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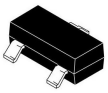
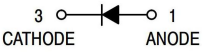
MMBD701LT1G
Silicon Hot-Carrier Diodes

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.



SOT−23 (TO−236)
CASE 318
STYLE 8



Features

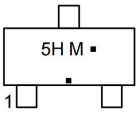
- Extremely Low Minority Carrier Lifetime − 15 ps (Typ)
- Very Low Capacitance − 1.0 pF @ V_R = 20 V
- High Reverse Voltage − to 70 V
- Low Reverse Leakage − 200 nA (Max)
- S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC Qualified and PPAP Capable
- These Devices are Pb−Free and are RoHS Compliant

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	70	V
Forward Power Dissipation @ T_A = 25°C MMBD701LT1G Derate above 25°C MMBD701LT1G	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

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.

MARKING DIAGRAMS



SOT−23

A = Assembly Location
Y = Year
W = Work Week
5H = 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†
MMBD701LT1G	SOT−23 (Pb−Free)	3,000 / Tape & Reel

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

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage (I_R = 10 μAdc)	$V_{(BR)R}$	70	–	–	V
Total Capacitance (V_R = 20 V, f = 1.0 MHz) Figure 1	C_T	–	0.5	1.0	pF
Reverse Leakage (V_R = 35 V) Figure 3	I_R	–	9.0	200	nAdc
Forward Voltage (I_F = 1.0 mAdc) Figure 4	V_F	–	0.42	0.5	Vdc
Forward Voltage (I_F = 10 mAdc) Figure 4	V_F	–	0.7	1.0	Vdc

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TYPICAL ELECTRICAL CHARACTERISTICS

