

MMSD4148T1G, SMMSD4148T1G, MMSD4148T3G, SMMSD4148T3G

Switching Diode

Features

- SOD-123 Surface Mount Package
- High Breakdown Voltage
- Fast Speed Switching Time
- 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	100	V
Peak Forward Current	I_F	200	mA
Peak Forward Surge Current (Note 1) $t < 1 \text{ sec}$ $t = 1 \mu\text{sec}$	I_{FSM}	1.0 2.0	A
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (Note 2) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	425 3.4	mW mW/°C
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	290	°C/W

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. Typical Values
2. FR-5 = 1.0 oz Cu, 1.0 in² pad



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SOD-123
CASE 425
STYLE 1



MARKING DIAGRAM



5I = Device Code
M = Date Code
▪ = Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
MMSD4148T1G	SOD-123 (Pb-Free)	3,000 / Tape & Reel
SMMSD4148T1G	SOD-123 (Pb-Free)	3,000 / Tape & Reel
MMSD4148T3G	SOD-123 (Pb-Free)	10,000 / Tape & Reel
SMMSD4148T3G	SOD-123 (Pb-Free)	10,000 / Tape & Reel

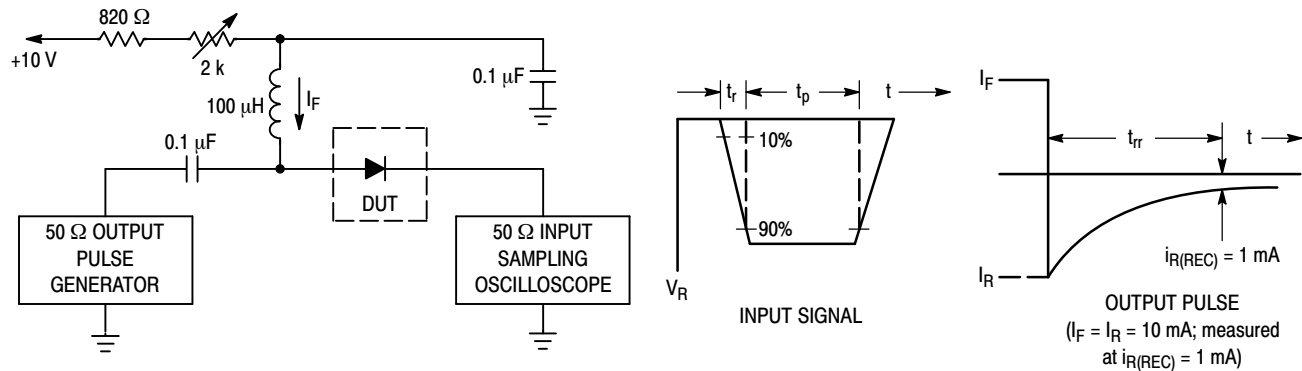
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

*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 Breakdown Voltage ($I_{BR} = 100\ \mu\text{A}$)	$V_{(BR)}$	100	–	V
Reverse Voltage Leakage Current ($V_R = 20\ \text{V}$) ($V_R = 75\ \text{V}$)	I_R	– –	25 5.0	nA μA
Forward Voltage ($I_F = 10\ \text{mA}$)	V_F	–	1000	mV
Diode Capacitance ($V_R = 0\ \text{V}$, $f = 1.0\ \text{MHz}$)	C_D	–	4.0	pF
Reverse Recovery Time ($I_F = I_R = 10\ \text{mA}$) (Figure 1)	t_{rr}	–	4.0	ns



1. A 2.0 kΩ variable resistor adjusted for a Forward Current (I_F) of 10 mA.
2. Input pulse is adjusted so $I_{R(peak)}$ is equal to 10 mA.
3. $t_p \gg t_{rr}$

