Schottky Barrier Diodes

MMBD330T1G, SMMBD330T1G, MMBD770T1G, SMMBD770T1G

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*

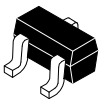
MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage MMBD330T1G, SMMBD330T1G MMBD770T1G, SMMBD770T1G	V_R	 30 70	Vdc
Forward Continuous Current (DC)	I_F	200	mA
Nonrepetitive Peak Forward Current (Note 1)	I_{FSM}	1.0	A
Forward Power Dissipation T_A = 25°C	P_F	 120	mW
Junction Temperature	T_J	−55 to +125	°C
Storage Temperature Range	T_{stg}	−55 to +150	°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.

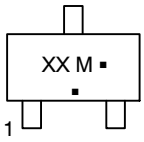
*For additional information on our Pb−Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



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 (Pb−Free)	3,000/Tape & Reel
SMMBD330T1G	SC−70 (Pb−Free)	3,000/Tape & Reel
MMBD770T1G	SC−70 (Pb−Free)	3,000/Tape & Reel
SMMBD770T1G	SC−70 (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.

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ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage (I_R = 10 μA) MMBD330T1G, SMMBD330T1G MMBD770T1G, SMMBD770T1G	$V_{(BR)R}$	 30 70	 – –	 – –	Volts
Diode Capacitance (V_R = 15 Volts, f = 1.0 MHZ) MMBD330T1G, SMMBD330T1G (V_R = 20 Volts, f = 1.0 MHZ) MMBD770T1G, SMMBD770T1G	C_T	 – –	 0.9 0.5	 1.5 1.0	pF
Reverse Leakage (V_R = 25 V) MMBD330T1G, SMMBD330T1G (V_R = 35 V) MMBD770T1G, SMMBD770T1G	I_R	 – –	 13 9.0	 200 200	nAdc
Forward Voltage (I_F = 1.0 mAdc) MMBD330T1G, SMMBD330T1G (I_F = 10 mA) (I_F = 1.0 mAdc) MMBD770T1G, SMMBD770T1G (I_F = 10 mA)	V_F	 – – – –	 0.38 0.52 0.42 0.70	 0.45 0.60 0.50 1.0	Vdc

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TYPICAL CHARACTERISTICS
MMBD330T1G, SMMBD330T1G

