

# MMSD301T1, MMSD701T1

Preferred Device

## SOD-123 Schottky Barrier Diodes

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
- Pb-Free Packages are Available

### MAXIMUM RATINGS

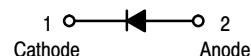
Rating	Symbol	Value	Unit
Reverse Voltage MMSD301T1 MMSD701T1	$V_R$	30 70	Vdc
Forward Current (DC) Continuous	$I_F$	200	mA
Forward Power Dissipation $T_A = 25^\circ\text{C}$	$P_F$	225	mW
Junction Temperature	$T_J$	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to +150	$^\circ\text{C}$

Stresses exceeding 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.



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SOD-123  
CASE 425  
STYLE 1

### MARKING DIAGRAM



- xx = Specific Device Code  
XT = MMSD301T1  
XH = MMSD701T1
- M = Date Code
- = Pb-Free Package

(Note: Microdot may be in either location)

### ORDERING INFORMATION

Device	Package	Shipping†
MMSD301T1	SOD-123	3000 Tape & Reel
MMSD301T1G	SOD-123 (Pb-Free)	3000 Tape & Reel
MMSD701T1	SOD-123	3000 Tape & Reel
MMSD701T1G	SOD-123 (Pb-Free)	3000 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.

Preferred devices are recommended choices for future use and best overall value.

# MMSD301T1, MMSD701T1

## 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)	MMSD301T1 MMSD701T1	V <sub>(BR)R</sub>	30 70	– –	– –	V
Diode Capacitance (V <sub>R</sub> = 0 V, f = 1.0 MHz)	MMSD301T1 MMSD701T1	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) (V <sub>R</sub> = 20 V, f = 1.0 MHz)	MMSD301T1 MMSD701T1	C <sub>T</sub>	– –	0.9 0.5	1.5 1.0	pF
Reverse Leakage (V <sub>R</sub> = 25 V) (V <sub>R</sub> = 35 V)	MMSD301T1 MMSD701T1	I <sub>R</sub>	– –	13 9.0	200 200	nAdc nAdc
Forward Voltage (I <sub>F</sub> = 1.0 mAdc) (I <sub>F</sub> = 10 mA) (I <sub>F</sub> = 1.0 mAdc) (I <sub>F</sub> = 10 mA)	MMSD301T1  MMSD701T1	V <sub>F</sub>	– – – –	0.38 0.52 0.42 0.7	0.45 0.6 0.5 1.0	Vdc

