

# MMBD330T1G, SMMBD330T1G, MMBD770T1G, SMMBD770T1G



## Schottky Barrier Diodes

Schottky barrier diodes are designed primarily for high-efficiency UHF and VHF detector applications. Readily available to many other fast switching RF and digital applications. They are housed in the SOT-323/SC-70 package which is designed for low-power surface mount applications.

### Features

- Extremely Low Minority Carrier Lifetime
- Very Low Capacitance
- Low Reverse Leakage
- Available in 8 mm Tape and Reel
- 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

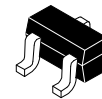
| Rating  | Symbol    | Value       | Unit             |
|---|-----------|-------------|------------------|
| Reverse Voltage<br>MMBD330T1G, SMMBD330T1G<br>MMBD770T1G, SMMBD770T1G | $V_R$     | 30<br>70    | Vdc              |
| Forward Continuous Current (DC)                                       | $I_F$     | 200         | mA               |
| Nonrepetitive Peak Forward Current<br>(Note 1)                        | $I_{FSM}$ | 1.0         | A                |
| Forward Power Dissipation<br>$T_A = 25^\circ\text{C}$                 | $P_F$     | 120         | 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.

1. 60 Hz Halfsine.

ON Semiconductor®

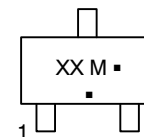
<http://onsemi.com>



SC-70/SOT-323  
CASE 419



### MARKING DIAGRAMS



- XX = Specific Device Code
- 4T = MMBD330T1
- 5H = MMBD770T1
- M = Date Code
- = Pb-Free Package

(Note: Microdot may be in either location)

\*Date Code orientation may vary depending upon the manufacturing location.

### ORDERING INFORMATION

| Device      | Package            | Shipping†         |
|-------------|--------------------|-------------------|
| MMBD330T1G  | SC-70<br>(Pb-Free) | 3,000/Tape & Reel |
| SMMBD330T1G | SC-70<br>(Pb-Free) | 3,000/Tape & Reel |
| MMBD770T1G  | SC-70<br>(Pb-Free) | 3,000/Tape & Reel |
| SMMBD770T1G | SC-70<br>(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.

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

# MMBD330T1G, SMMBD330T1G, MMBD770T1G, SMMBD770T1G

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

| Characteristic  | Symbol             | Min              | Typ                          | Max                         | Unit  |
|---|--------------------|------------------|------------------------------|-----------------------------|-------|
| Reverse Breakdown Voltage<br>(I <sub>R</sub> = 10 μA)<br>MMBD330T1G, SMMBD330T1G<br>MMBD770T1G, SMMBD770T1G   | V <sub>(BR)R</sub> | 30<br>70         | -<br>-                       | -<br>-                      | Volts |
| Diode Capacitance<br>(V <sub>R</sub> = 15 Volts, f = 1.0 MHz)<br>MMBD330T1G, SMMBD330T1G<br>(V <sub>R</sub> = 20 Volts, f = 1.0 MHz)<br>MMBD770T1G, SMMBD770T1G                             | C <sub>T</sub>     | -<br>-           | 0.9<br>0.5                   | 1.5<br>1.0                  | pF    |
| Reverse Leakage<br>(V <sub>R</sub> = 25 V)<br>MMBD330T1G, SMMBD330T1G<br>(V <sub>R</sub> = 35 V)<br>MMBD770T1G, SMMBD770T1G   | I <sub>R</sub>     | -<br>-           | 13<br>9.0                    | 200<br>200                  | nAdc  |
| Forward Voltage<br>(I <sub>F</sub> = 1.0 mAdc)<br>MMBD330T1G, SMMBD330T1G<br>(I <sub>F</sub> = 10 mA)<br>(I <sub>F</sub> = 1.0 mAdc)<br>MMBD770T1G, SMMBD770T1G<br>(I <sub>F</sub> = 10 mA) | V <sub>F</sub>     | -<br>-<br>-<br>- | 0.38<br>0.52<br>0.42<br>0.70 | 0.45<br>0.60<br>0.50<br>1.0 | Vdc   |

