

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.

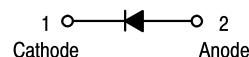


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SOD-123
CASE 425
STYLE 1



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† |
|-------------|----------------------|------------------------|
| 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 |

†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_A = 25°C unless otherwise noted)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|--------------------|------------------|-----------------------------|---------------------------|------|
| Reverse Breakdown Voltage (I _R = 10 μ A) MMSD301T1G, SMMSD301T1G MMSD701T1G, SMMSD701T1G | V _{(BR)R} | 30 70 | – – | – – | V |
| Diode Capacitance (V _R = 0 V, f = 1.0 MHz) MMSD301T1G, SMMSD301T1G MMSD701T1G, SMMSD701T1G | C _T | – – | 0.9 0.5 | 1.5 1.0 | pF |
| Total Capacitance (V _R = 15 V, f = 1.0 MHz) MMSD301T1G, SMMSD301T1G (V _R = 20 V, f = 1.0 MHz) MMSD701T1G, SMMSD701T1G | C _T | – – | 0.9 0.5 | 1.5 1.0 | pF |
| Reverse Leakage (V _R = 25 V) MMSD301T1G, SMMSD301T1G (V _R = 35 V) MMSD701T1G, SMMSD701T1G | I _R | – – | 13 9.0 | 200 200 | nAdc |
| Forward Voltage (I _F = 1.0 mAdc) MMSD301T1G, SMMSD301T1G (I _F = 10 mA) (I _F = 1.0 mAdc) MMSD701T1G, SMMSD701T1G (I _F = 10 mA) | V _F | – – – – | 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