# MMSD301T1, MMSD701T1

## TYPICAL CHARACTERISTICS MMSD301T1

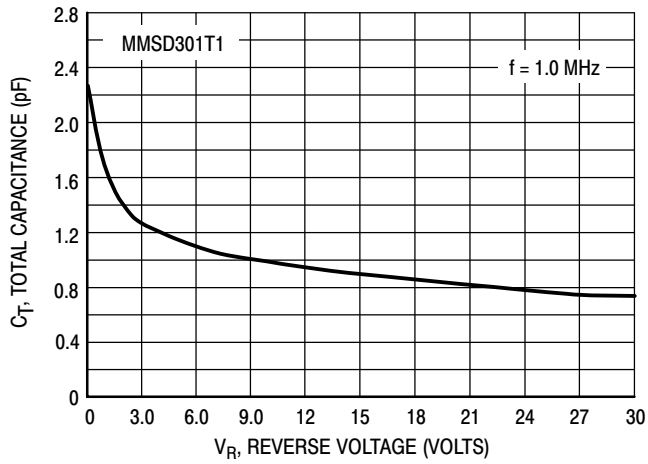


Figure 1. Total Capacitance

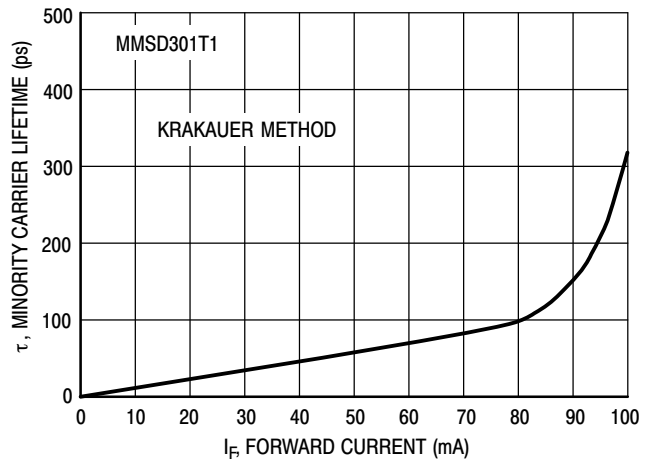


Figure 2. Minority Carrier Lifetime

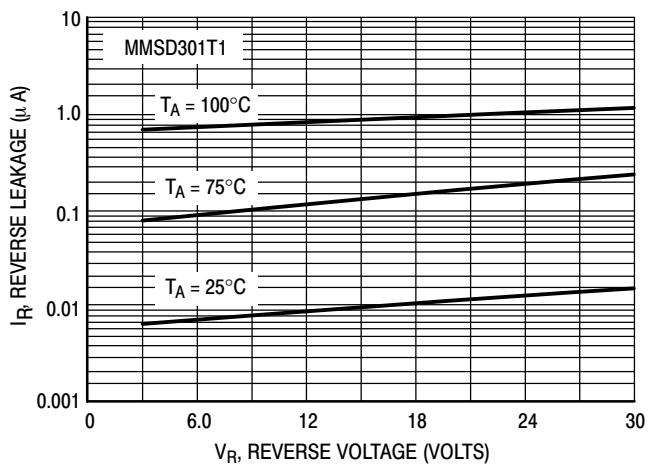


Figure 3. Reverse Leakage

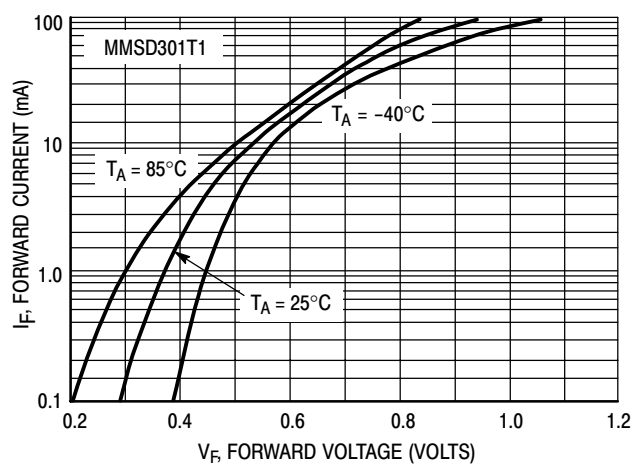


Figure 4. Forward Voltage

# MMSD301T1, MMSD701T1

## TYPICAL CHARACTERISTICS MMSD701T1

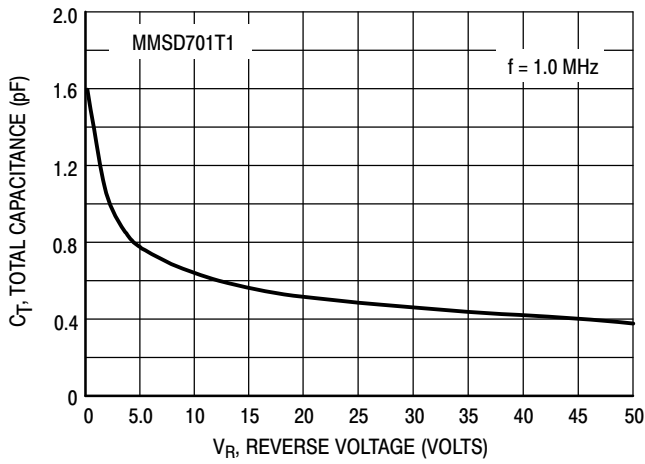


Figure 5. Total Capacitance

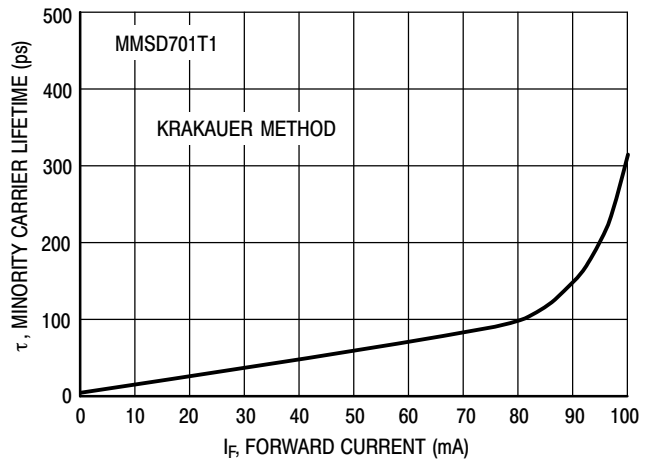


Figure 6. Minority Carrier Lifetime

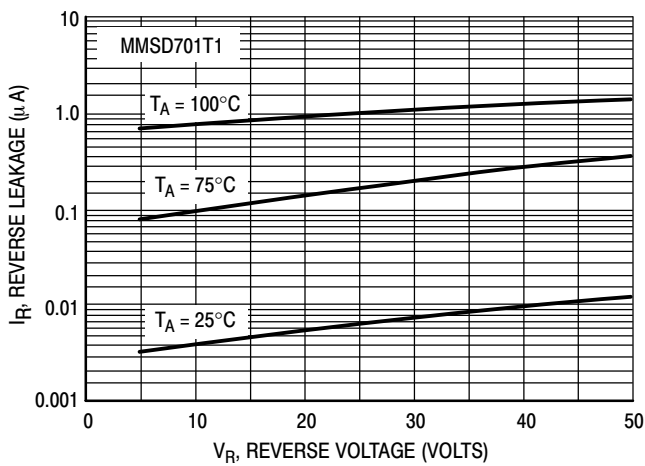


