

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°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.

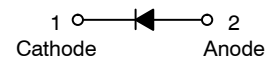


ON Semiconductor®

<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

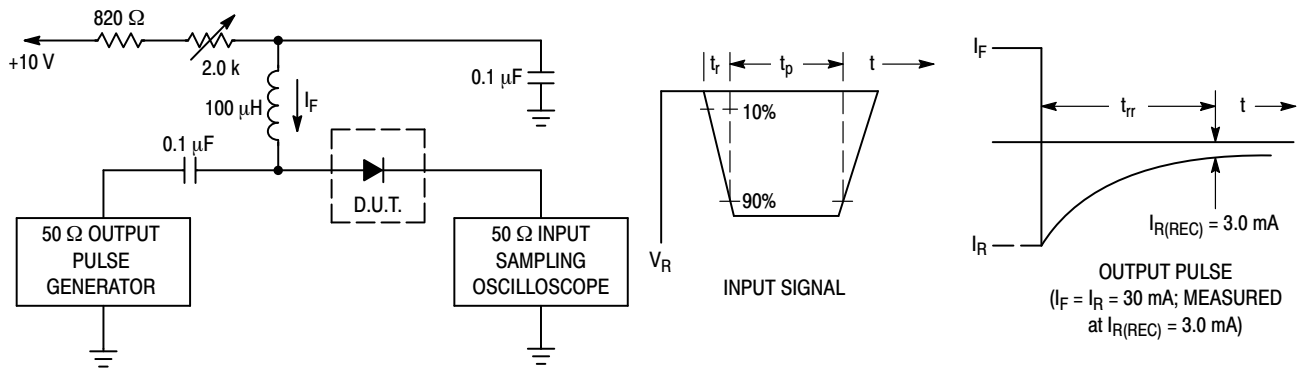
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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

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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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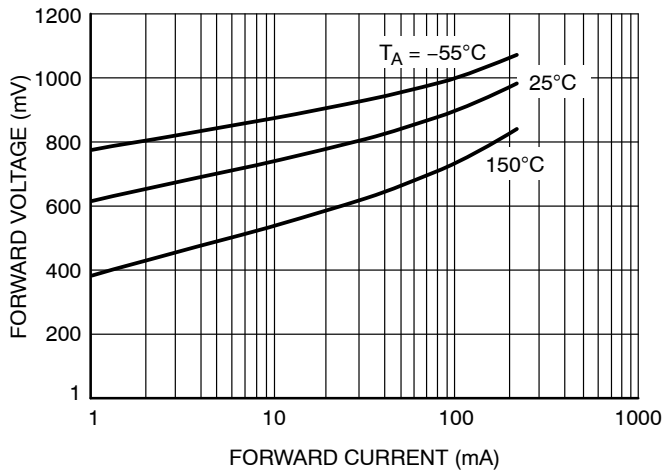


Figure 2. Forward Voltage

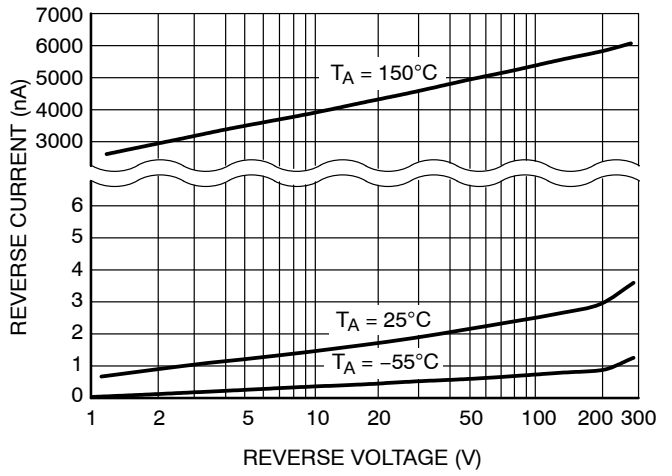


Figure 3. Reverse Leakage

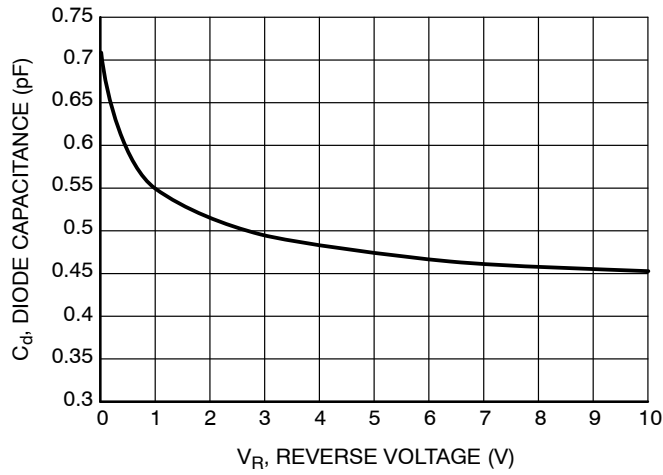
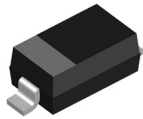


Figure 4. Diode Capacitance

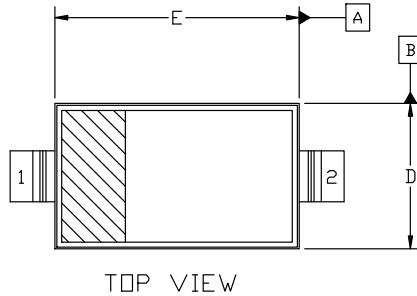
MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS

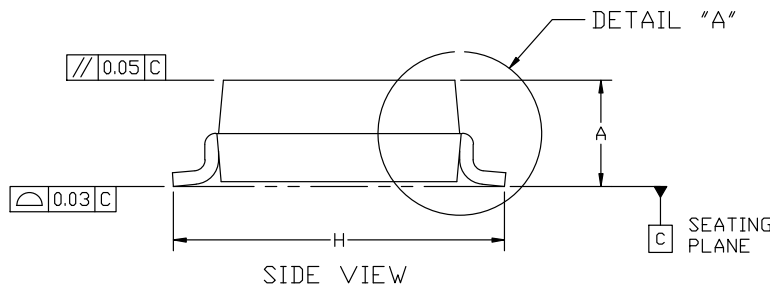


SOD-123 2L 1.60x2.69x1.16
CASE 425
ISSUE H

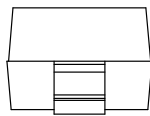
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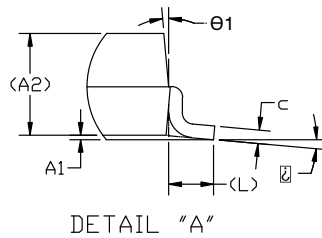
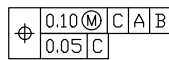
TOP VIEW



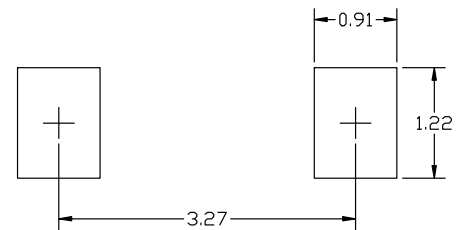
SIDE VIEW



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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