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MMBD301LT1G
Silicon Hot-Carrier Diodes

Schottky Barrier Diodes

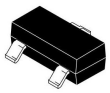
These devices are designed primarily for high−efficiency UHF and VHF detector applications. They are readily adaptable to many other fast switching RF and digital applications. They are supplied in an inexpensive plastic package for low−cost, high−volume consumer and industrial/commercial requirements. They are also available in a Surface Mount package.

Features

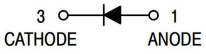
- Extremely Low Minority Carrier Lifetime − 15 ps (Typ)
- Very Low Capacitance − 1.5 pF (Max) @ V_R = 15 V
- Low Reverse Leakage − I_R = 13 nAdc (Typ) MBD301, MMBD301

- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

30 VOLTS
SILICON HOT−CARRIER DETECTOR AND SWITCHING DIODES



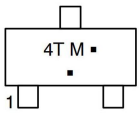
SOT−23 (TO−236)
CASE 318
STYLE 8



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	30	V
Forward Current (DC)	I_F	200 (Max)	mA
Total Device Dissipation @ T_A = 25°C MMBD301LT1G Derate above 25°C MMBD301LT1G	P_F	 280 200 2.8 2.0	MW mW/°C
Operating Junction Temperature Range	T_J	−55 to +125	°C
Storage Temperature Range	T_{stg}	−55 to +150	°C

MARKING DIAGRAMS



SOT−23

A = Assembly Location
Y = Year
WW = Work Week
4T = Device Code (SOT−23)
M = Date Code*
▪ = Pb−Free Package

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TYPICAL ELECTRICAL CHARACTERISTICS