Figure 1. Recovery Time Equivalent Test Circuit

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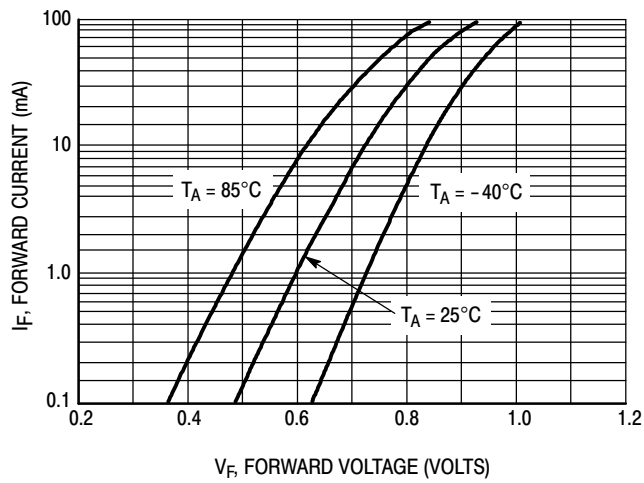


Figure 2. Forward Voltage

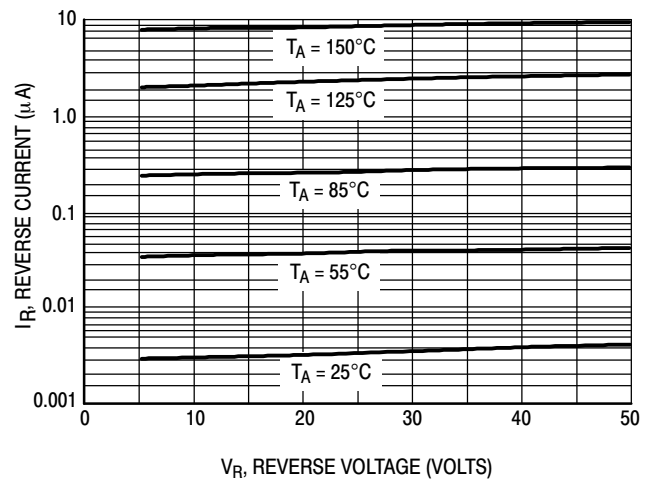


Figure 3. Leakage Current

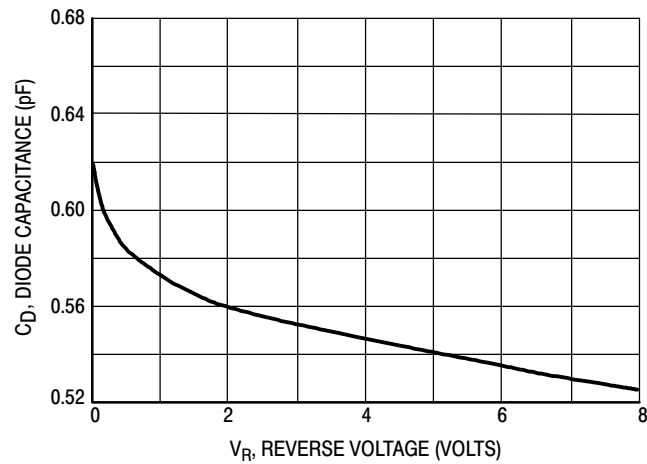
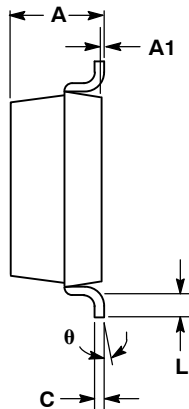
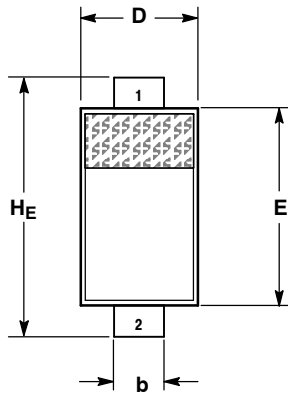


Figure 4. Capacitance

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PACKAGE DIMENSIONS

SOD-123
CASE 425-04
ISSUE G

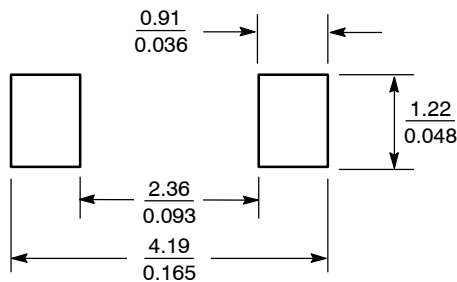


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

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
H _E	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 (mm/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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