

# SOD-123 Schottky Barrier Diodes

## MMSD301T1G, SMMSD301T1G, MMSD701T1G, SMMSD701T1G,

The MMSD301T1, and MMSD701T1 devices are spin-offs of our popular MMBD301LT1, and MMBD701LT1 SOT-23 devices. They are designed for high-efficiency UHF and VHF detector applications. Readily available to many other fast switching RF and digital applications.

### Features

- Extremely Low Minority Carrier Lifetime
- Very Low Capacitance
- Low Reverse Leakage
- AEC 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
Reverse Voltage MMSD301T1G, SMMSD301T1G MMSD701T1G, SMMSD701T1G	$V_R$	30 70	Vdc
Forward Current (DC) Continuous	$I_F$	200	mA
Forward Power Dissipation $T_A = 25^\circ\text{C}$	$P_F$	225	mW
Junction Temperature	$T_J$	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to +150	$^\circ\text{C}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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

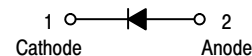


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SOD-123  
CASE 425  
STYLE 1



### MARKING DIAGRAM



- xx = Specific Device Code  
XT = MMSD301T1G  
SMMSD301T1G  
XH = MMSD701T1G  
SMMSD701T1G
- M = Date Code
- = Pb-Free Package

(Note: Microdot may be in either location)

### ORDERING INFORMATION

Device	Package	Shipping <sup>†</sup>
MMSD301T1G	SOD-123 (Pb-Free)	3,000 / Tape & Reel
SMMSD301T1G	SOD-123 (Pb-Free)	3,000 / Tape & Reel
MMSD701T1G	SOD-123 (Pb-Free)	3,000 / Tape & Reel
SMMSD701T1G	SOD-123 (Pb-Free)	3,000 / Tape & Reel

<sup>†</sup>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.

# MMSD301T1G, SMMSD301T1G, MMSD701T1G, SMMSD701T1G,

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage (I <sub>R</sub> = 10 μA) MMSD301T1G, SMMSD301T1G MMSD701T1G, SMMSD701T1G	V <sub>(BR)R</sub>	30 70	- -	- -	V
Diode Capacitance (V <sub>R</sub> = 0 V, f = 1.0 MHz) MMSD301T1G, SMMSD301T1G MMSD701T1G, SMMSD701T1G	C <sub>T</sub>	- -	0.9 0.5	1.5 1.0	pF
Total Capacitance (V <sub>R</sub> = 15 V, f = 1.0 MHz) MMSD301T1G, SMMSD301T1G (V <sub>R</sub> = 20 V, f = 1.0 MHz) MMSD701T1G, SMMSD701T1G	C <sub>T</sub>	- -	0.9 0.5	1.5 1.0	pF
Reverse Leakage (V <sub>R</sub> = 25 V) MMSD301T1G, SMMSD301T1G (V <sub>R</sub> = 35 V) MMSD701T1G, SMMSD701T1G	I <sub>R</sub>	- -	13 9.0	200 200	nAdc
Forward Voltage (I <sub>F</sub> = 1.0 mAdc) MMSD301T1G, SMMSD301T1G (I <sub>F</sub> = 10 mA) (I <sub>F</sub> = 1.0 mAdc) MMSD701T1G, SMMSD701T1G (I <sub>F</sub> = 10 mA)	V <sub>F</sub>	- - - -	0.38 0.52 0.42 0.7	0.45 0.6 0.5 1.0	Vdc

