MOTOROLA
SEMICONDUCTOR
TECHNICAL DATA

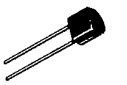
MBD101
MMBD101
MMBD101L

SILICON HOT-CARRIER DIODE (SCHOTTKY BARRIER DIODE)

. . . 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.

- The Rugged Schottky Barrier Construction Provides Stable Characteristics by Eliminating the "Cat-Whisker" Contact
- Low Noise Figure — 6.0 dB Typ @ 1.0 GHz
- Very Low Capacitance — Less Than 1.0 pF @ Zero Volts
- High Forward Conductance — 0.50 Volts (Typ) @ I_F = 10 mA

SILICON HOT-CARRIER UHF MIXER DIODE



CASE 182-02
TO-226AC

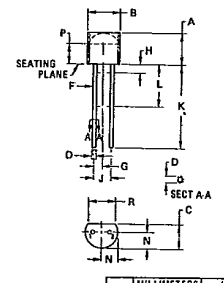
CASE 318-02
TO-236AA
SOT-23

MAXIMUM RATINGS

Rating	Symbol	MBD101	MMBD101,L	Unit
Reverse Voltage	V_R	4.0		Volts
Forward Power Dissipation @ T_A = 25°C Derate above 25°C	P_F	280 2.8	200 2.0	mW mW/°C
Junction Temperature	T_J	+125		°C
Storage Temperature Range	T_{stg}	−65 to +150		°C

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

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage (I_R = 10 μA)	$V_{(BR)R}$	4.0	5.0	–	Volts
Diode Capacitance (V_R = 0, f = 1.0 MHz, Note 1)	C_T	–	0.88	1.0	pF
Forward Voltage (1) (I_F = 10 mA)	V_F	–	0.50	0.60	Volts
Noise Figure (f = 1.0 GHz, Note 2)	NF	–	6.0	—	dB
Reverse Leakage (V_R = 3.0 V)	I_R	–	0.02	0.25	μA

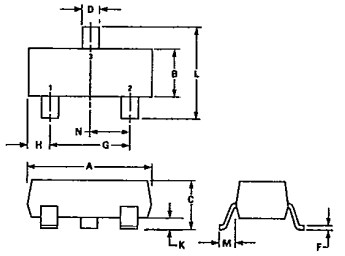


DIM	MILLIMETERS MIN	MILLIMETERS MAX	INCHES MIN	INCHES MAX
A	4.32	5.33	0.170	0.210
B	4.45	5.21	0.175	0.205
C	3.18	4.19	0.125	0.165
D	0.356	0.533	0.014	0.021
F	0.407	0.482	0.016	0.019
G	1.27 BSC		0.050 BSC	
H	–	1.27	–	0.050
J	2.54 BSC		0.100 BSC	
K	12.70	–	0.500	–
L	6.35	–	0.250	–
N	2.03	2.66	0.080	0.105
P	2.93	–	0.115	–
R	3.43	–	0.135	–

All JEDEC dimensions and notes apply

STYLE 1:
PIN 1. ANODE
2. CATHODE

CASE 182-02
TO-226AC



DIM	MILLIMETERS MIN	MILLIMETERS MAX	INCHES MIN	INCHES MAX
A	2.80	3.04	0.1102	0.1197
B	1.20	1.40	0.0472	0.0551
C	0.85	1.20	0.033	0.0472
D	0.37	0.50	0.0150	0.020
F	0.085	0.130	0.0034	0.0051
G	1.78	2.04	0.0701	0.0807
H	0.45	0.60	0.0177	0.0236
K	0.53	0.25	0.0043	0.0098
L	2.10	2.50	0.0830	0.0984
M	0.45	0.60	0.0180	0.0236
N	0.89	1.02	0.0350	0.0401
K	0.013	0.10	0.0005	0.0040

*Low Profile = CASE 318-03 TO-236AB

STYLE 8.
PIN 1. ANODE
2. NO CONNECTION
3. CATHODE

CASE 318-02
TO-236AA
SOT-23

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