MMBD330T1G, SMMBD330T1G, MMBD770T1G, SMMBD770T1G

TYPICAL CHARACTERISTICS  
MMBD330T1G, SMMBD330T1G

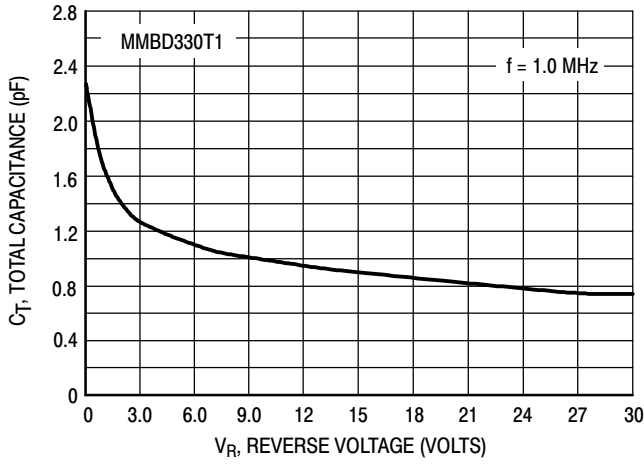


Figure 1. Total Capacitance

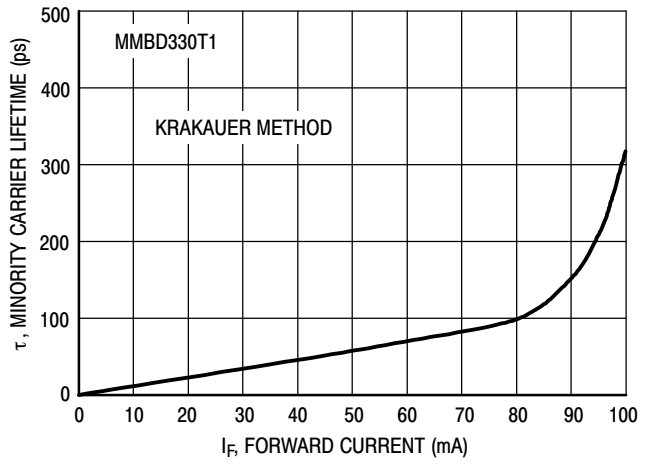


Figure 2. Minority Carrier Lifetime

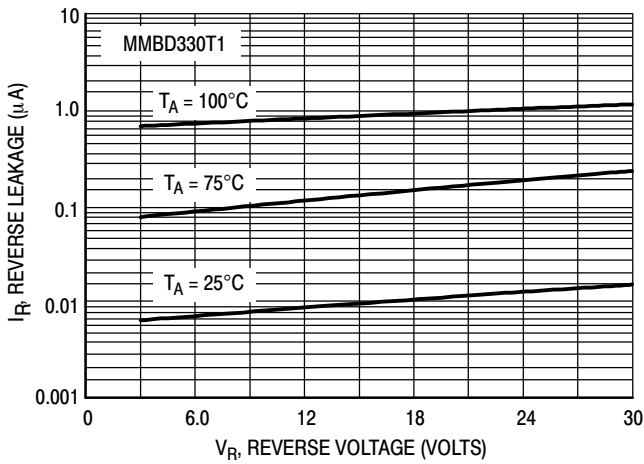


Figure 3. Reverse Leakage

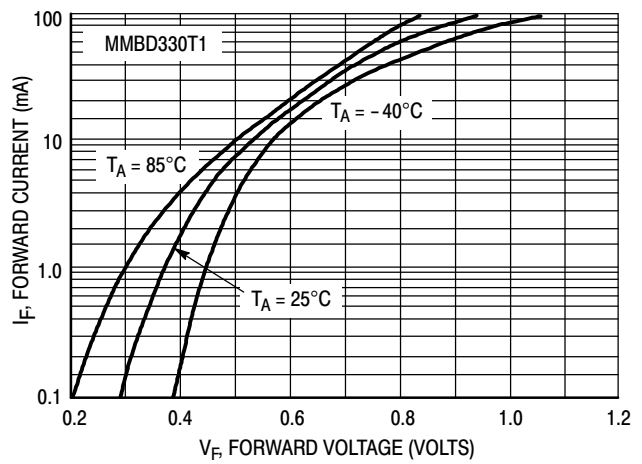


Figure 4. Forward Voltage

MMBD330T1G, SMMBD330T1G, MMBD770T1G, SMMBD770T1G

TYPICAL CHARACTERISTICS  
MMBD770T1G, SMMBD770T1G

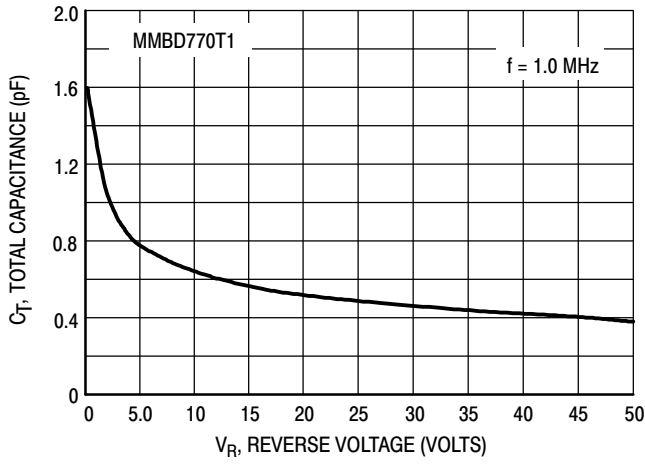


Figure 5. Total Capacitance

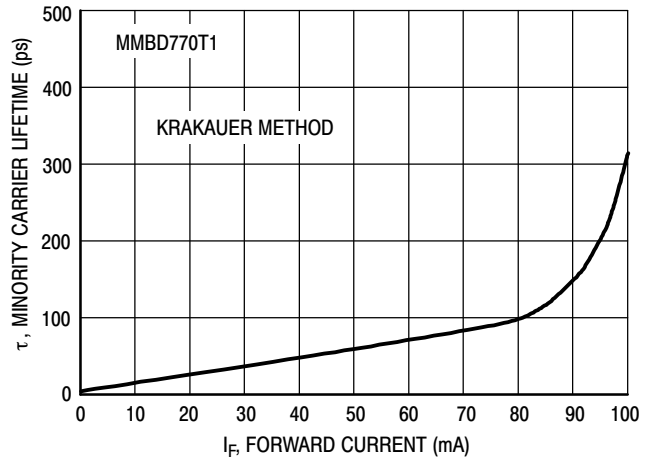


Figure 6. Minority Carrier Lifetime

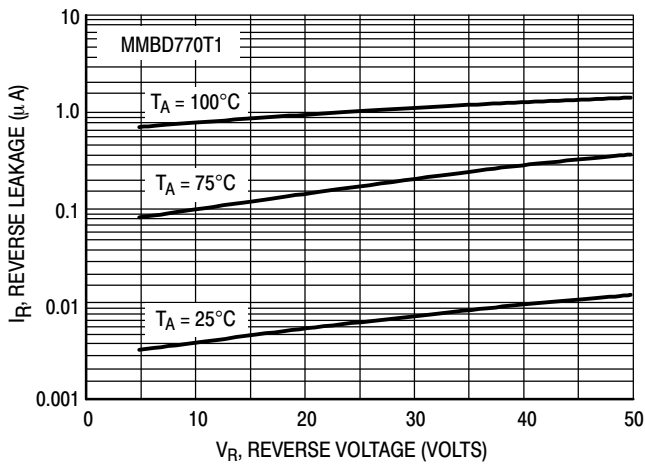


Figure 7. Reverse Leakage

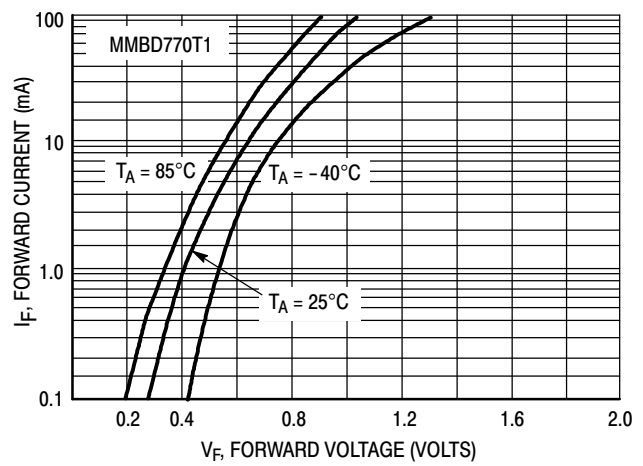


Figure 8. Forward Voltage

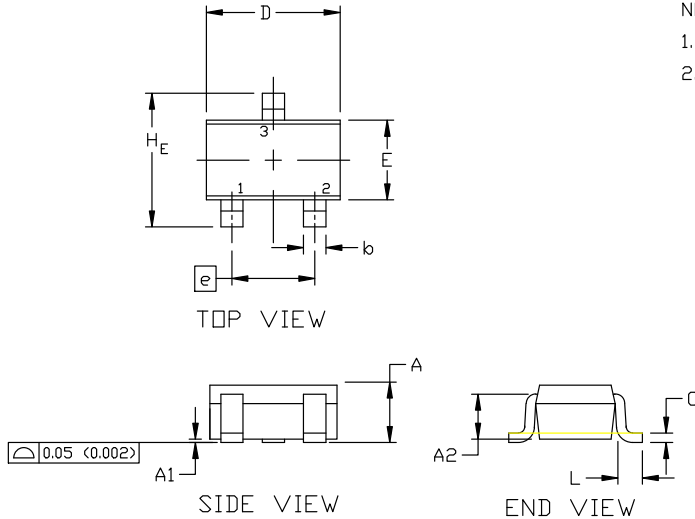
# MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS



SCALE 4:1

## SC-70 (SOT-323) CASE 419 ISSUE R

DATE 11 OCT 2022



NOTES:

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

| DIM            | MILLIMETERS |      |      | INCHES    |       |       |
