

# MMDL101T1

## 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.

- Very Low Capacitance — Less than 1.0 pF @ Zero Volts
- Low Noise Figure — 6.0 dB Typ @ 1.0 GHz
- Device Marking: 4M

### MAXIMUM RATINGS

Symbol	Rating	Value	Unit
$V_R$	Reverse Voltage	7.0	Vdc

### THERMAL CHARACTERISTICS

Symbol	Characteristic	Max	Unit
$P_D$	Total Device Dissipation FR-5 Board,*	200	mW
	$T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	1.57	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	635	$^\circ\text{C}/\text{W}$
$T_J, T_{stg}$	Junction and Storage Temperature Range	-55 to +150	$^\circ\text{C}$

\*FR-5 Minimum Pad

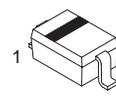


**ON Semiconductor**

Formerly a Division of Motorola

<http://onsemi.com>

## 1.0 pF SCHOTTKY BARRIER DIODE



**PLASTIC  
SOD-323  
CASE 477**



### ORDERING INFORMATION

Device	Package	Shipping
MMDL101T1	SOD-323	3000 / Tape & Reel

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## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage ( $I_R = 10 \mu\text{A}$ )	$V_{(BR)R}$	7.0	10	—	Volts
Diode Capacitance ( $V_R = 0$ , $f = 1.0 \text{ MHz}$ , Note 1)	$C_T$	—	0.88	1.0	pF
Reverse Leakage ( $V_R = 3.0 \text{ V}$ )	$I_R$	—	20	250	nAdc
Noise Figure ( $f = 1.0 \text{ GHz}$ , Note 2)	NF	—	6.0	—	dB
Forward Voltage ( $I_F = 10 \text{ mA}$ )	$V_F$	—	0.5	0.6	Vdc

