ON Semiconductor

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MMSD914, SMMSD914

Switching Diode, High Speed, 100 V

ON Semiconductor®

http://onsemi.com

SOD−123
CASE 425
PLASTIC

Features

- SOD−123 Surface Mount Package
- High Breakdown Voltage
- Fast Speed Switching Time
- S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable
- 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	Vdc
Peak Forward Current	I_F	200	mAdc
Peak Forward Surge Current	$I_{FM(surge)}$	500	mAdc
Non−repetitive Peak Forward Surge Current Pulse Width =1 second Pulse Width =1 micro second	I_{FSM}	 1.0 2.0	 A A

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.

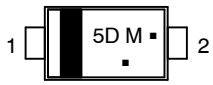
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR−5 Board (Note 1) T_A = 25°C Derate above 25°C	P_D	425 3.4	mW mW/°C
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	290	°C/W
Junction and Storage Temperature Range	T_J, T_{stg}	−55 to +150	°C

1. FR−5 = 1.0oz Cu, 1.0in^2 pad

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

MARKING DIAGRAM



5D = Specific Device Code
M = Date Code
▪ = Pb−Free Package

(Note: Microdot may be in either location)

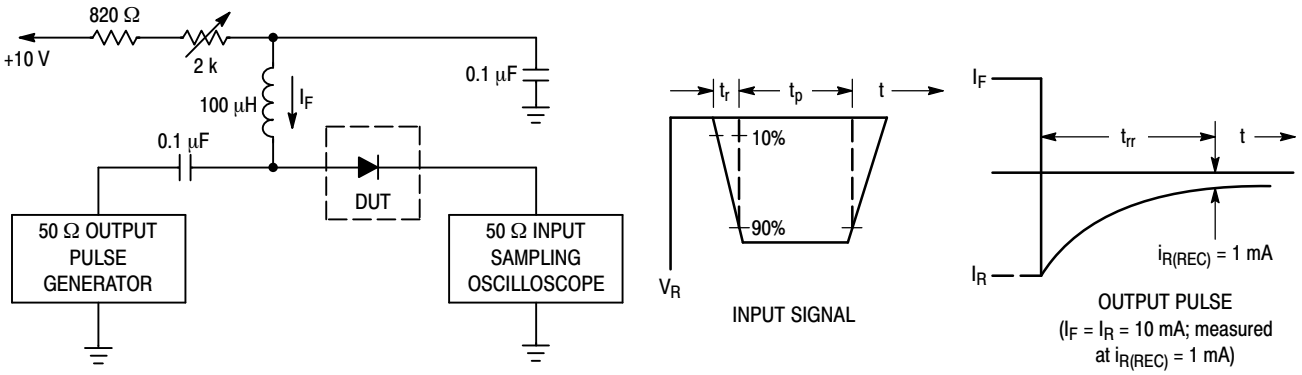
ORDERING INFORMATION

Device	Package	Shipping†
MMSD914T1G	SOD−123 (Pb−Free)	3,000 / Tape & Reel
SMMSD914T1G	SOD−123 (Pb−Free)	3,000 / Tape & Reel
MMSD914T3G	SOD−123 (Pb−Free)	10,000 / Tape & Reel
SMMSD914T3G	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.

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Reverse Breakdown Voltage (I_{BR} = 100 μAdc)	$V_{(BR)}$	100	–	Vdc
Reverse Voltage Leakage Current (V_R = 20 Vdc) (V_R = 75 Vdc)	I_R	 – –	 25 5.0	 nAdc μAdc
Forward Voltage (I_F = 10 mAdc)	V_F	–	1000	mVdc
Diode Capacitance (V_R = 0 Vdc, f = 1.0 MHz)	C_D	–	4.0	pF
Reverse Recovery Time (I_F = I_R = 10 mAdc) (Figure 1)	t_{rr}	–	4.0	ns



