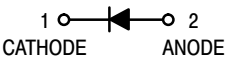
Schottky Barrier Diode

MMDL101T1G

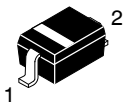
1.0 pF SCHOTTKY BARRIER DIODE

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.



Features

- Very Low Capacitance − Less than 1.0 pF @ 0 V
- Low Noise Figure − 6.0 dB Typ @ 1.0 GHz
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant



PLASTIC
SOD−323
CASE 477
STYLE 1

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	7.0	Vdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR−5 Board, (Note 1) @T_A = 25°C Derate above 25°C	P_D	200 1.57	mW mW/°C
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	635	°C/W
Junction and Storage Temperature Range	T_J, 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. FR−5 Minimum Pad

MARKING DIAGRAM

4M = Device Code
M = Date Code*
▪ = Pb−Free Package

(Note: Microdot may be in either location)
*Date Code orientation may vary depending upon manufacturing location.

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

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage (I_R = 10 μA)	$V_{(BR)R}$	7.0	10	–	V
Diode Capacitance (V_R = 0, f = 1.0 MHZ), (Note 2)*	C_T	–	0.88	1.0	pF
Reverse Leakage (V_R = 3.0 V)	I_R	–	20	250	nAdc
Noise Figure (f = 1.0 GHz), (Note 3)*	NF	–	6.0	–	dB
Forward Voltage (I_F = 10 mA)	V_F	–	0.5	0.6	Vdc

*Notes on Next Page

ORDERING INFORMATION

Device	Package	Shipping†
MMDL101T1G	SOD−323 (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.

