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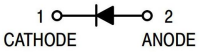
MMDL101T1G
Schottky Barrier Diode

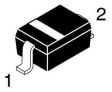
Schottky barrier diodes are designed primarily for high−efficiency UHF and VHF detector applications. Readily available to many other fast switching RF and digital applications.

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

1.0 pF SCHOTTKY BARRIER DIODE





PLASTIC
SOD−323
CASE 477
STYLE 1

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	7.0	Vdc

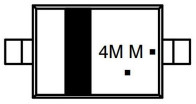
THERMAL CHARACTERISTICS

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

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TYPICAL CHARACTERISTICS

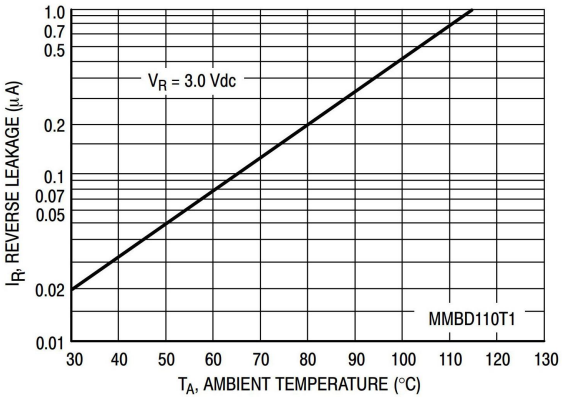

Figure 1. Reverse Leakage

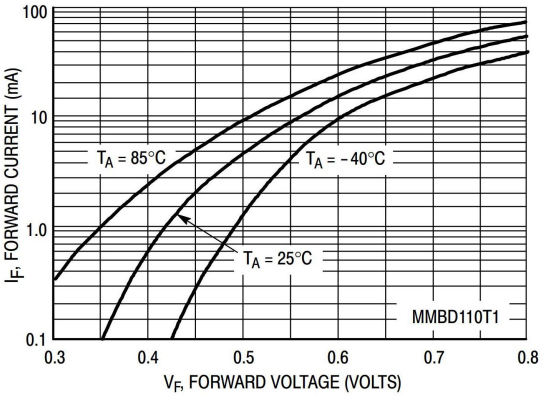

Figure 2. Forward Voltage

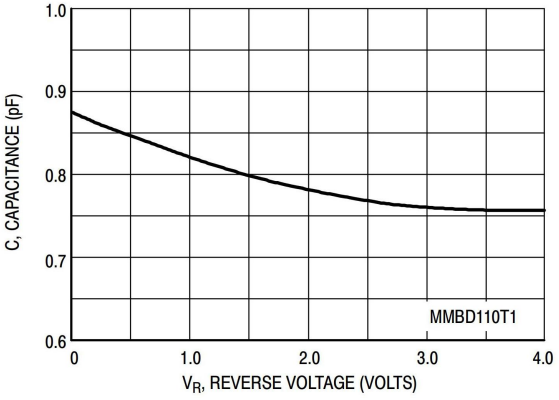

Figure 3. Capacitance

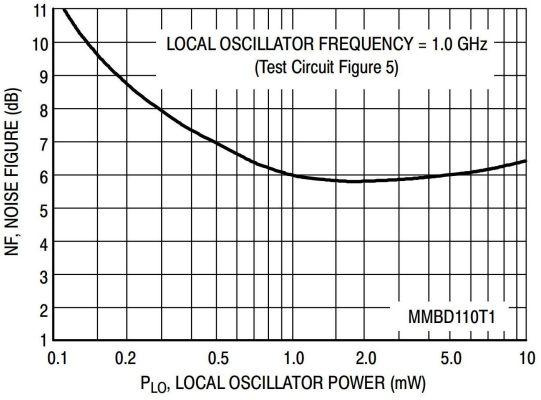

Figure 4. Noise Figure

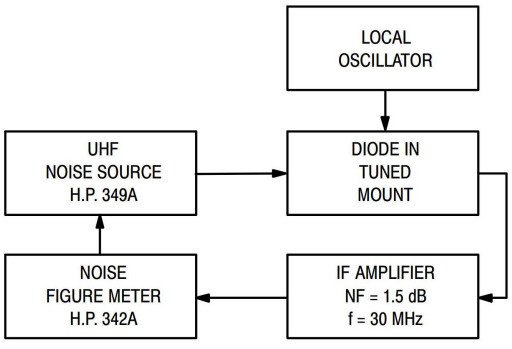

Figure 5. Noise Figure Test Circuit

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.

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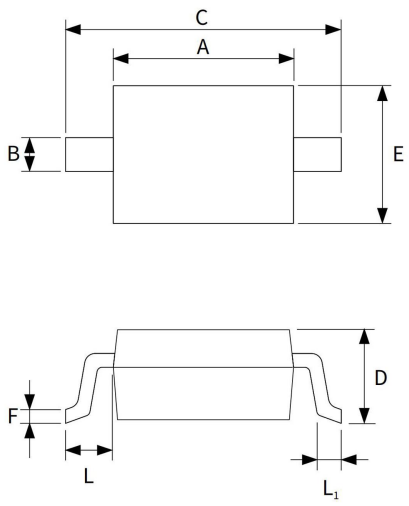
Ordering Information

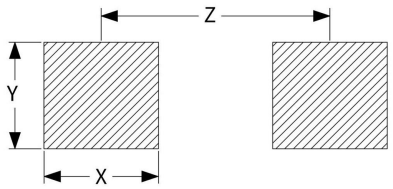
PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOD-323	R1	0.0048	3000	30000	240000	7''

Package Outline Dimensions (SOD-323)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.60	1.80	0.063	0.071
B	0.25	0.40	0.010	0.016
C	2.30	2.80	0.091	0.110
D	0.80	1.10	0.031	0.043
D_1	0.80	0.90	0.031	0.035
E	1.20	1.40	0.047	0.055
F	0.08	0.18	0.003	0.007
L	0.475REF		0.019REF	
L_1	0.25	0.40	0.010	0.016
H	-	0.14	-	0.006

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
X	0.65	0.75	0.026	0.030
Y	0.65	0.75	0.026	0.030
Z	2.10	2.20	0.084	0.088