



**THE DATASHEET OF  
SMMSD103T1G**



# MMSD103T1G, SMMSD103T1G

## High Voltage Switching Diode

### 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) @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_F$	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.

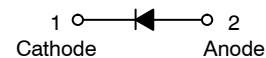


ON Semiconductor®

<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)	3,000 / Tape & Reel
SMMSD103T1G	SOD-123 (Pb-Free)	3,000 / Tape & Reel

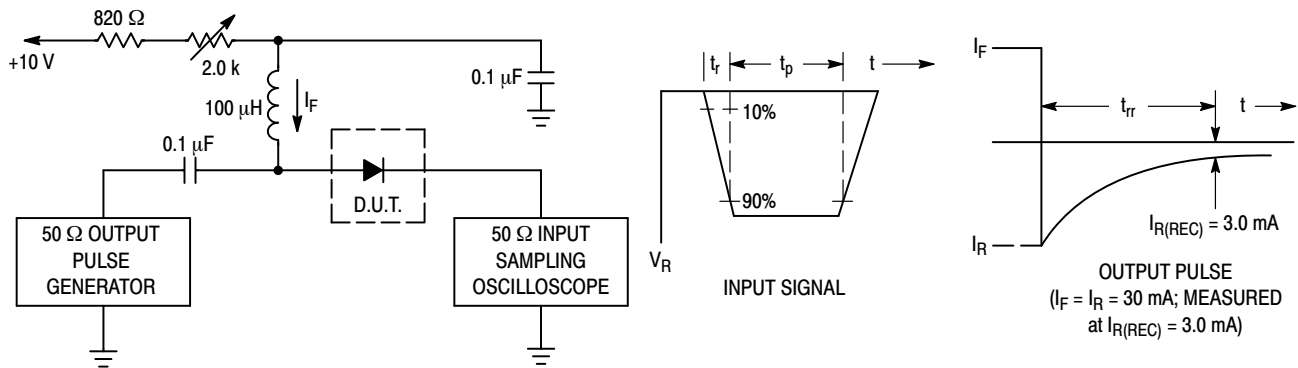
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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

# MMSD103T1G, SMMSD103T1G

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

Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
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	$\mu\text{A}$
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**