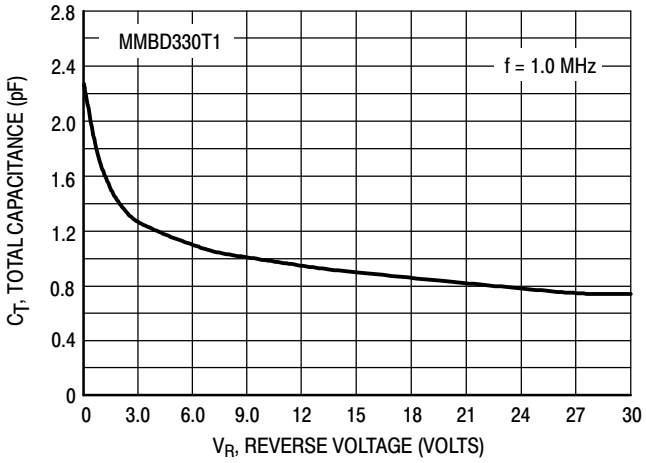


Figure 1. Total Capacitance

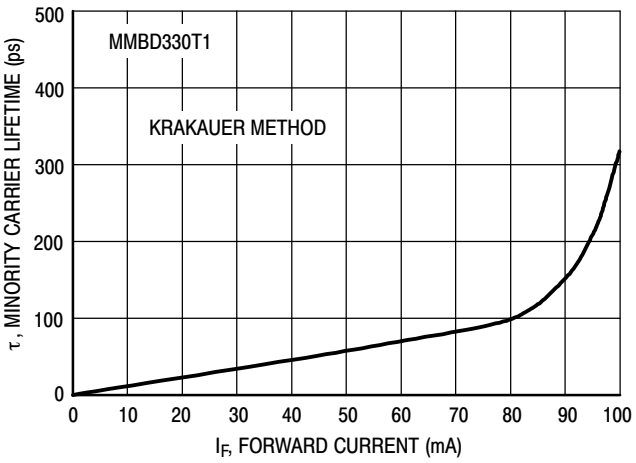


Figure 2. Minority Carrier Lifetime

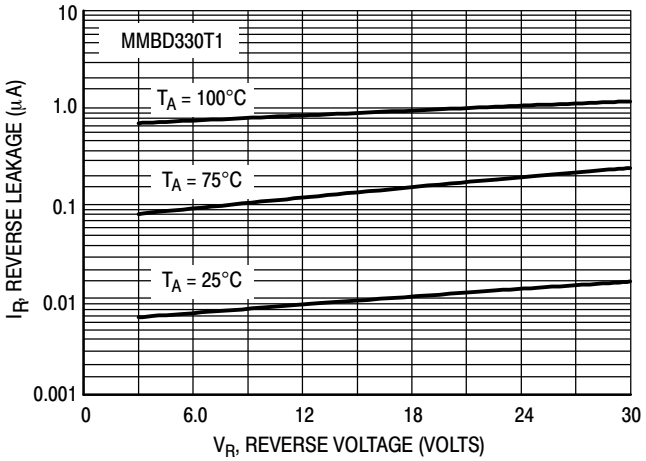


Figure 3. Reverse Leakage

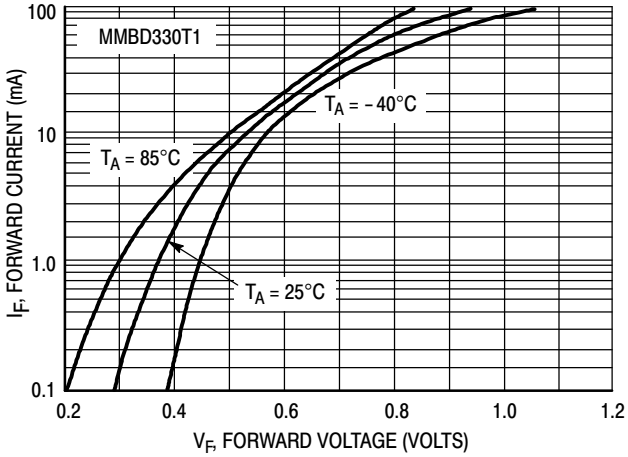


Figure 4. Forward Voltage

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TYPICAL CHARACTERISTICS
MMBD770T1G, SMMBD770T1G

