

# MMBD330T1G, MMBD770T1G

## 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
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

### MAXIMUM RATINGS

| Rating  | Symbol    | Value       | Unit             |
|---|-----------|-------------|------------------|
| Reverse Voltage<br>MMBD330T1<br>MMBD770T1             | $V_R$     | 30<br>70    | Vdc              |
| Forward Continuous Current (DC)                       | $I_F$     | 200         | mA               |
| Nonrepetitive Peak Forward Current (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.

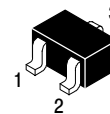


**ON Semiconductor®**

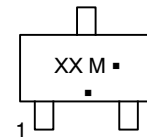
<http://onsemi.com>



### MARKING DIAGRAMS



SC-70/SOT-323  
CASE 419



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) | 3000/Tape & Reel |
| MMBD770T1G | SC-70<br>(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.

# MMBD330T1G, MMBD770T1G

## 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)   | MMBD330T1<br>MMBD770T1     | 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>(V <sub>R</sub> = 20 Volts, f = 1.0 MHZ)                             | MMBD330T1<br>MMBD770T1     | 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>(V <sub>R</sub> = 35 V)   | MMBD330T1<br>MMBD770T1     | I <sub>R</sub>     | -<br>-           | 13<br>9.0                    | 200<br>200                  | nAdc  |
| Forward Voltage<br>(I <sub>F</sub> = 1.0 mAdc)<br>(I <sub>F</sub> = 10 mA)<br>(I <sub>F</sub> = 1.0 mAdc)<br>(I <sub>F</sub> = 10 mA) | MMBD330T1<br><br>MMBD770T1 | 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   |