# MMSD103T1G, SMMSD103T1G

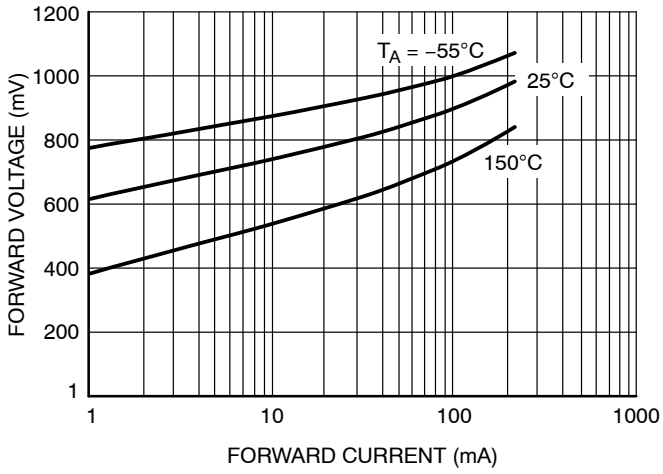


Figure 2. Forward Voltage

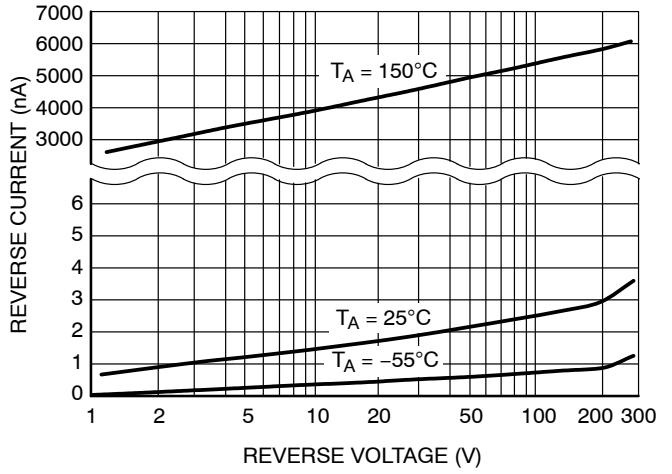


Figure 3. Reverse Leakage

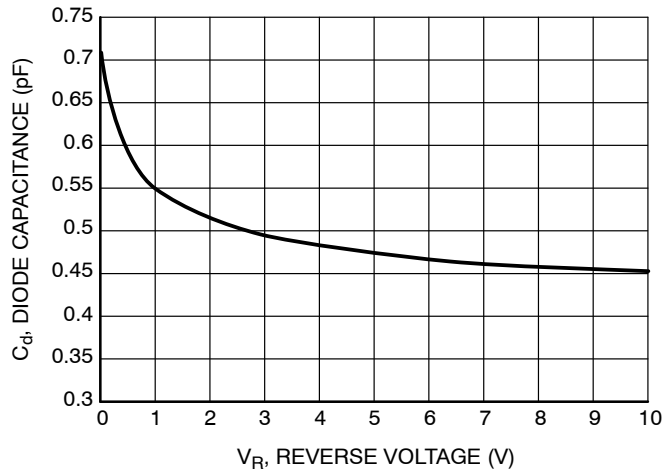
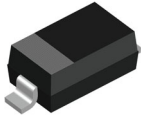


Figure 4. Diode Capacitance

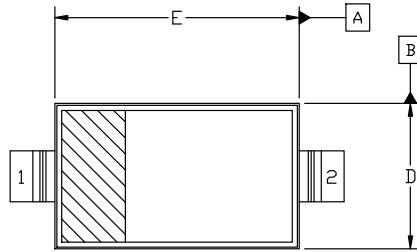
# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

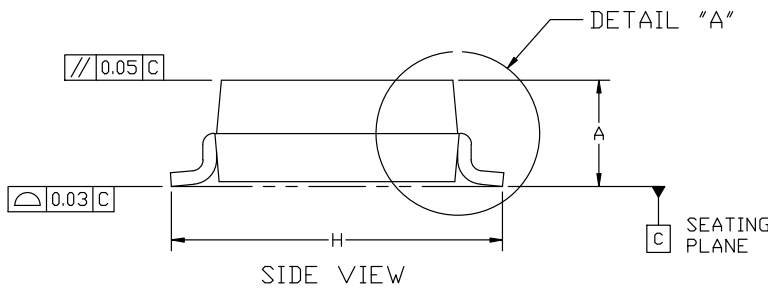


**SOD-123 2L 1.60x2.69x1.16**  
**CASE 425**  
**ISSUE H**

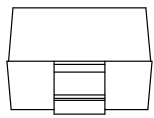
DATE 29 FEB 2024



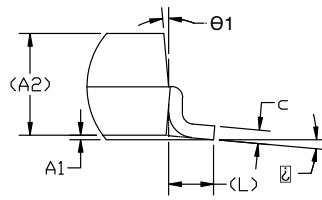
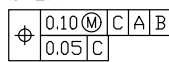
TOP VIEW



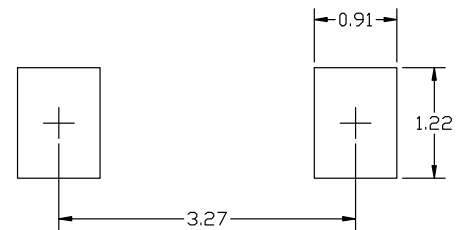
SIDE VIEW



END VIEW



DETAIL "A"



### 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 SOLDERM/D.

### NOTES:

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

DIM	MILLIMETER		
	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°

### 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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