|----------------|-------------|------|------|-----------|-------|-------|
|                | MIN.        | NOM. | MAX. | MIN.      | NOM.  | MAX.  |
| A              | 0.80        | 0.90 | 1.00 | 0.032     | 0.035 | 0.040 |
| A1             | 0.00        | 0.05 | 0.10 | 0.000     | 0.002 | 0.004 |
| A2             | 0.70 REF    |      |      | 0.028 BSC |       |       |
| b              | 0.30        | 0.35 | 0.40 | 0.012     | 0.014 | 0.016 |
| c              | 0.10        | 0.18 | 0.25 | 0.004     | 0.007 | 0.010 |
| D              | 1.80        | 2.00 | 2.20 | 0.071     | 0.080 | 0.087 |
| E              | 1.15        | 1.24 | 1.35 | 0.045     | 0.049 | 0.053 |
| e              | 1.20        | 1.30 | 1.40 | 0.047     | 0.051 | 0.055 |
| e1             | 0.65 BSC    |      |      | 0.026 BSC |       |       |
| L              | 0.20        | 0.38 | 0.56 | 0.008     | 0.015 | 0.022 |
| H <sub>E</sub> | 2.00        | 2.10 | 2.40 | 0.079     | 0.083 | 0.095 |

### GENERIC MARKING DIAGRAM



- XX = Specific Device Code
- M = Date Code
- = Pb-Free Package

\*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. Some products may not follow the Generic Marking.



