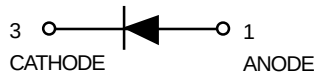
Silicon Hot –Carrier Diodes

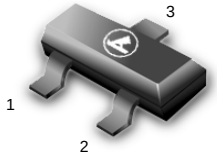
These devices are designed primarily for high–efficiency UHF and VHF detector applications. They are readily adaptable to many other fast switching RF and digital applications. They are supplied in an inexpensive plastic package for low–cost,high–volume consumer and industrial/commercial requirements.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

- Extremely Low Minority Carrier Lifetime – 15 ps (Typ)
- Very Low Capacitance – 1.0 pF @ V_R = 20 V
- High Reverse Voltage – to 70 Volts
- Low Reverse Leakage – 200 nA (Max)

MBD701
MMBD701LT1

70 VOLTS
HIGH-VOLTAGE
SILICON HOT-CARRIER
DETECTOR AND SWITCHING
DIODES





CASE 318–08, STYLE8
SOT– 23 (TO–236AB)

MAXIMUM RATINGS (T_J = 125°C unless otherwise noted)

		MBD701	MMBD701LT1	
Rating	**Symbol**	**Value**		**Unit**
Reverse Voltage	V_R	70		Volts
Forward Power Dissipation	P_F			
@ T_A = 25°C		280	200	mW
Derate above 25°C		2.8	2.0	mW/°C
Operating Junction Temperature Range	T_J	–55 to +125		°C
Storage Temperature Range	T_{stg}	–55 to +150		°C

DEVICE MARKING

MMBD701LT1 = 5H

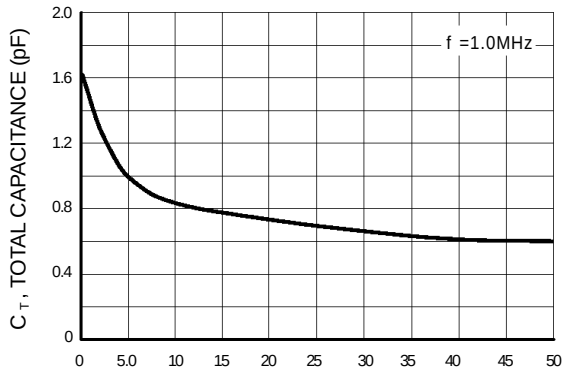
ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	typ	Max	Unit
Reverse Breakdown Voltage (I_R = 10μAdc)	$V_{(BR)R}$	70	—	—	Volts
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

NOTE: MMBD701LT1 is also available in bulk packaging. Use MMBD701L as the device title to order this device in bulk.

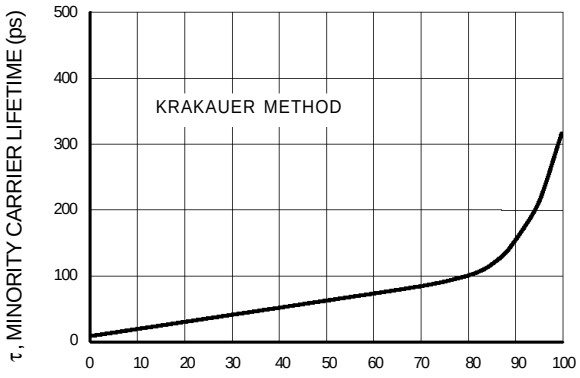
MBD701 MMBD701LT1

TYPICAL ELECTRICAL CHARACTERISTICS



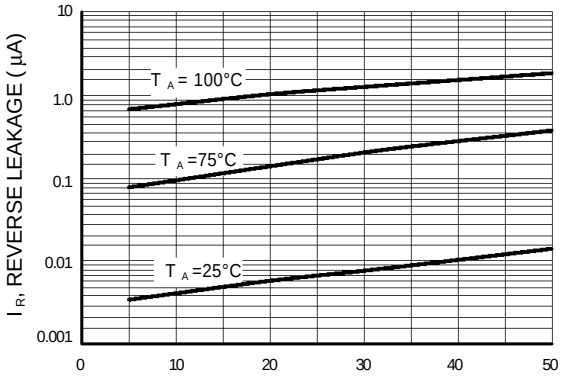
V R , REVERSE VOLTAGE (VOLTS)

Figure 1. Total Capacitance



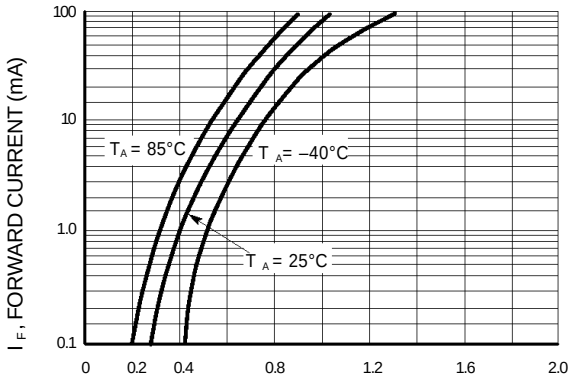
I F , FORWARD CURRENT (mA)

Figure 2. Minority Carrier Lifetime



V R , REVERSE VOLTAGE (VOLTS)

Figure 3. Reverse Leakage



V F , FORWARD VOLTAGE (VOLTS)

Figure 4. Forward Voltage

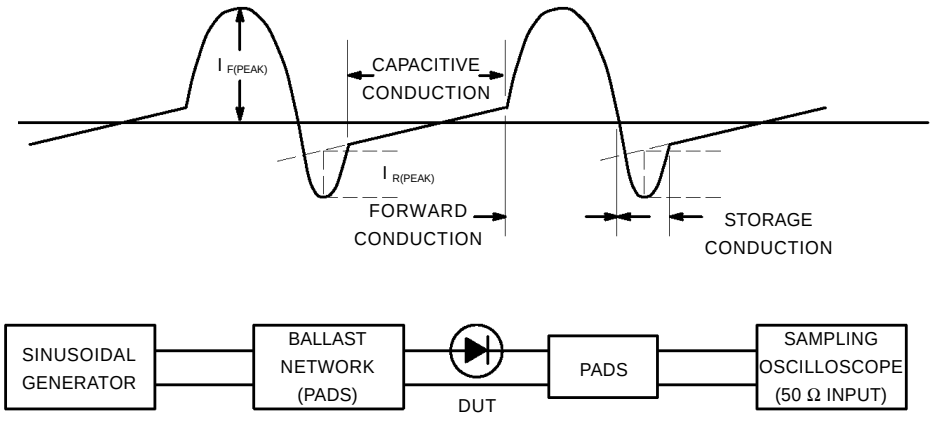


Figure 5. Krakauer Method of Measuring Lifetime