Notes: 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

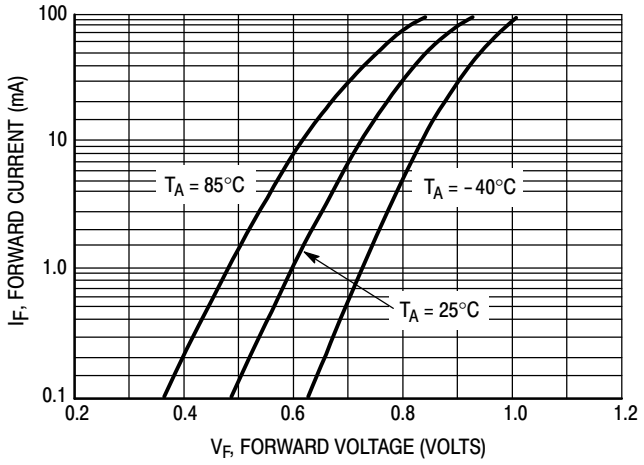


Figure 2. Forward Voltage

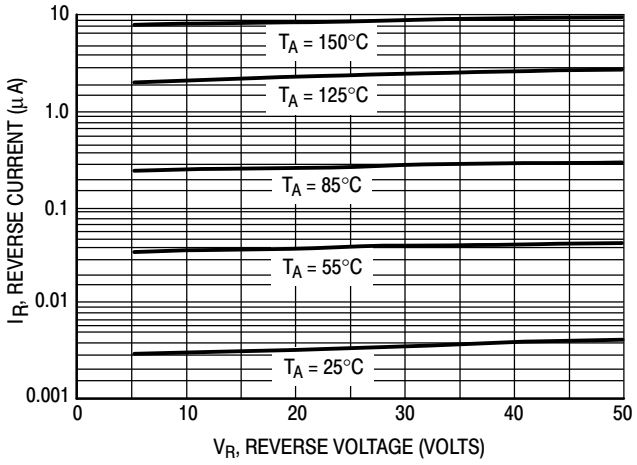


Figure 3. Leakage Current

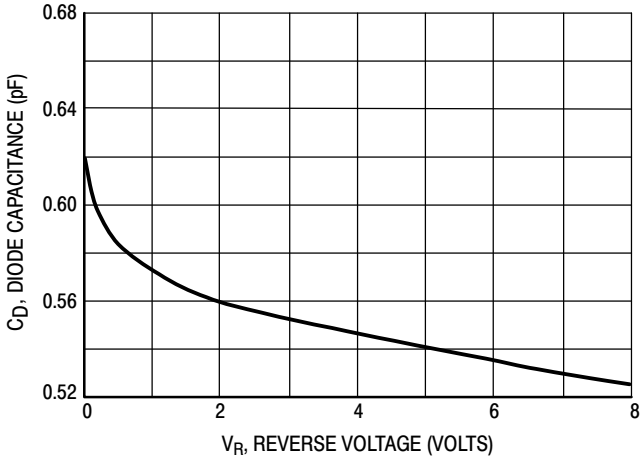


Figure 4. Capacitance

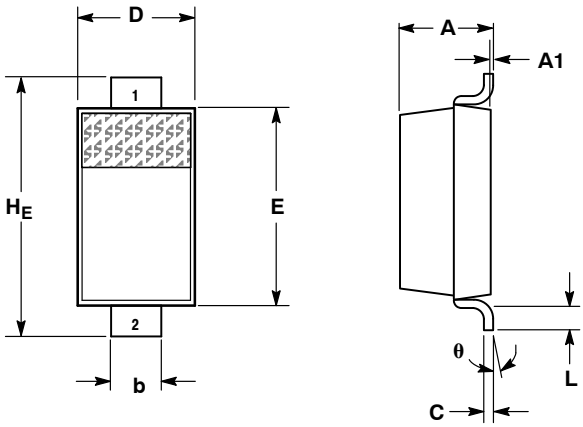
MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

ON Semiconductor®

SCALE 5:1

SOD−123
CASE 425−04
ISSUE G

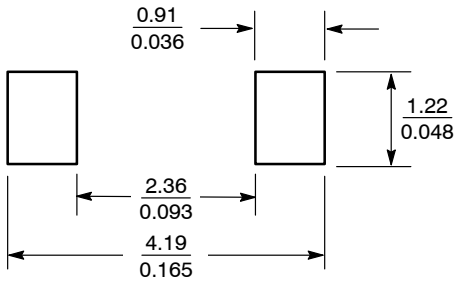
DATE 07 OCT 2009



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

	MILLIMETERS			INCHES		
DIM	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°

SOLDERING FOOTPRINT*



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

*For additional information on our 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.

STYLE 1:
PIN 1. CATHODE
2. ANODE

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PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Email Requests to: orderlit@onsemi.com

ON Semiconductor Website: www.onsemi.com

TECHNICAL SUPPORT
North American Technical Support:
Voice Mail: 1 800−282−9855 Toll Free USA/Canada
Phone: 011 421 33 790 2910

Europe, Middle East and Africa Technical Support:
Phone: 00421 33 790 2910
For additional information, please contact your local Sales Representative

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