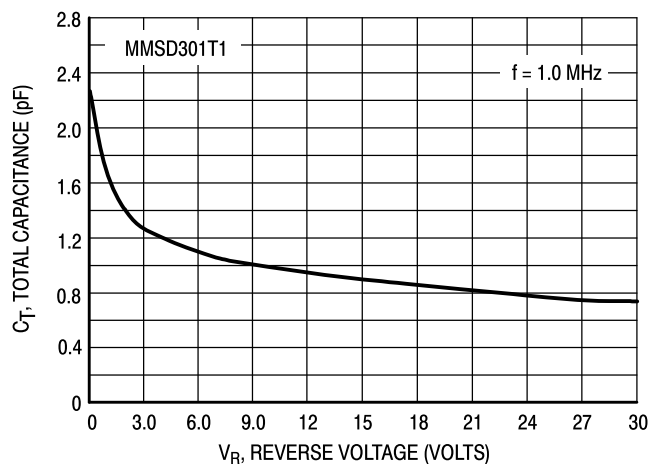


Figure 1. Total Capacitance

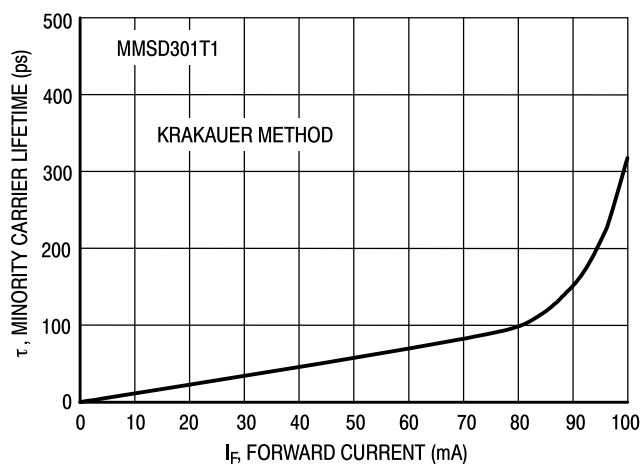


Figure 2. Minority Carrier Lifetime

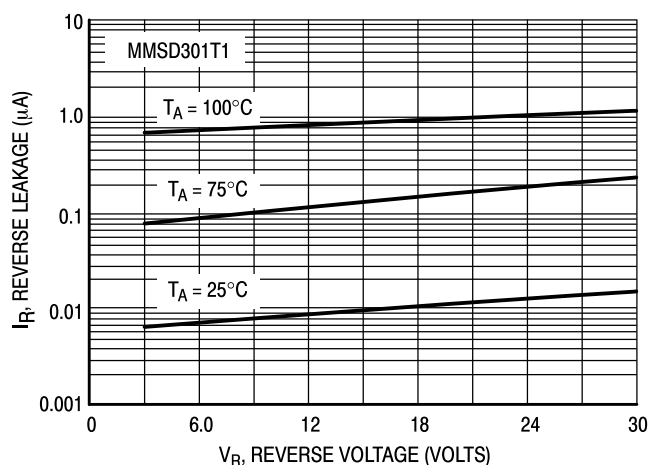


Figure 3. Reverse Leakage

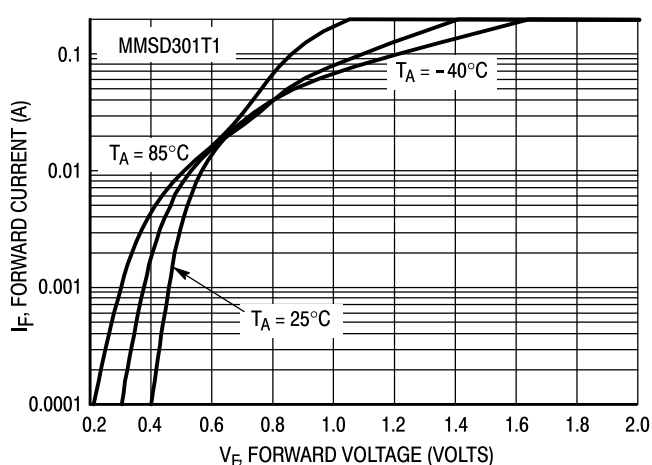


Figure 4. Forward Voltage

MMSD301T1G, SMMSD301T1G, MMSD701T1G, SMMSD701T1G,

TYPICAL CHARACTERISTICS MMSD701T1G, SMMSD701T1G

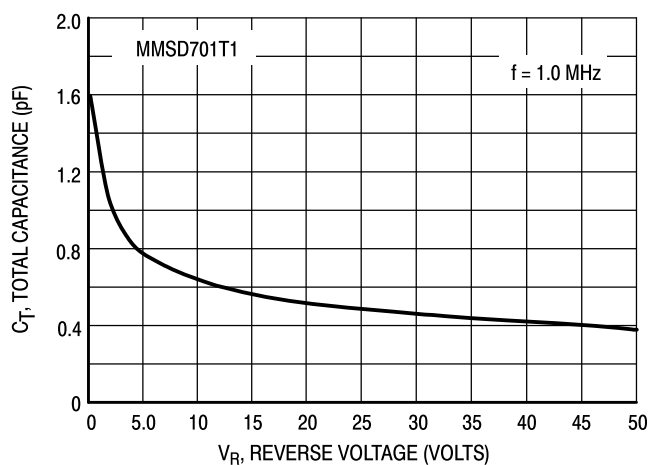


Figure 5. Total Capacitance

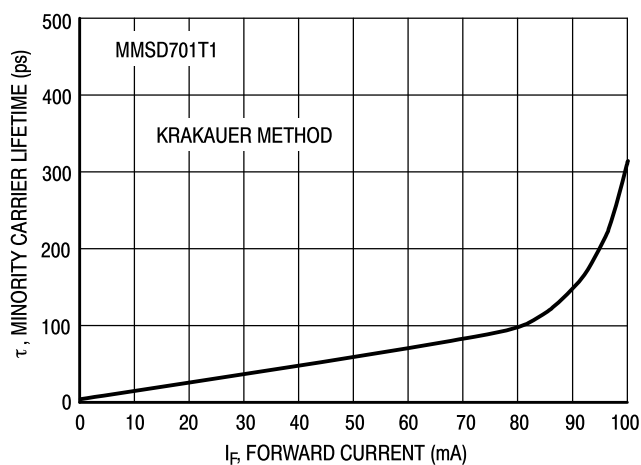


Figure 6. Minority Carrier Lifetime

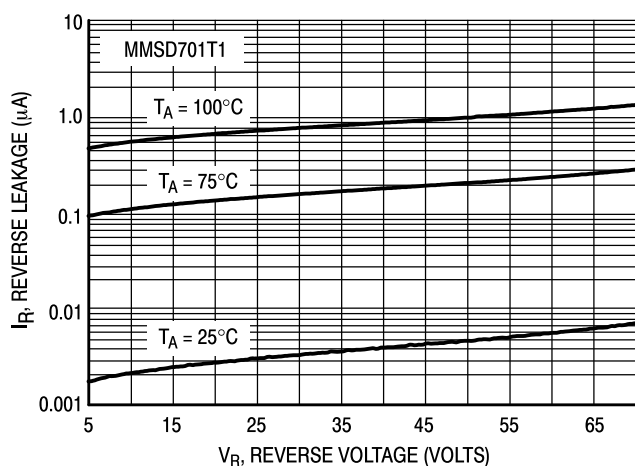


Figure 7. Reverse Leakage

