

# MMSD914, SMMSD914

## Switching Diode, High Speed, 100 V

### 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	$I_{FSM}$		
Pulse Width = 1 second		1.0	A
Pulse Width = 1 micro second		2.0	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) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	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<sup>2</sup> pad

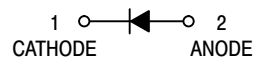


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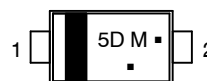
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SOD-123  
CASE 425  
PLASTIC



### 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

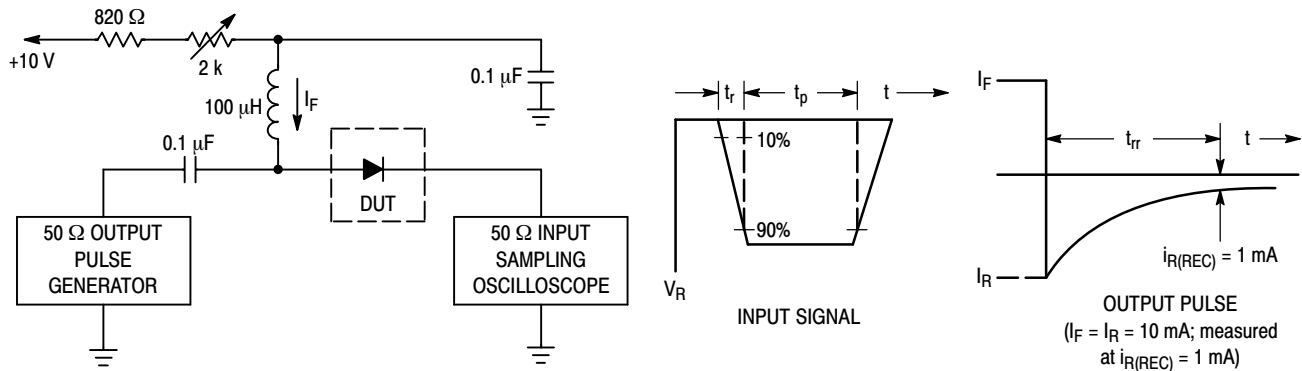
† For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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

# MMSD914, SMMSD914

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

Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Reverse Breakdown Voltage ( $I_{BR} = 100 \mu\text{Adc}$ )	$V_{(BR)}$	100	–	Vdc
Reverse Voltage Leakage Current ( $V_R = 20 \text{ Vdc}$ ) ( $V_R = 75 \text{ Vdc}$ )	$I_R$	– –	25 5.0	nAdc $\mu\text{Adc}$
Forward Voltage ( $I_F = 10 \text{ mAdc}$ )	$V_F$	–	1000	mVdc
Diode Capacitance ( $V_R = 0 \text{ Vdc}$ , $f = 1.0 \text{ MHz}$ )	$C_D$	–	4.0	pF
Reverse Recovery Time ( $I_F = I_R = 10 \text{ mAdc}$ ) (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  $I_{R(\text{peak})}$  is equal to 10 mA.  
 3.  $t_p \gg t_{rr}$