TYPICAL CHARACTERISTICS

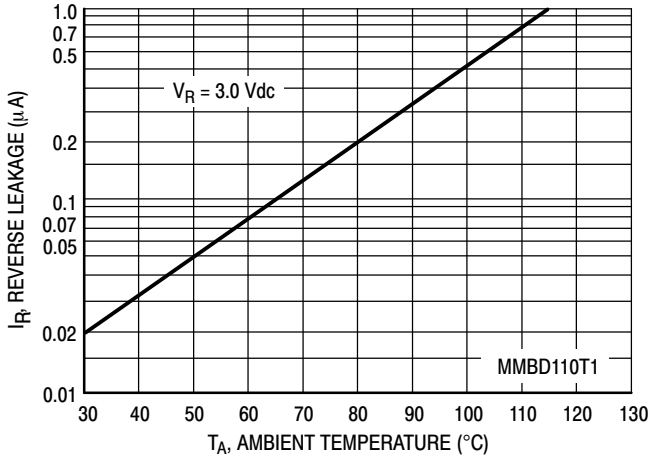


Figure 1. Reverse Leakage

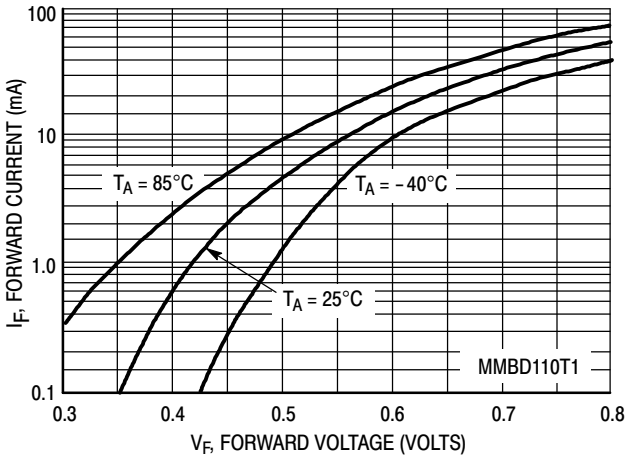


Figure 2. Forward Voltage

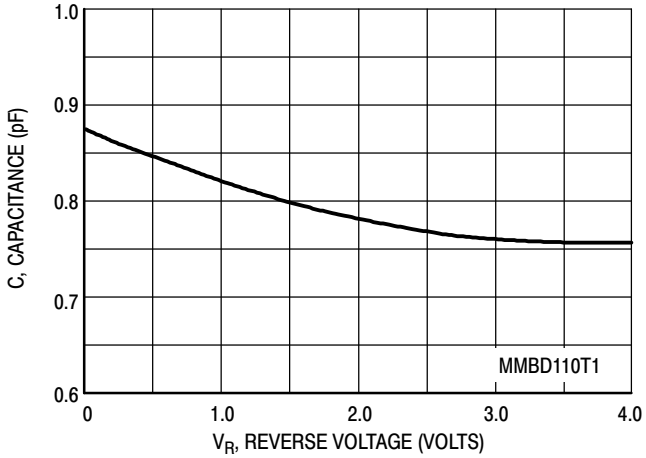


Figure 3. Capacitance

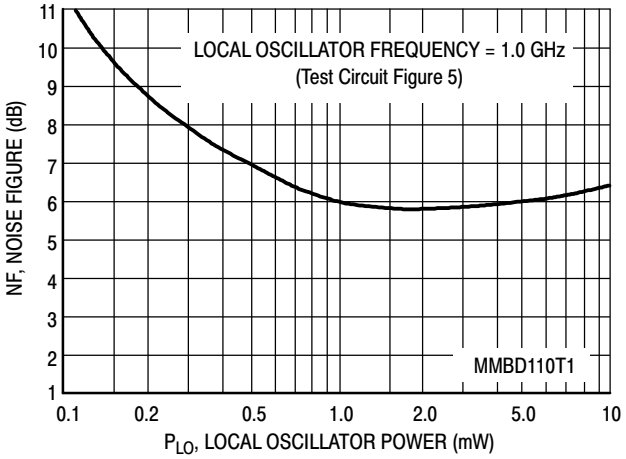


Figure 4. Noise Figure

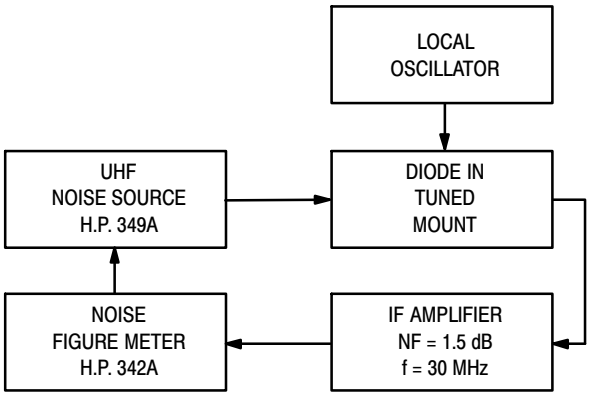
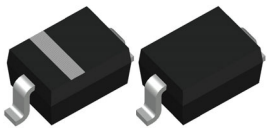


Figure 5. Noise Figure Test Circuit

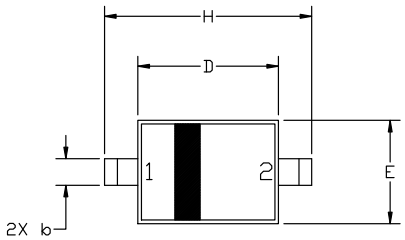
NOTES ON TESTING AND SPECIFICATIONS

2. C_C and C_T are measured using a capacitance bridge (Boonton Electronics Model 75A or equivalent).
3. Noise figure measured with diode under test in tuned diode mount using UHF noise source and local oscillator (LO) frequency of 1.0 GHz. The LO power is adjusted for 1.0 mW. IF amplifier NF = 1.5 dB, f = 30 MHz, see Figure 5.

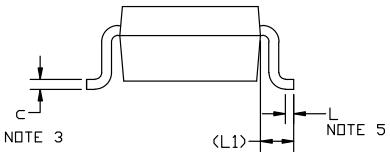


SOD−323 1.70x1.25x0.85
CASE 477
ISSUE K

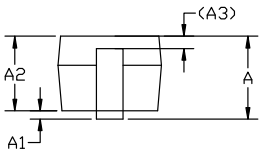
DATE 11 MAR 2024



TOP VIEW



SIDE VIEW

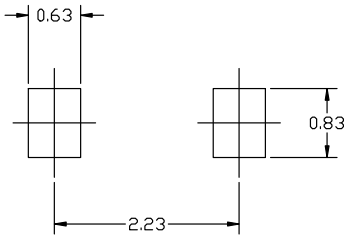


END VIEW

NOTES:

1. DIMENSIONING AND TOLERANCING AS PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. LEAD THICKNESS SPECIFIED PER L/F DRAWING WITH SOLDER PLATING.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
5. DIMENSION L IS MEASURE FROM END OF RADIUS.

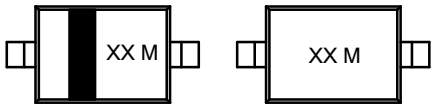
DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.80	0.90	1.00
A1	0.00	0.05	0.10
A2	0.75	0.85	0.95
A3	0.15 (REF)		
b	0.25	0.32	0.4
c	0.09	0.12	0.18
D	1.60	1.70	1.80
E	1.15	1.25	1.35
H	2.30	2.50	2.70
L	0.08	---	---
L1	0.40 (REF)		



RECOMMENDED MOUNTING 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.

GENERIC MARKING DIAGRAM*



STYLE 1 STYLE 2

XX = Specific Device Code
M = Date Code

*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.

STYLE 1:
PIN 1. CATHODE (POLARITY BAND)
2. ANODE

STYLE 2:
NO POLARITY

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DESCRIPTION:	**SOD−323 1.70x1.25x0.85**		**PAGE 1 OF 1**

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