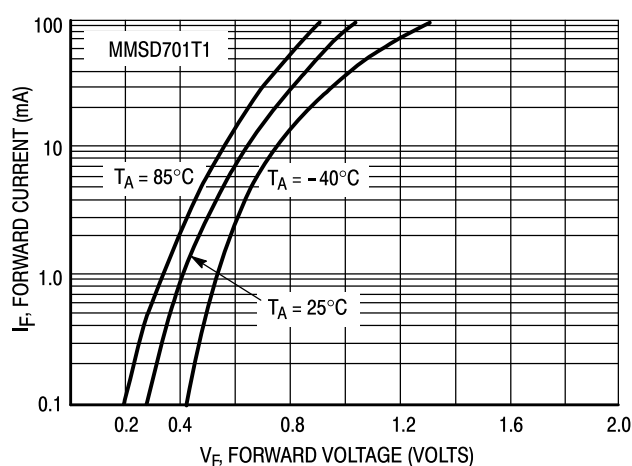


Figure 8. Forward Voltage

MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS

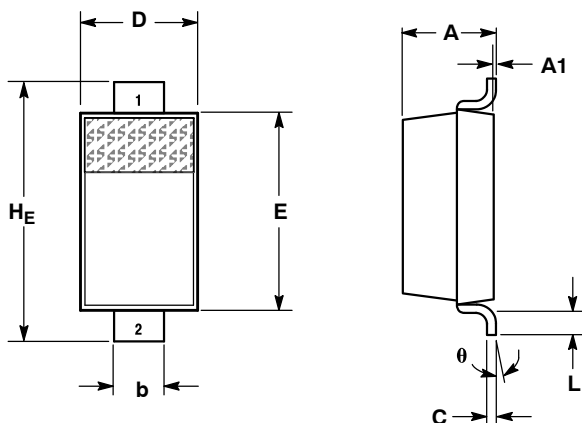
ON Semiconductor®



SCALE 5:1

SOD-123
CASE 425-04
ISSUE G

DATE 07 OCT 2009



NOTES:

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° |

GENERIC MARKING DIAGRAM*



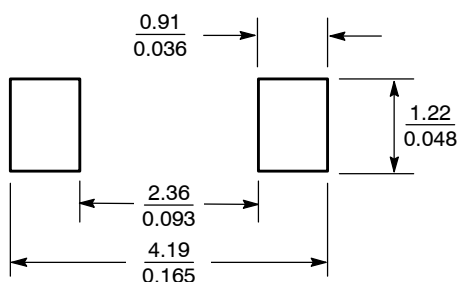
XXX = Specific Device Code
M = Date Code
■ = Pb-Free Package

(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

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

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