MBD101G, MMBD101LT1G

Schottky Barrier Diodes

Designed primarily for UHF mixer applications but suitable also for use in detector and ultra−fast switching circuits. Supplied in an inexpensive plastic package for low−cost, high−volume consumer requirements. Also available in Surface Mount package.

Features

- Low Noise Figure − 6.0 dB Typ @ 1.0 GHz
- Very Low Capacitance − Less Than 1.0 pF
- High Forward Conductance − 0.5 V (Typ) @ I_F = 10 mA
- These Devices are Pb−Free and are RoHS Compliant

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	7.0	V
Forward Power Dissipation T_A = 25°C MBD101 MMBD101LT1	P_F	 280 225	 mW
Derate above 25°C MBD101 MMBD101LT1		 2.2 1.8	 mW/°C
Junction Temperature	T_J	+150	°C
Storage Temperature Range	T_{stg}	−55 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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 1, page 2)	C_D	−	0.88	1.0	pF
Forward Voltage (I_F = 10 mA)	V_F	−	0.5	0.6	V
Reverse Leakage (V_R = 3.0 V)	I_R	−	0.02	0.25	μA

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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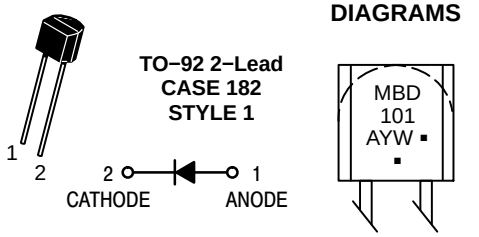
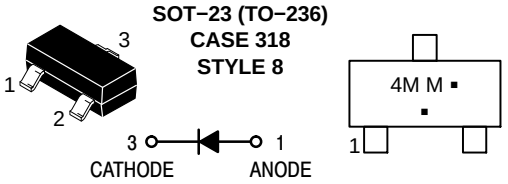
SILICON SCHOTTKY BARRIER DIODES

MARKING DIAGRAMS





(Pin 2 Not Connected)

A = Assembly Location
Y = Year
W = Work Week
4M = Device Code (SOT−23)
M = Date Code*
▪ = Pb−Free Package
(Note: Microdot may be in either location)
*Date Code orientation and/or overbar may vary depending upon manufacturing location.

ORDERING INFORMATION

Device	Package	Shipping†
MBD101G	TO−92 (Pb−Free)	5000 Units / Box
MMBD101LT1G	SOT−23 (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

(T_A = 25°C unless noted)