**Figure 1. Recovery Time Equivalent Test Circuit**

# MMSD914, SMMSD914

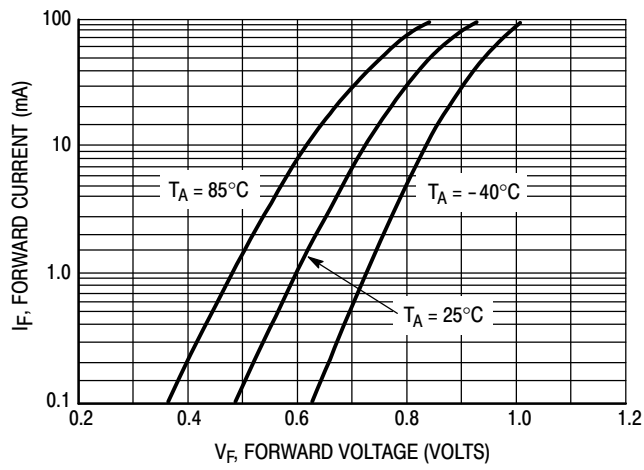


Figure 2. Forward Voltage

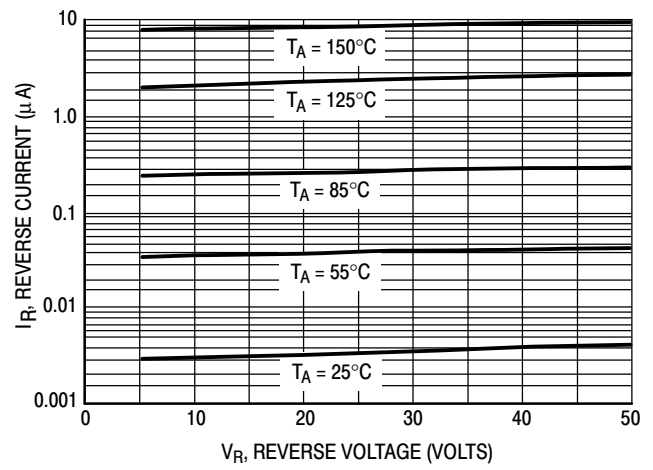


Figure 3. Leakage Current

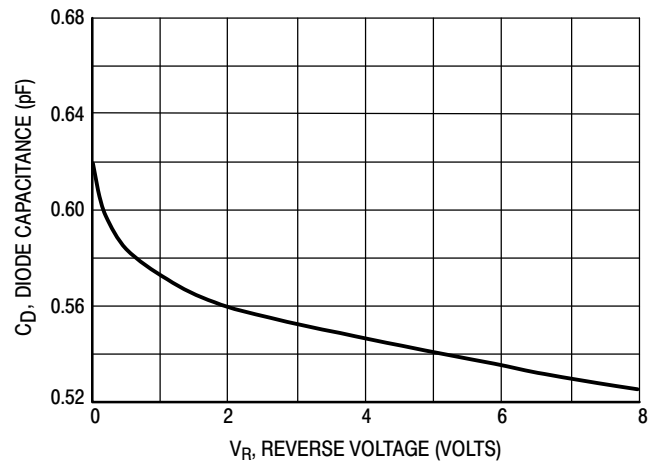


Figure 4. Capacitance

# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

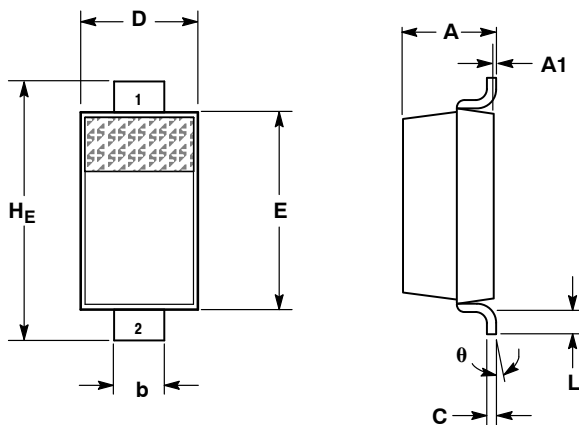
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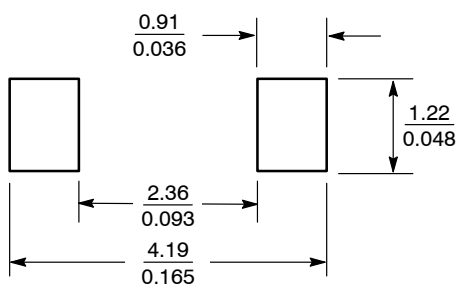
SCALE 5:1

**SOD-123**  
CASE 425-04  
ISSUE G

DATE 07 OCT 2009



### SOLDERING FOOTPRINT\*



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

### 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 <sub>E</sub>	3.56	3.68	3.86	0.140	0.145	0.152
L	0.25	---	---	0.010	---	---
θ	0°	---	10°	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.

STYLE 1:  
PIN 1. CATHODE  
2. ANODE

\*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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