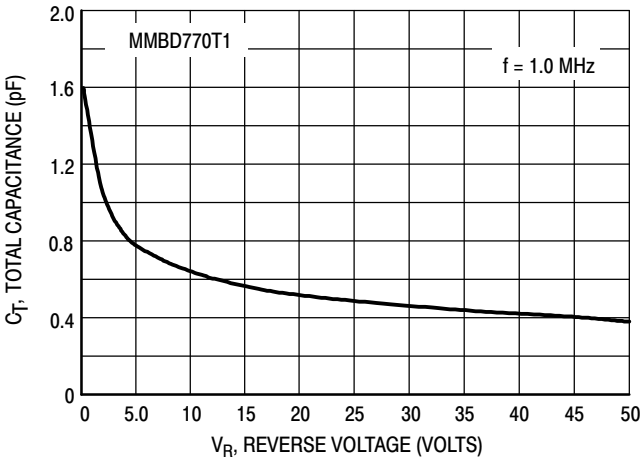


Figure 5. Total Capacitance

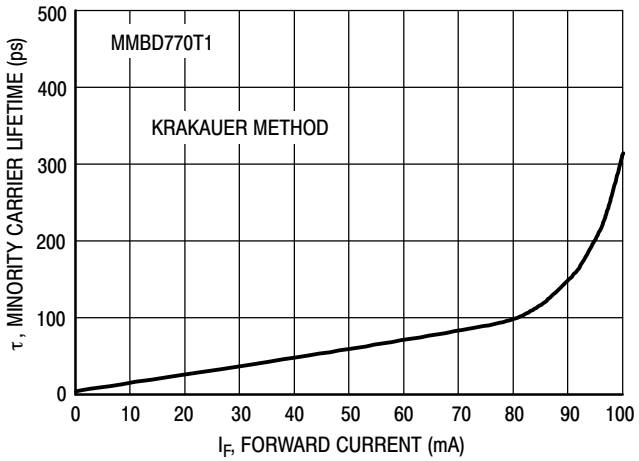


Figure 6. Minority Carrier Lifetime

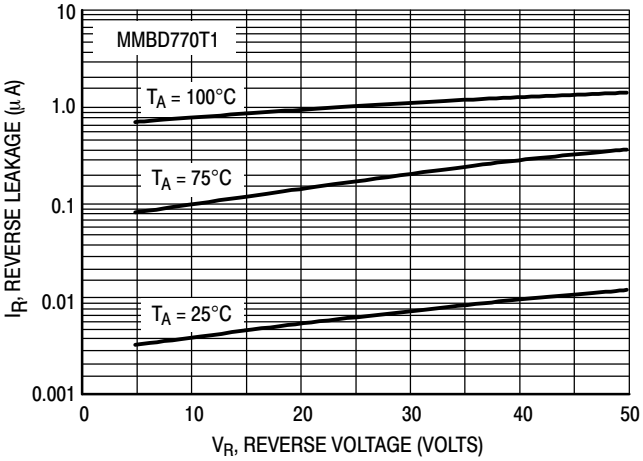


Figure 7. Reverse Leakage

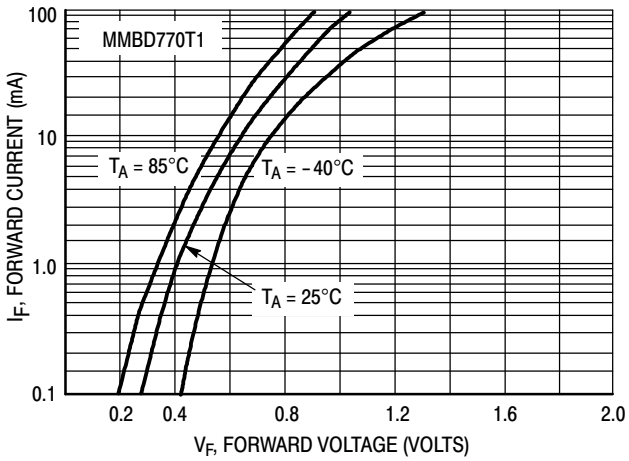
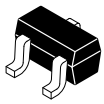


Figure 8. Forward Voltage

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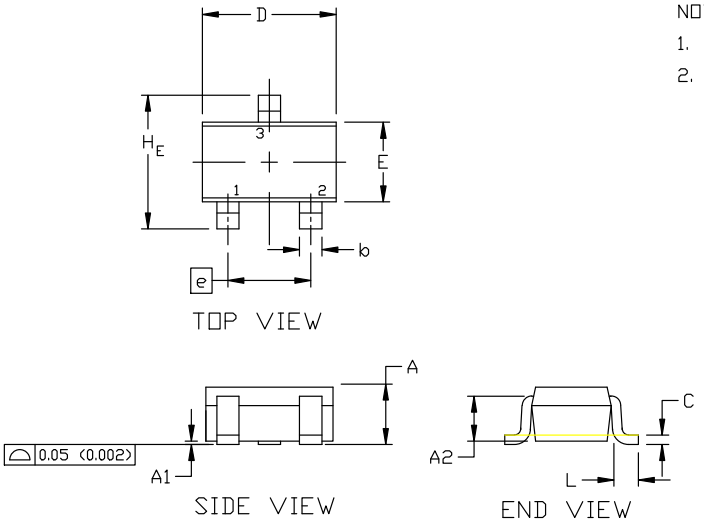
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SCALE 4:1

SC−70 (SOT−323)
CASE 419
ISSUE R

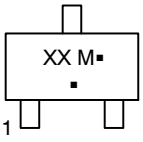
DATE 11 OCT 2022



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

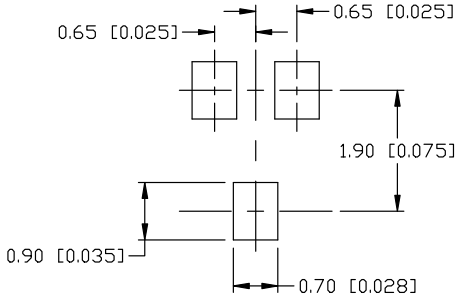
	MILLIMETERS			INCHES		
DIM	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.80	0.90	1.00	0.032	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A2	0.70 REF			0.028 BSC		
b	0.30	0.35	0.40	0.012	0.014	0.016
c	0.10	0.18	0.25	0.004	0.007	0.010
D	1.80	2.00	2.20	0.071	0.080	0.087
E	1.15	1.24	1.35	0.045	0.049	0.053
e	1.20	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_E	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 ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

SOLDERING FOOTPRINT

STYLE 1: CANCELLED

STYLE 2: PIN 1. ANODE 2. N.C. 3. CATHODE

STYLE 3: PIN 1. BASE 2. EMITTER 3. COLLECTOR

STYLE 4: PIN 1. CATHODE 2. CATHODE 3. ANODE

STYLE 5: PIN 1. ANODE 2. ANODE 3. CATHODE

STYLE 6: PIN 1. EMITTER 2. BASE 3. COLLECTOR

STYLE 7: PIN 1. BASE 2. EMITTER 3. COLLECTOR

STYLE 8: PIN 1. GATE 2. SOURCE 3. DRAIN

STYLE 9: PIN 1. ANODE 2. CATHODE 3. CATHODE−ANODE

STYLE 10: PIN 1. CATHODE 2. ANODE 3. ANODE−CATHODE

STYLE 11: PIN 1. CATHODE 2. CATHODE 3. CATHODE

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