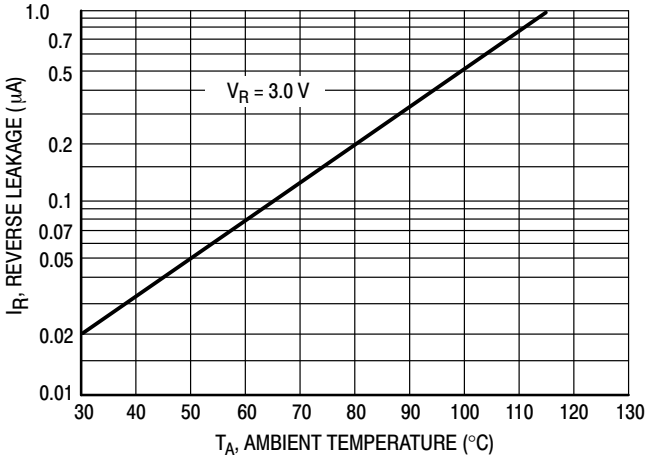


Figure 1. Reverse Leakage

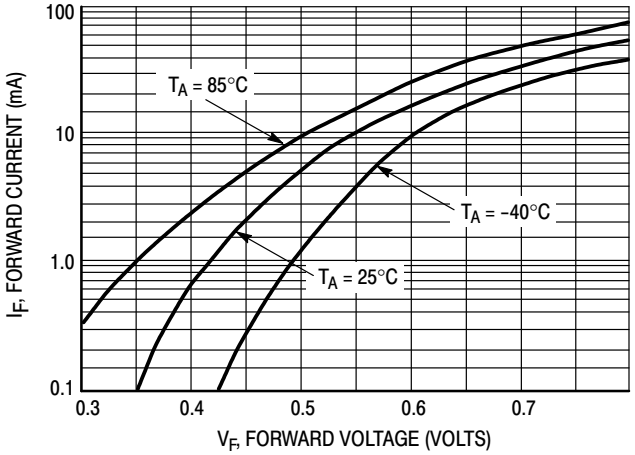


Figure 2. Forward Voltage

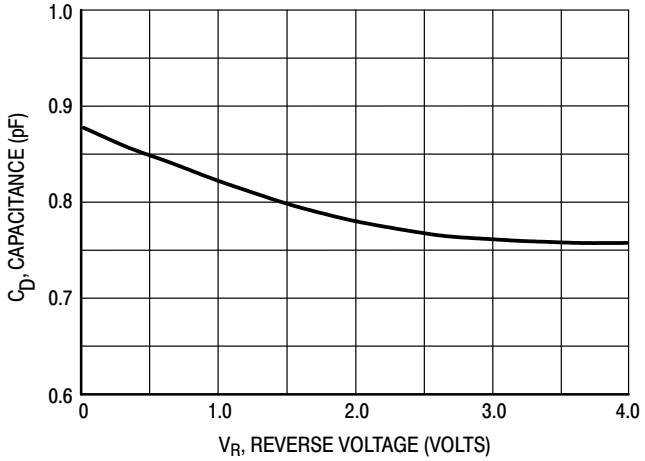


Figure 3. Capacitance

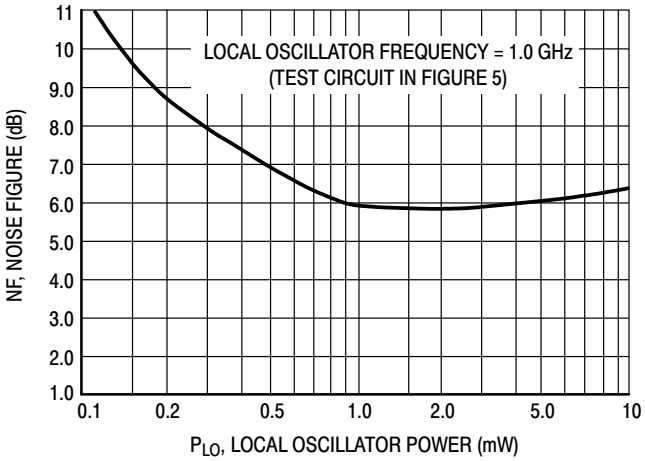


Figure 4. Noise Figure

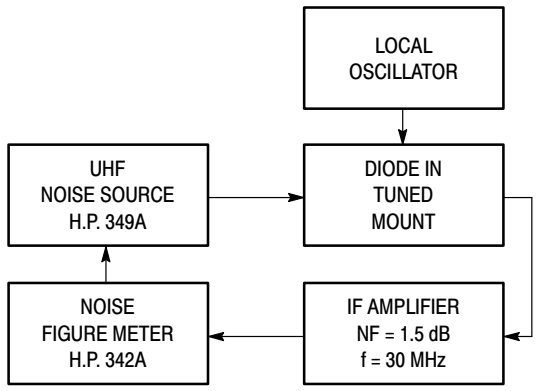


Figure 5. Noise Figure Test Circuit

NOTES ON TESTING AND SPECIFICATIONS

Note 1 — C_D is measured using a capacitance bridge (Boonton Electronics Model 75A or equivalent).

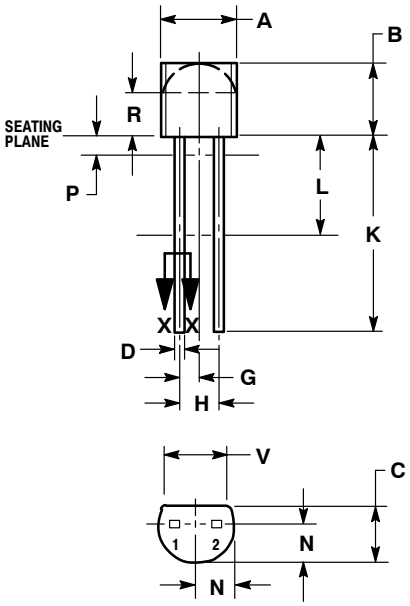
Note 2 — Noise figure measured with diode under test in tuned diode mount using UHF noise source and local oscillator (LO) frequency of 1.0 GHz. The LO power is adjusted for 1.0 mW. IF amplifier NF = 1.5 dB, f = 30 MHz, see Figure 5.

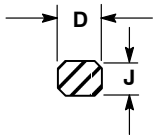
Note 3 — L_S is measured on a package having a short instead of a die, using an impedance bridge (Boonton Radio Model 250A RX Meter).

TO−92 (TO−226)
CASE 182−06
ISSUE L

DATE 04/18/1998

SCALE 1:1





SECTION X−X

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND ZONE R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.175	0.205	4.45	5.21
B	0.170	0.210	4.32	5.33
C	0.125	0.165	3.18	4.19
D	0.016	0.021	0.407	0.533
G	0.050 BSC		1.27 BSC	
H	0.100 BSC		2.54 BSC	
J	0.014	0.016	0.36	0.41
K	0.500	---	12.70	---
L	0.250	---	6.35	---
N	0.080	0.105	2.03	2.66
P	---	0.050	---	1.27
R	0.115	---	2.93	---
V	0.135	---	3.43	---

STYLE 1:
PIN 1. ANODE
2. CATHODE

STYLE 2:
PIN 1. CATHODE
2. ANODE

STYLE 3:
PIN 1. MAIN TERMINAL 1
2. MAIN TERMINAL 2

STYLE 4:
CANCELLED

STYLE 5:
PIN 1. INPUT
2. OUTPUT

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DESCRIPTION:	**TO−92 (TO−226)**		**PAGE 1 OF 1**

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