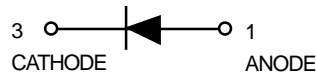


Silicon Hot –Carrier Diodes

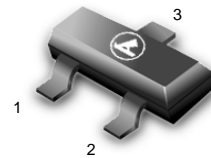
These devices are designed primarily for high–efficiency UHF and VHF detector applications. They are readily adaptable to many other fast switching RF and digital applications. They are supplied in an inexpensive plastic package for low–cost,high–volume consumer and industrial/commercial requirements. 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 ($T_J = 125^\circ\text{C}$ unless otherwise noted)

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

DEVICE MARKING

MMBD701LT1 = 5H

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| Characteristic | Symbol | Min | typ | Max | Unit |
|---|-------------|-----|------|-----|-------|
| Reverse Breakdown Voltage ($I_R = 10\mu\text{Adc}$) | $V_{(BR)R}$ | 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

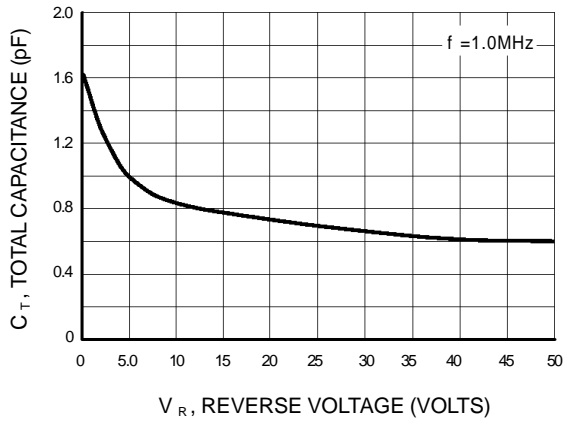


Figure 1. Total Capacitance

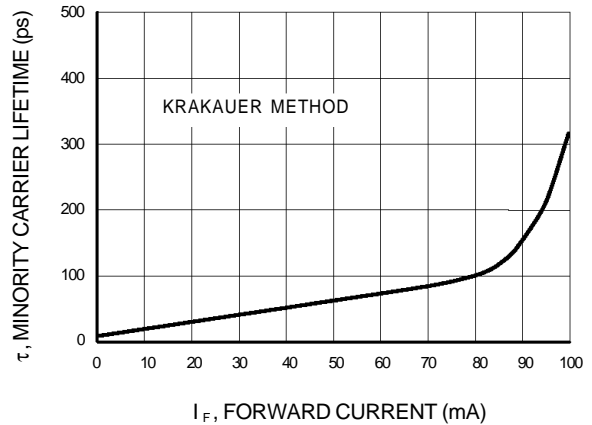


Figure 2. Minority Carrier Lifetime

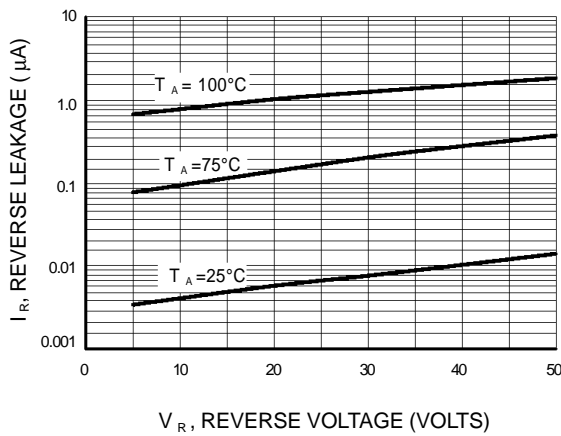


Figure 3. Reverse Leakage

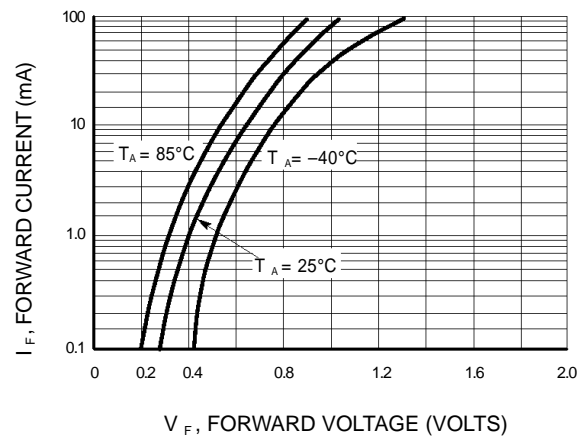


Figure 4. Forward Voltage

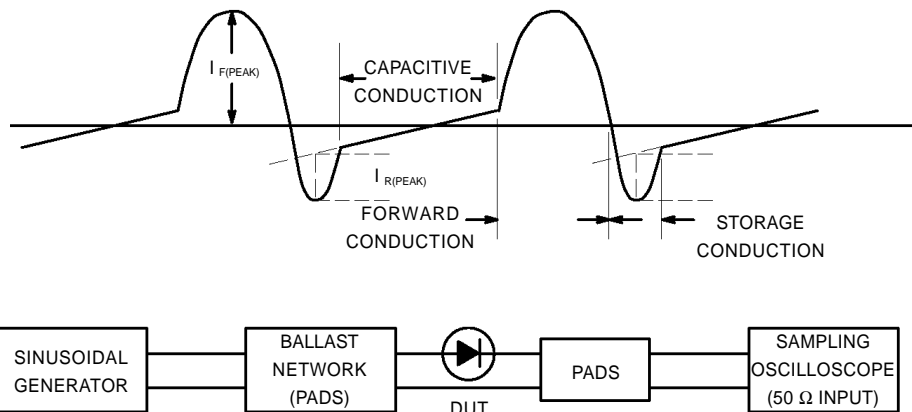


Figure 5. Krakauer Method of Measuring Lifetime