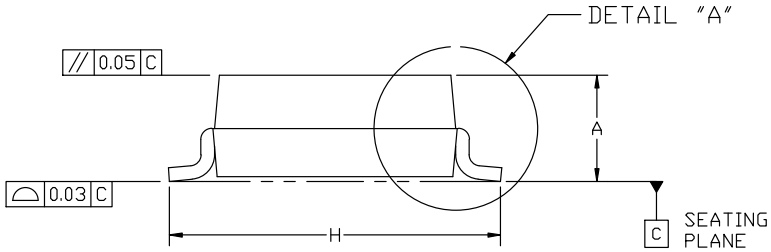


**SOD−123 2−LEAD, 1.60x2.69x1.16**
CASE 425
ISSUE H

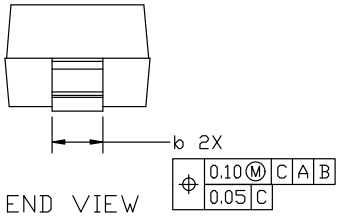
DATE 29 FEB 2024



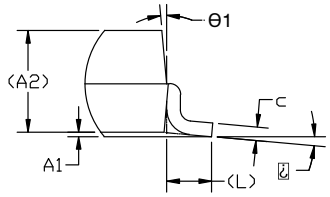

TOP VIEW




SIDE VIEW



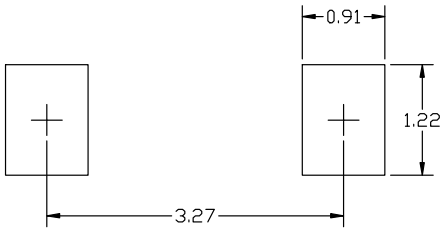

END VIEW




DETAIL "A"

NOTES:
1. DIMENSION AND TOLERANCING PER ASME Y14.5M, 2018
2. CONTROLLING DIMENSION: MILLIMETERS

| | MILLIMETER | | |
|---|---|---|---|
| DIM | MIN. | NOM. | MAX. |
| A | 0.94 | 1.17 | 1.35 |
| A1 | 0.00 | 0.05 | 0.10 |
| A2 | | 1.16 REF. | |
| b | 0.51 | 0.61 | 0.71 |
| c | – | – | 0.15 |
| D | 1.40 | 1.60 | 1.80 |
| E | 2.54 | 2.69 | 2.84 |
| H | 3.56 | 3.68 | 3.86 |
| L | | 0.25 REF. | |
| ∠ | 0° | | 10° |
| θ1 | 0° | | 10° |




RECOMMENDED MOUNTING FOOTPRINT

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

**GENERIC MARKING DIAGRAM***




XXX = Specific Device Code
M = Date Code
▪ = Pb−Free Package
(Note: Microdot may be in either location)

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

STYLE 1:
PIN 1. CATHODE
2. ANODE

| | | |
|---|---|---|
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