MMSD301T1G, SMMSD301T1G, MMSD701T1G, SMMSD701T1G,

TYPICAL CHARACTERISTICS  
MMSD301T1G, SMMSD301T1G

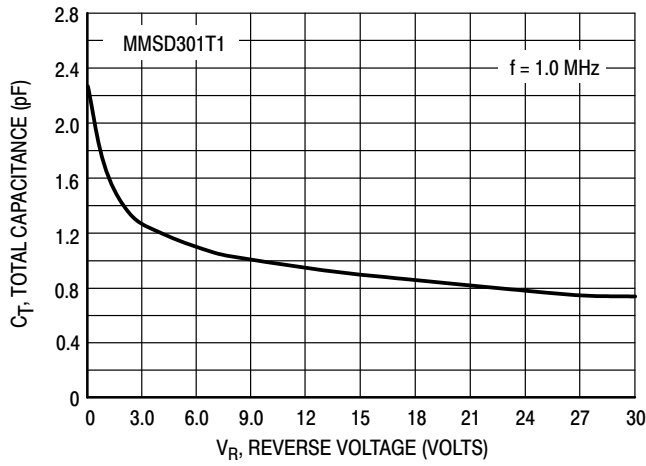


Figure 1. Total Capacitance

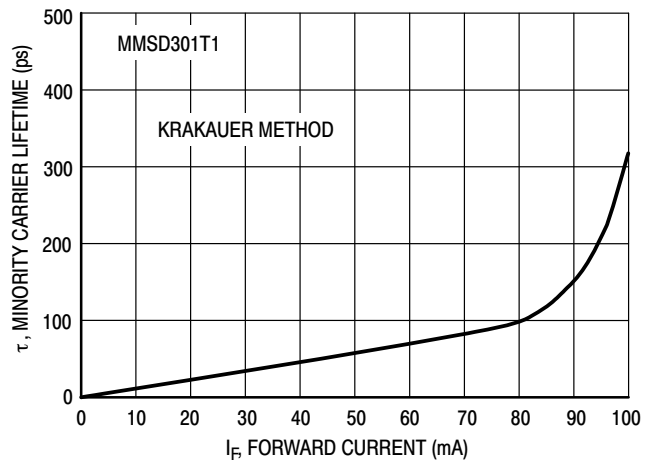


Figure 2. Minority Carrier Lifetime

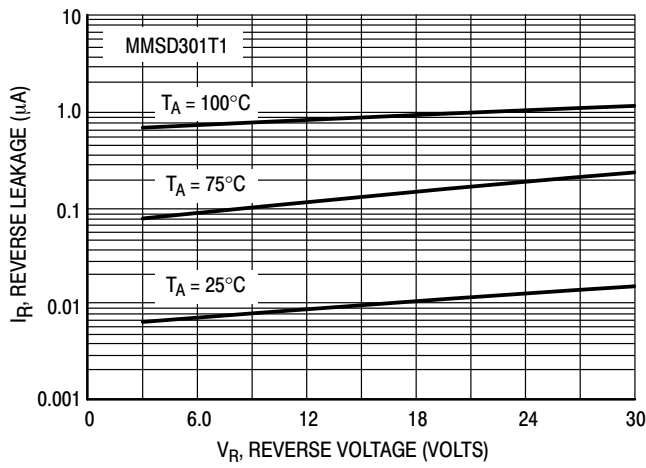


Figure 3. Reverse Leakage

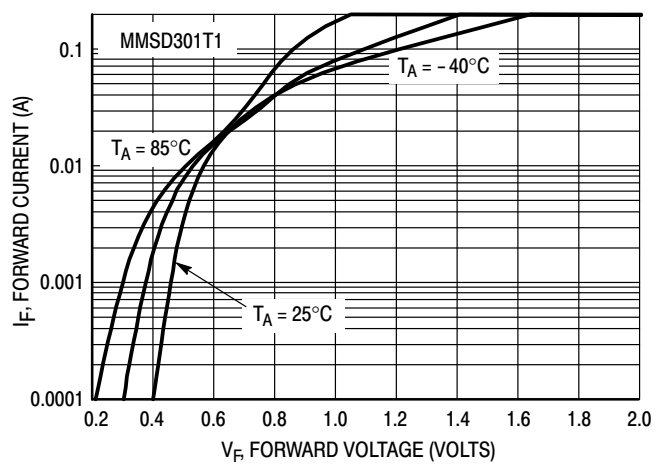
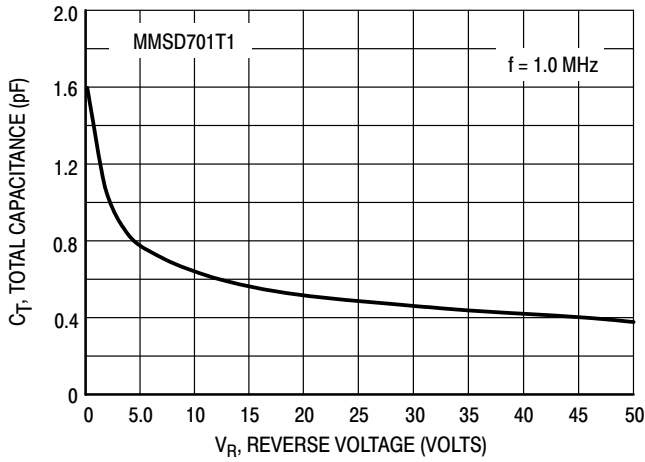