\*Notes on Next Page

# MMDL101T1

## TYPICAL CHARACTERISTICS

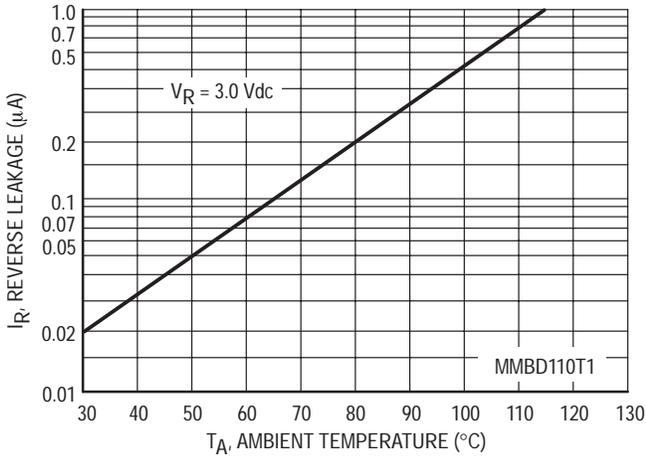


Figure 1. Reverse Leakage

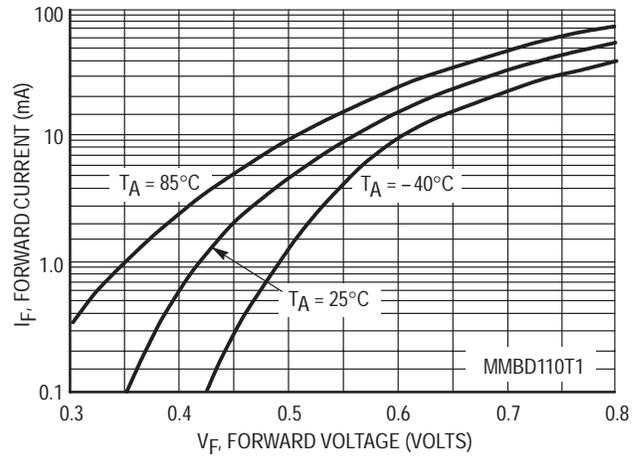


Figure 2. Forward Voltage

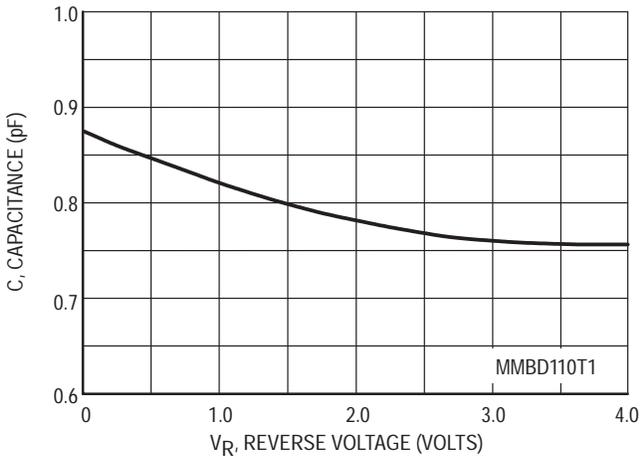


Figure 3. Capacitance

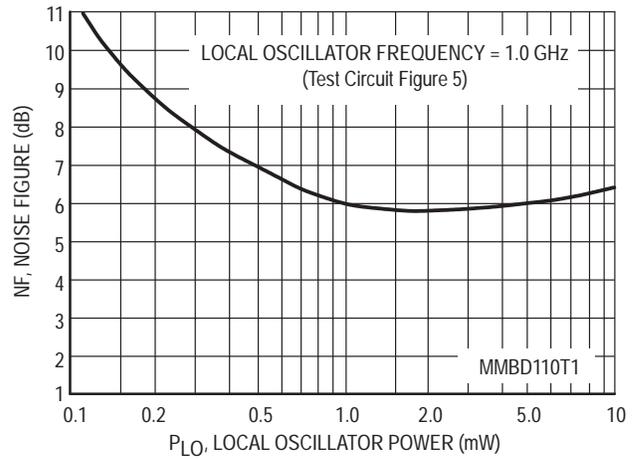


Figure 4. Noise Figure

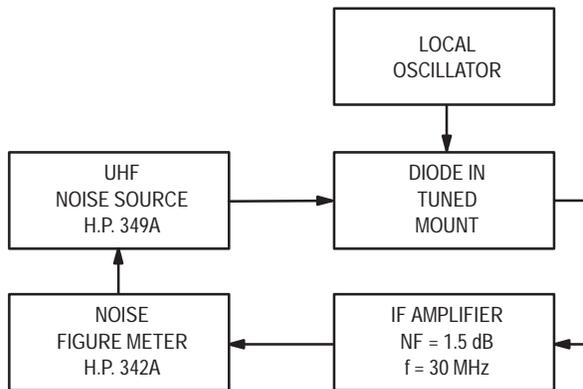


Figure 5. Noise Figure Test Circuit

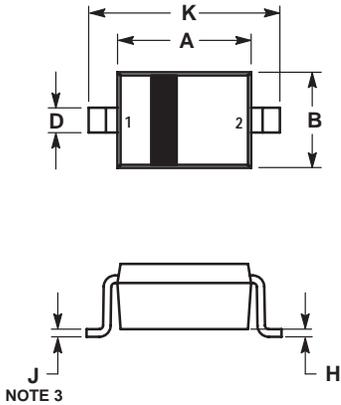
### NOTES ON TESTING AND SPECIFICATIONS

- Note 1 —  $C_C$  and  $C_T$  are measured using a capacitance bridge (Boonton Electronics Model 75A or equivalent).
- Note 2 — 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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## PACKAGE DIMENSIONS

### SOD-323 PLASTIC PACKAGE CASE 477-02 ISSUE A



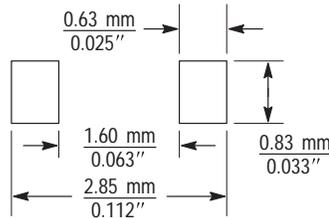
NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. LEAD THICKNESS SPECIFIED PER L/F DRAWING WITH SOLDER PLATING.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.60	1.80	0.063	0.071
B	1.15	1.35	0.045	0.053
C	0.80	1.00	0.031	0.039
D	0.25	0.40	0.010	0.016
E	0.15 REF		0.006 REF	
H	0.00	0.10	0.000	0.004
J	0.089	0.177	0.0035	0.0070
K	2.30	2.70	0.091	0.106

STYLE 1:

- PIN 1. CATHODE
- ANODE



( $\frac{\text{mm}}{\text{inches}}$ )

### SOD-323 Soldering Footprint

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