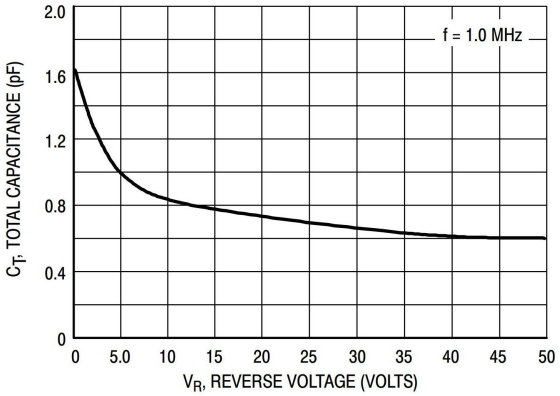

Figure 1. Total Capacitance

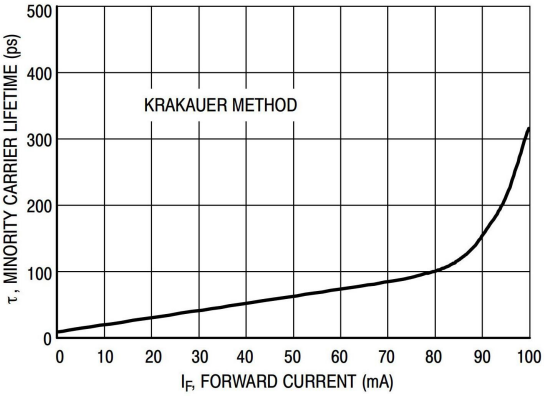

Figure 2. Minority Carrier Lifetime

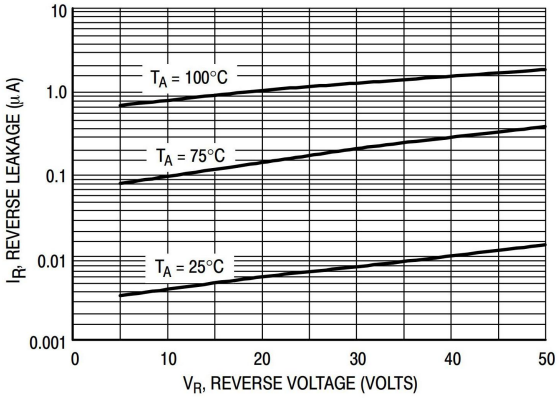

Figure 3. Reverse Leakage

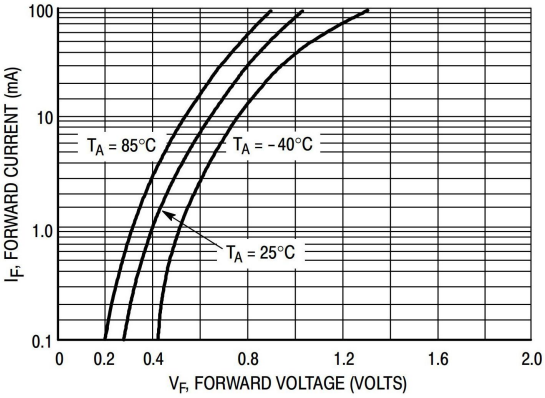

Figure 4. Forward Voltage

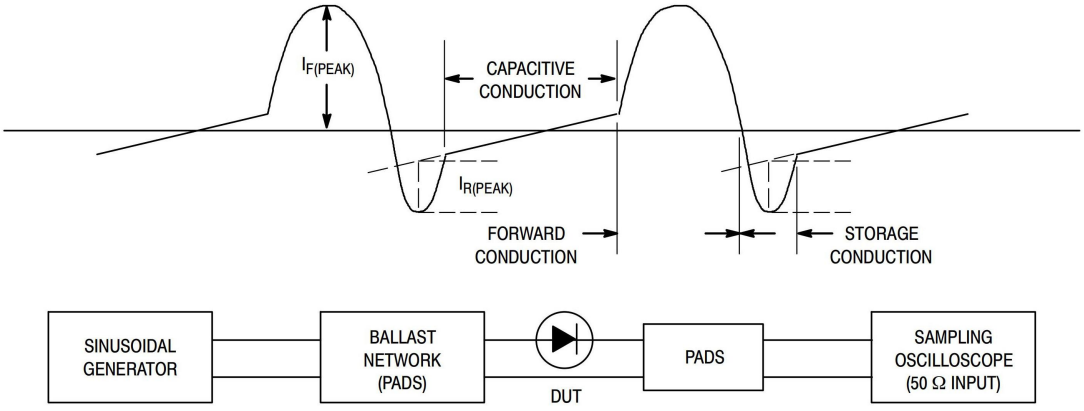

Figure 5. Krakauer Method of Measuring Lifetime

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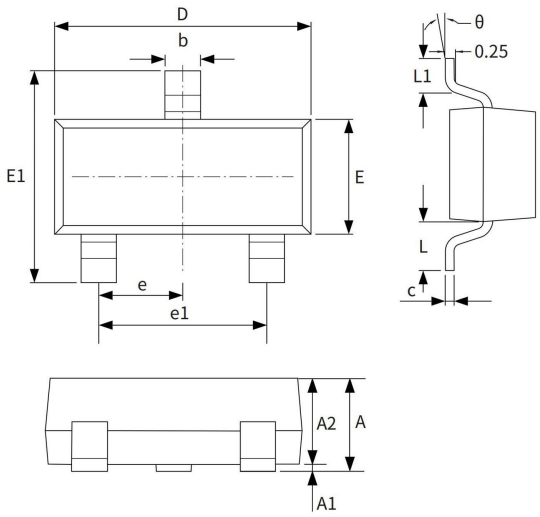
Ordering Information

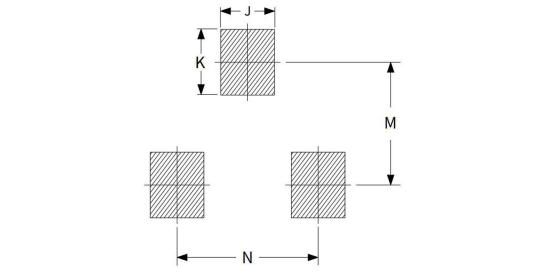
PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23	R1	0.008	3000	30000	240000	7''

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