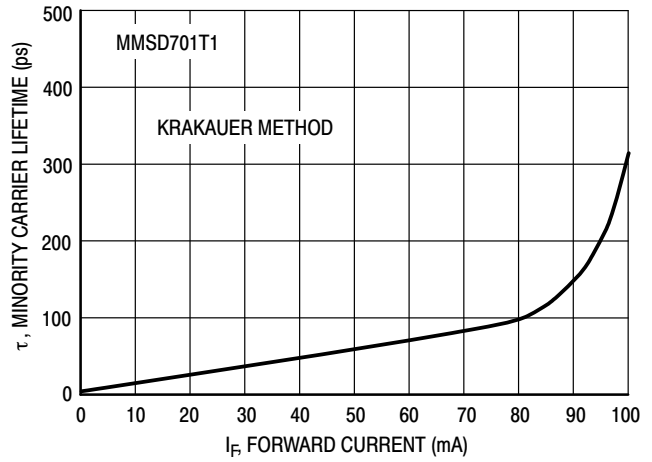
Figure 4. Forward Voltage

**MMSD301T1G, SMMSD301T1G, MMSD701T1G, SMMSD701T1G,**

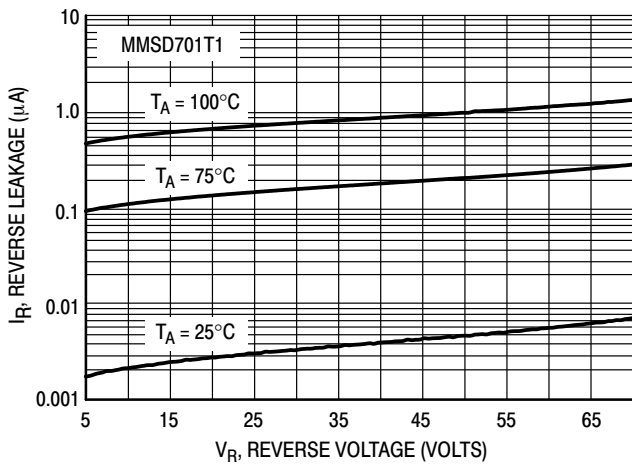
**TYPICAL CHARACTERISTICS  
MMSD701T1G, SMMSD701T1G**



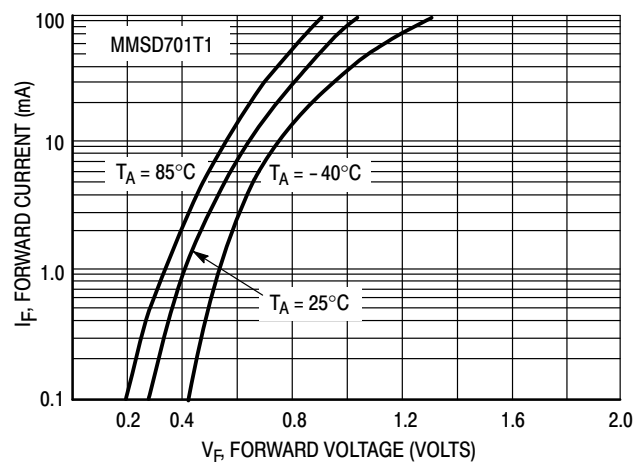
**Figure 5. Total Capacitance**



**Figure 6. Minority Carrier Lifetime**



**Figure 7. Reverse Leakage**



**Figure 8. Forward Voltage**

# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

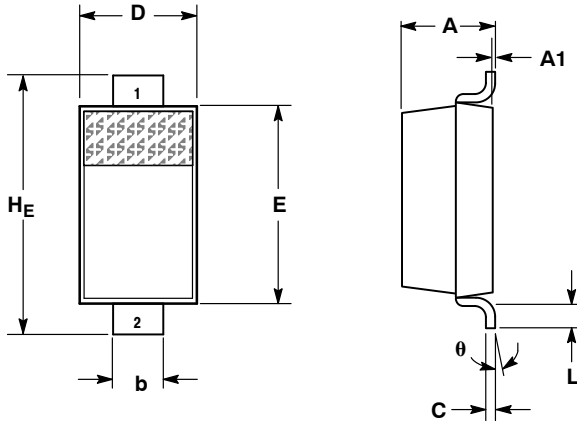
ON Semiconductor®



SCALE 5:1

SOD-123  
CASE 425-04  
ISSUE G

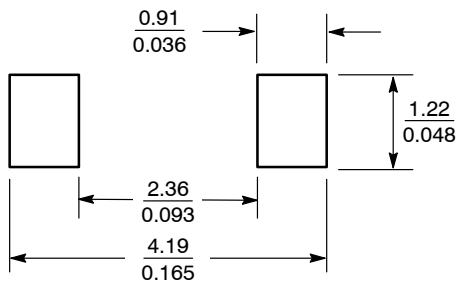
DATE 07 OCT 2009



- NOTES:
- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  - 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°

### SOLDERING FOOTPRINT\*



SCALE 10:1 (mm/inches)

### 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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DESCRIPTION:	SOD-123	PAGE 1 OF 1

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