Figure 7. Reverse Leakage

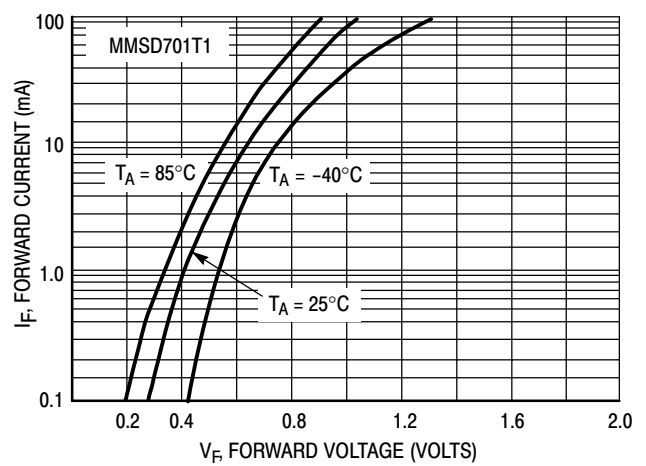
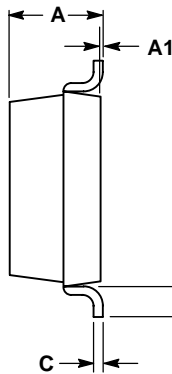
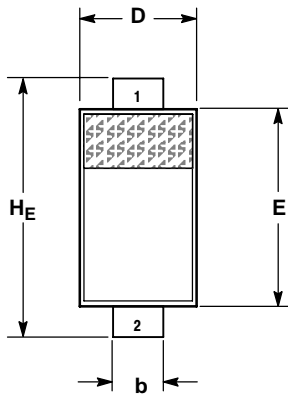


Figure 8. Forward Voltage

# MMSD301T1, MMSD701T1

## PACKAGE DIMENSIONS

SOD-123  
CASE 425-04  
ISSUE E



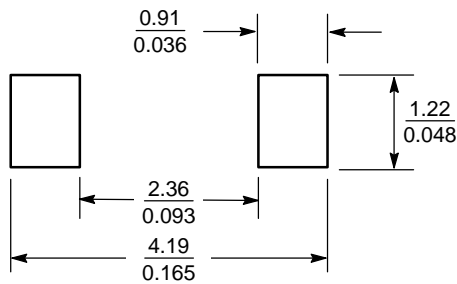
NOTES:

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	---	---

STYLE 1:  
PIN 1. CATHODE  
2. ANODE

### SOLDERING FOOTPRINT\*



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

\*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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