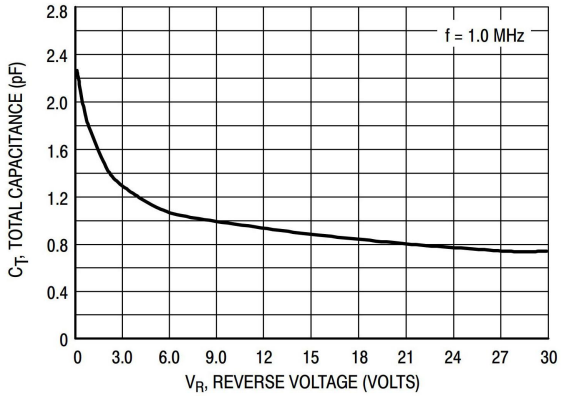

Figure 1. Total Capacitance

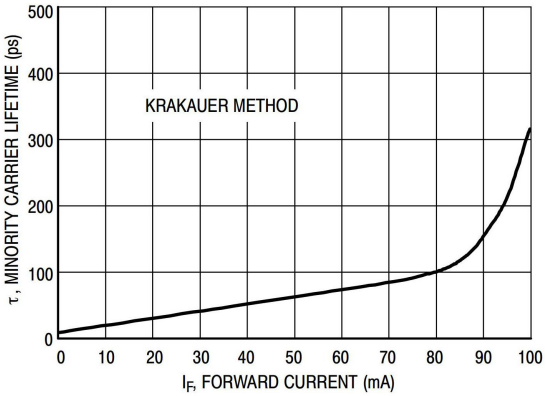

Figure 2. Minority Carrier Lifetime

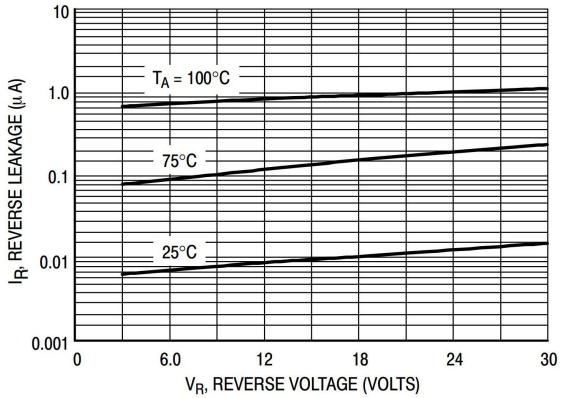

Figure 3. Reverse Leakage

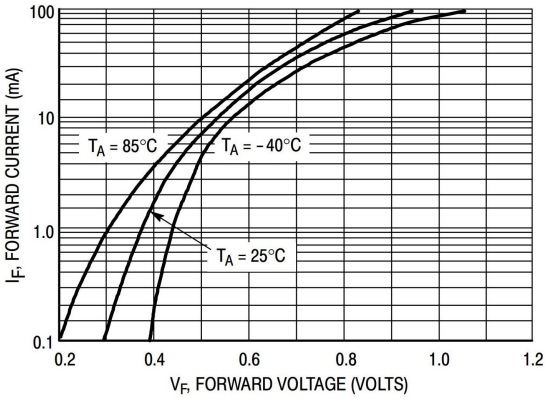

Figure 4. Forward Voltage

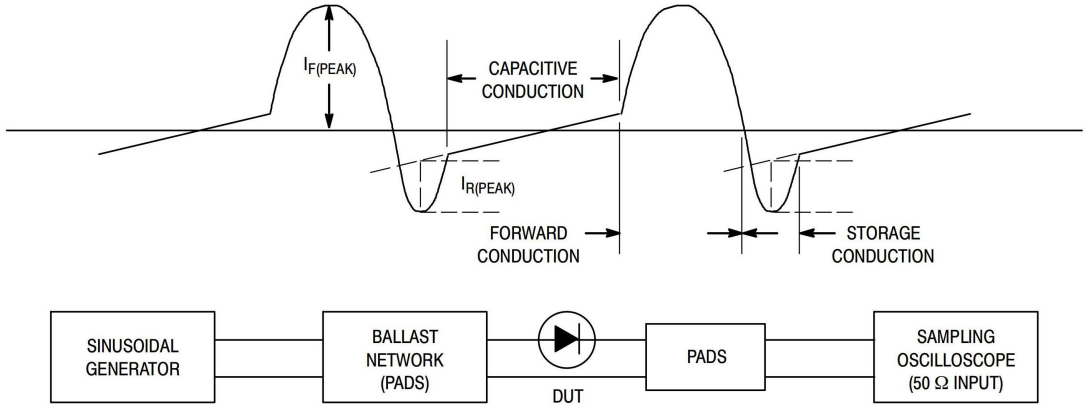

Figure 5. Krakauer Method of Measuring Lifetime

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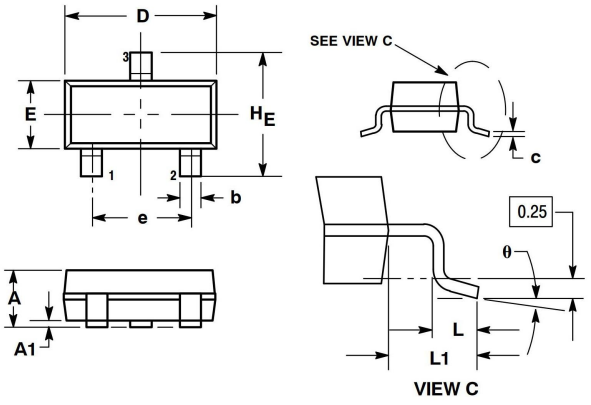
ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage (I_R = 10 μA)	$V_{(BR)R}$	30	–	–	V
Total Capacitance (V_R = 15 V, f = 1.0 MHz) Figure 1	C_T	–	0.9	1.5	pF
Reverse Leakage (V_R = 25 V) Figure 3	I_R	–	13	200	nAdc
Forward Voltage (I_F = 1.0 mAdc) Figure 4	V_F	–	0.38	0.45	Vdc
Forward Voltage (I_F = 10 mAdc) Figure 4	V_F	–	0.52	0.6	Vdc

ORDERING INFORMATION

Device	Package	Shipping†
MMBD301LT1G	SOT–23 (Pb–Free)	3,000 / Tape & Reel

SOT–23 (TO–236)
CASE 318–08
ISSUE AP



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.015	0.018	0.020
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.081
L	0.10	0.20	0.30	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
H_E	2.10	2.40	2.64	0.083	0.094	0.104
θ	0°	---	10°	0°	---	10°

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

SOLDERING FOOTPRINT*

