

# 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.



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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

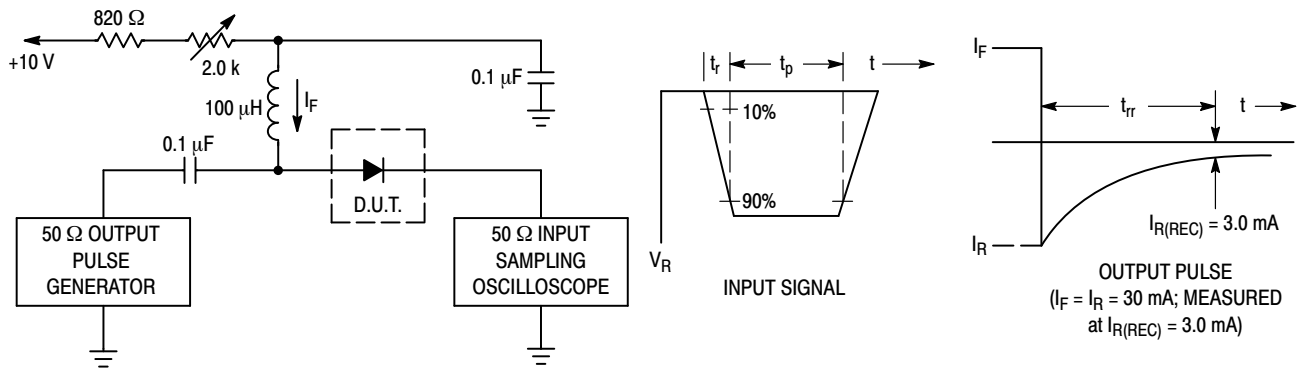
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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

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## 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 k $\Omega$  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

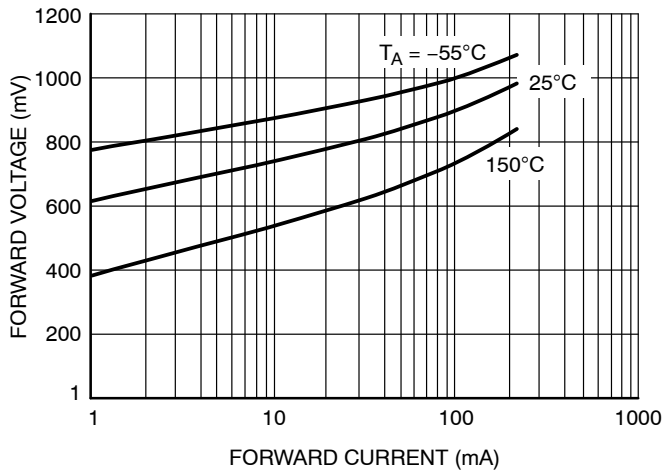


Figure 2. Forward Voltage

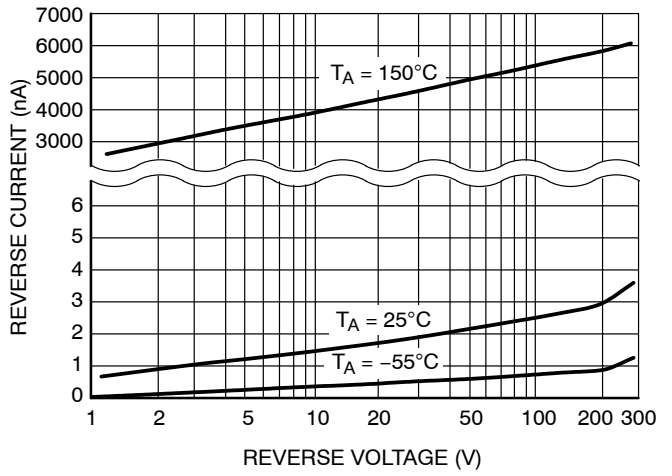


Figure 3. Reverse Leakage

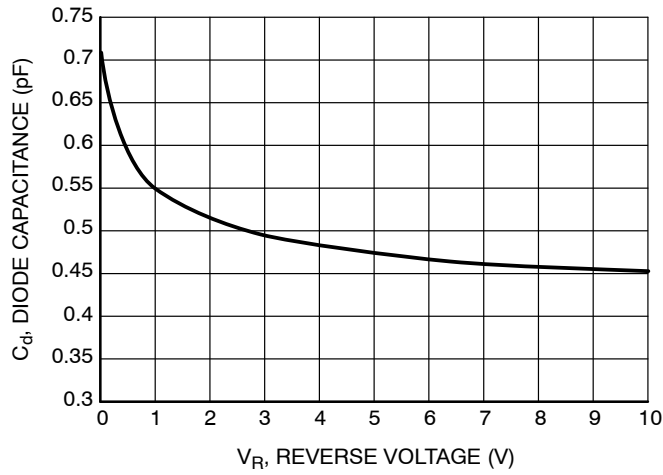
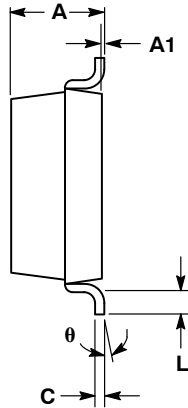
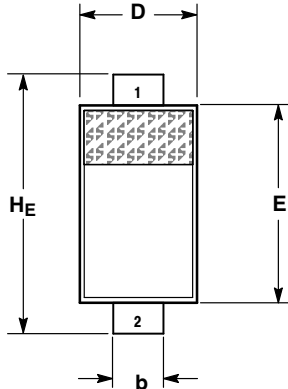


Figure 4. Diode Capacitance

# MMSD103T1G, SMMSD103T1G

## PACKAGE DIMENSIONS

SOD-123  
CASE 425-04  
ISSUE G

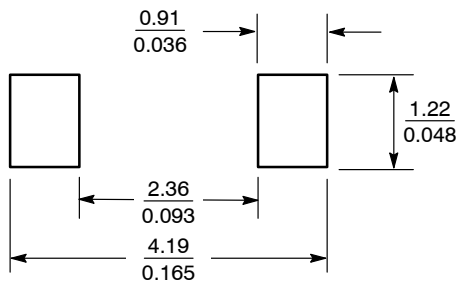


- NOTES:  
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
2. CONTROLLING DIMENSION: INCH.

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	---	---
θ	0°	---	10°	0°	---	10°

STYLE 1:  
PIN 1. CATHODE  
2. ANODE

## SOLDERING FOOTPRINT\*



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

\*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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