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

### SOLDERING FOOTPRINT

|   |   |   |  |   |
|---|---|---|--|---|
| STYLE 1:<br>CANCELLED                                 | STYLE 2:<br>PIN 1. ANODE<br>2. N.C.<br>3. CATHODE     | STYLE 3:<br>PIN 1. BASE<br>2. EMITTER<br>3. COLLECTOR | STYLE 4:<br>PIN 1. CATHODE<br>2. CATHODE<br>3. ANODE       | STYLE 5:<br>PIN 1. ANODE<br>2. ANODE<br>3. CATHODE          |
| STYLE 6:<br>PIN 1. EMITTER<br>2. BASE<br>3. COLLECTOR | STYLE 7:<br>PIN 1. BASE<br>2. EMITTER<br>3. COLLECTOR | STYLE 8:<br>PIN 1. GATE<br>2. SOURCE<br>3. DRAIN      | STYLE 9:<br>PIN 1. ANODE<br>2. CATHODE<br>3. CATHODE-ANODE | STYLE 10:<br>PIN 1. CATHODE<br>2. ANODE<br>3. ANODE-CATHODE |
|   |   |   |  | STYLE 11:<br>PIN 1. CATHODE<br>2. CATHODE<br>3. CATHODE     |

|                         |                        |   |
|-------------------------|------------------------|---|
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| <b>DESCRIPTION:</b>     | <b>SC-70 (SOT-323)</b> | <b>PAGE 1 OF 1</b>  |

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