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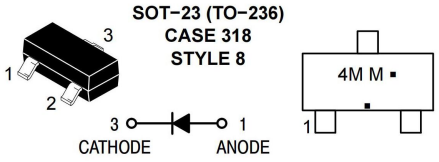
MMBD101LT1G
Schottky Barrier Diodes

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

SILICON SCHOTTKY BARRIER DIODES



(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.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	7.0	V
Forward Power Dissipation T_A = 25°C MMBD101LT1G Derate above 25°C MMBD101LT1G	P_F	 280 225 2.2 1.8	 mW 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.

ORDERING INFORMATION

Device	Package	Shipping†
MMBD101LT1G	SOT−23 (Pb−Free)	3000 / Tape & Reel

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TYPICAL CHARACTERISTICS

(T_A = 25°C unless noted)

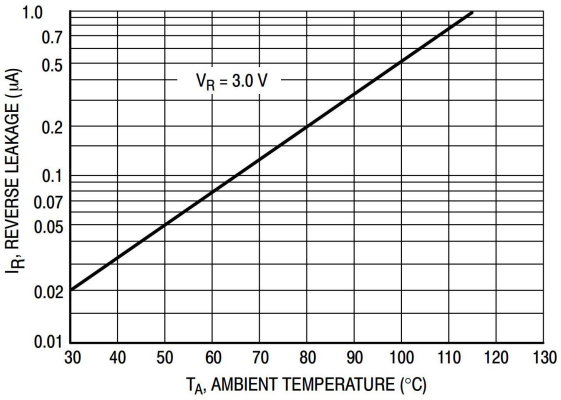

Figure 1. Reverse Leakage

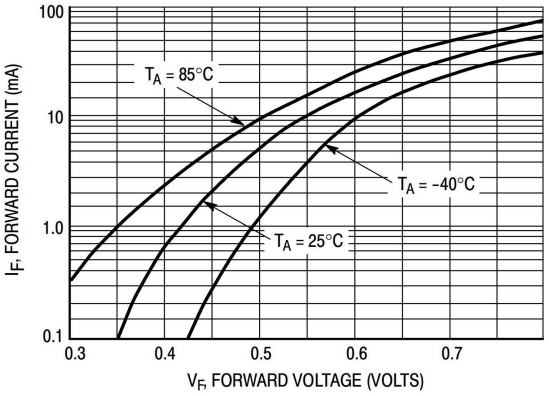

Figure 2. Forward Voltage

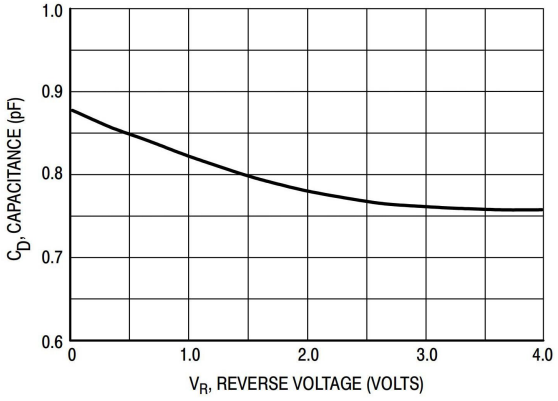

Figure 3. Capacitance

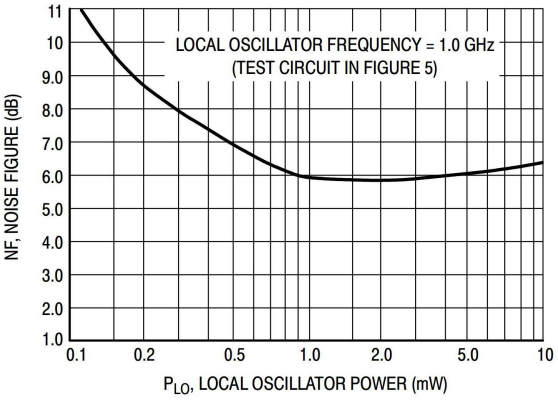

Figure 4. Noise Figure

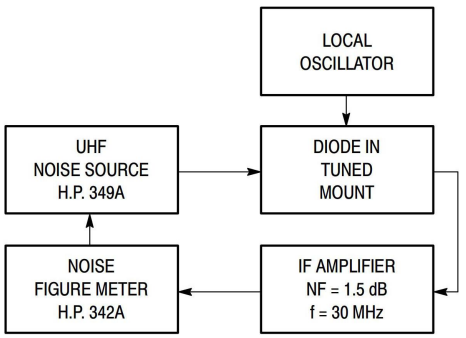

Figure 5. Noise Figure Test Circuit

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).

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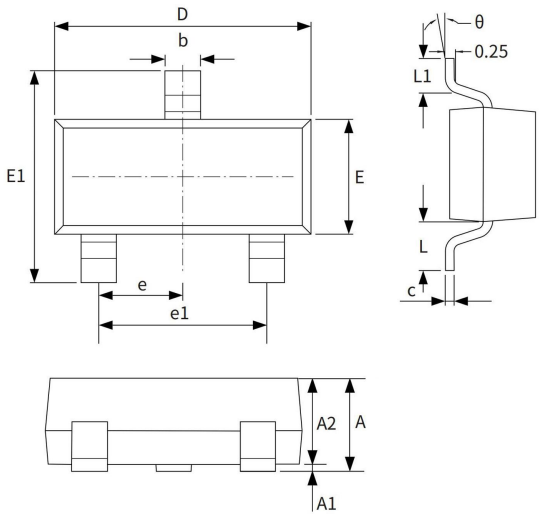
Ordering Information

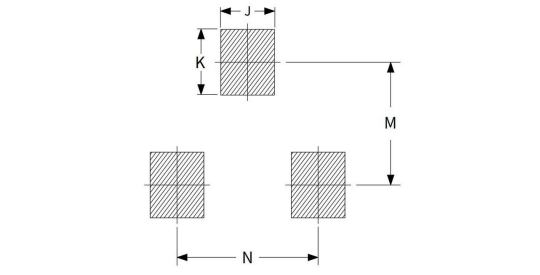
PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23	R1	0.008	3000	30000	240000	7''

Package Outline Dimensions (SOT-23)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.15	0.035	0.045
A1	-	0.10	-	0.004
A2	0.90	1.05	0.035	0.041
b	0.30	0.50	0.012	0.020
c	0.10	0.20	0.004	0.008
D	2.80	3.00	0.110	0.118
E	1.20	1.40	0.047	0.055
E1	2.25	2.55	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.80	2.00	0.071	0.079
L	0.550REF		0.022REF	
L1	0.30	0.50	0.012	0.020
θ	-	8°	-	8°

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	0.75	0.85	0.030	0.033
K	0.85	0.95	0.033	0.037
M	1.95	2.05	0.077	0.081
N	1.85	1.95	0.073	0.077