## TYPICAL CHARACTERISTICS MMBD330T1

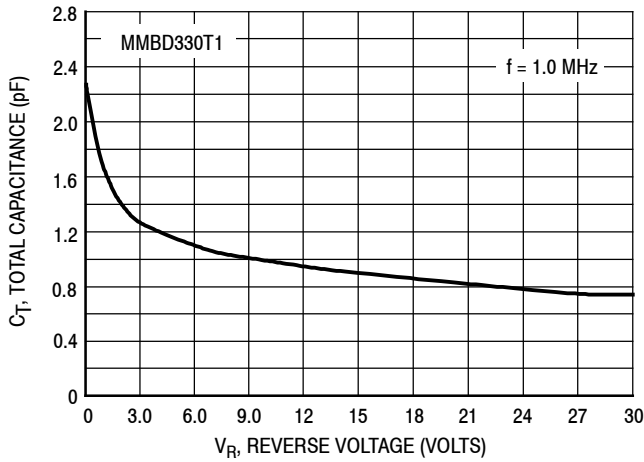


Figure 1. Total Capacitance

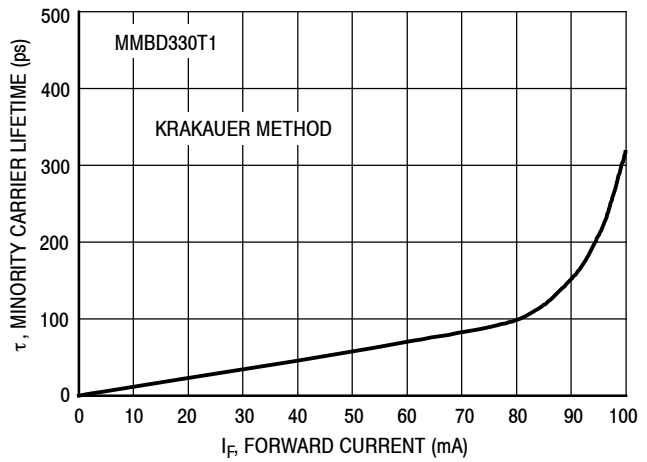


Figure 2. Minority Carrier Lifetime

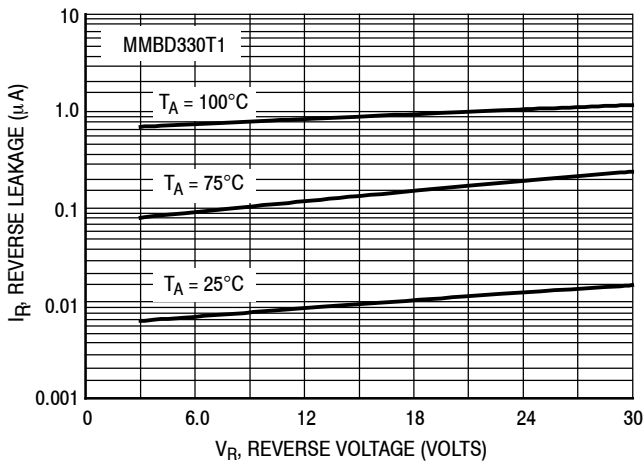


Figure 3. Reverse Leakage

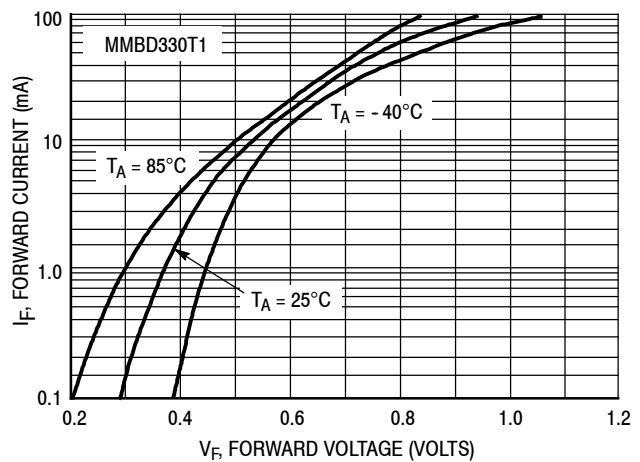


Figure 4. Forward Voltage

# MMBD330T1G, MMBD770T1G

## TYPICAL CHARACTERISTICS MMBD770T1

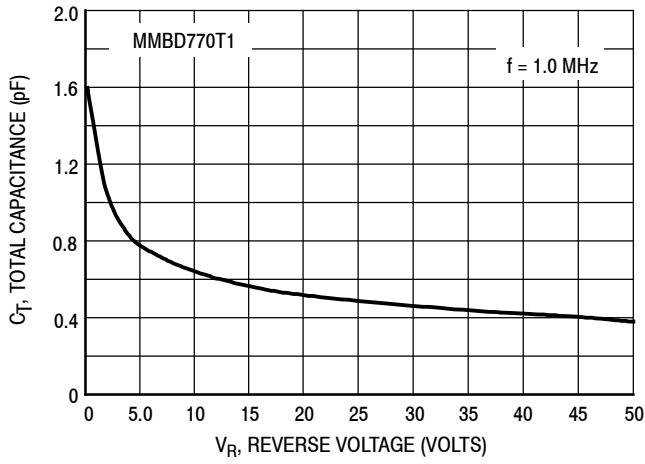


Figure 5. Total Capacitance

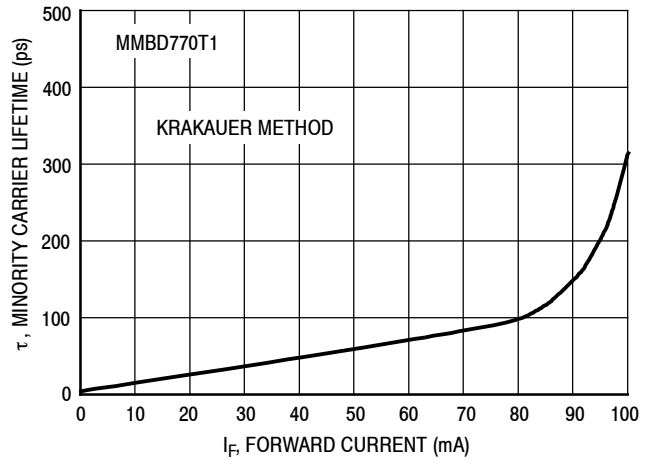


Figure 6. Minority Carrier Lifetime

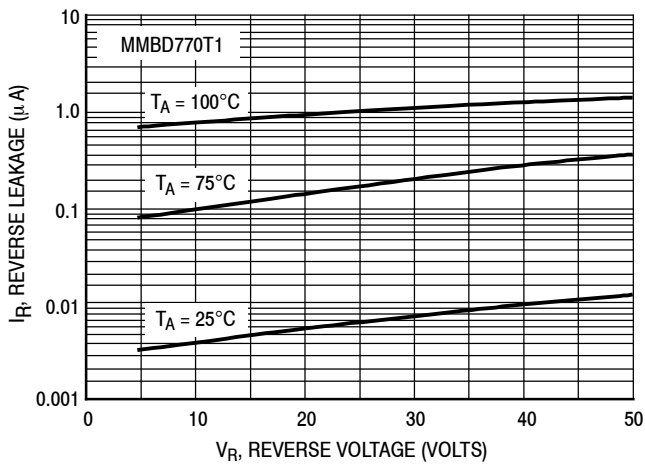


Figure 7. Reverse Leakage

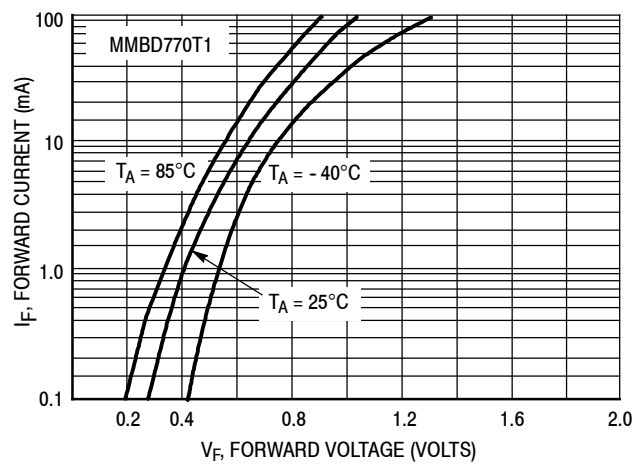
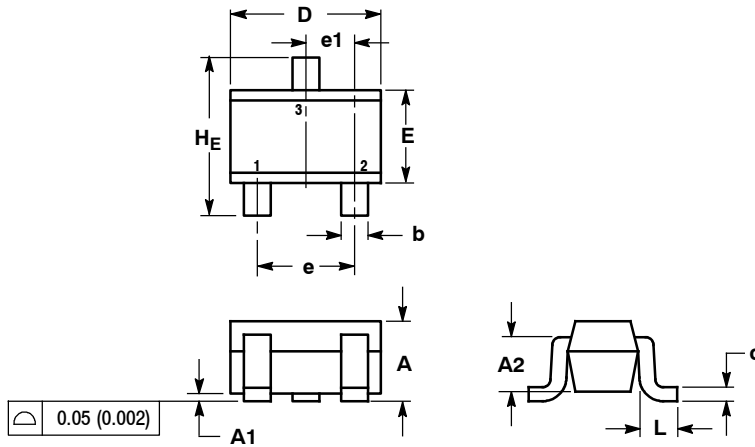


Figure 8. Forward Voltage

# MMBD330T1G, MMBD770T1G

## PACKAGE DIMENSIONS

SC-70 (SOT-323)  
CASE 419-04  
ISSUE N

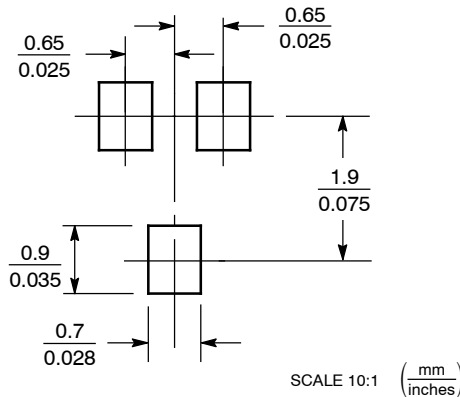


NOTES:

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

| DIM | MILLIMETERS |      |      | INCHES    |       |       |
|-----|-------------|------|------|-----------|-------|-------|
|     | MIN         | NOM  | MAX  | MIN       | NOM   | MAX   |
| A   | 0.80        | 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 REF |       |       |
| 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        | 2.10 | 2.20 | 0.071     | 0.083 | 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 |
| He  | 2.00        | 2.10 | 2.40 | 0.079     | 0.083 | 0.095 |

### SOLDERING FOOTPRINT\*



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

ON Semiconductor and are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

### PUBLICATION ORDERING INFORMATION

**LITERATURE FULFILLMENT:**  
Literature Distribution Center for ON Semiconductor  
P.O. Box 5163, Denver, Colorado 80217 USA  
**Phone:** 303-675-2175 or 800-344-3860 Toll Free USA/Canada  
**Fax:** 303-675-2176 or 800-344-3867 Toll Free USA/Canada  
**Email:** orderlit@onsemi.com

**N. American Technical Support:** 800-282-9855 Toll Free  
USA/Canada  
**Europe, Middle East and Africa Technical Support:**  
Phone: 421 33 790 2910  
**Japan Customer Focus Center**  
Phone: 81-3-5773-3850

**ON Semiconductor Website:** [www.onsemi.com](http://www.onsemi.com)  
**Order Literature:** <http://www.onsemi.com/orderlit>

For additional information, please contact your local Sales Representative

MMBD330T1/D