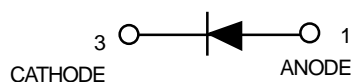


# Silicon Hot-Carrier Diodes

## Schottky Barrier Diodes

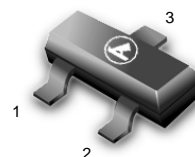
These devices are designed primarily for high-efficiency UHF and VHF detector applications. They are readily adaptable to many other fast switching RF and digital applications. They are supplied in an inexpensive plastic package for low-cost, high-volume consumer and industrial/commercial requirements.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

- Extremely Low Minority Carrier Lifetime –15ps(Typ)
- very Low Capacitance –1.5pF(Max)@VR=15V
- CLow Reverse Leakage –IR=13 nAdc(Typ)MBD301,MMBD301



**MMBD301LT1**

**30 VOLTS  
SILICON HOT-CARRIER  
DETECTOR AND SWITCHING  
DIODES**



**CASE 318-08, STYLE 6  
SOT- 23 (TO-236AB)**

### MAXIMUM RATINGS(T<sub>J</sub>=125°C unless otherwise noted)

| Rating                               | symbol           | MBD301 value | MMBD301LT1 value | unit  |
|--------------------------------------|------------------|--------------|------------------|-------|
| Reverse Voltage                      | V <sub>R</sub>   | 30           |                  | Volts |
| Forward Power Dissipation            | P <sub>F</sub>   |              |                  |       |
| @TA=25 °C                            |                  | 280          | 200              | mW    |
| Derate above 25 °C                   |                  | 2.8          | 2.0              | mW/°C |
| Operating Junction Temperature Range | T <sub>J</sub>   | -55 to +125  |                  | °C    |
| Storage Temperature Range            | T <sub>stg</sub> | -55 to +150  |                  | °C    |

### DEVICE MARKING

MMBD301LT1=4T

### ELECTRICAL CHARACTERISTICS(T<sub>A</sub>=25 °C unless otherwise noted)

| Characteristic  | Symbol             | Min | Typ  | Max  | Unit  |
|---|--------------------|-----|------|------|-------|
| Reverse Breakdown Voltage(I <sub>R</sub> =10μA)         | V <sub>(BR)R</sub> | 30  | —    | —    | Volts |
| Total Capacitance(V <sub>R</sub> =15V,f=1.0MHz,)Figure1 | C <sub>T</sub>     | —   | 0.9  | 1.5  | pF    |
| Reverse Leakage(V <sub>R</sub> =25V)Figure3             | I <sub>R</sub>     | —   | 13   | 200  | nAdc  |
| Forward Voltage(IF=1.0mAdc)Figure4                      | V <sub>F</sub>     | —   | 0.38 | 0.45 | Vdc   |
| Forward Voltage(IF=10mAdc)Figure4                       | V <sub>F</sub>     | —   | 0.52 | 0.6  | Vdc   |

**NOTE:MMBD301LT1** is also available in bulk packaging. Use **MMBD301L** as the device title to order this device in bulk.

MMBD301LT1

TYPICAL ELECTRICAL CHARACTERISTICS

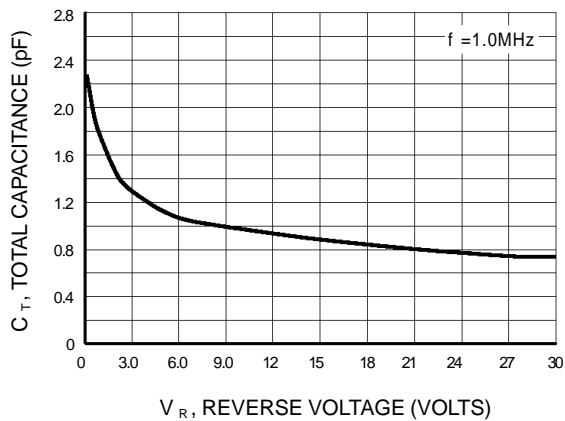


Figure 1. Total Capacitance

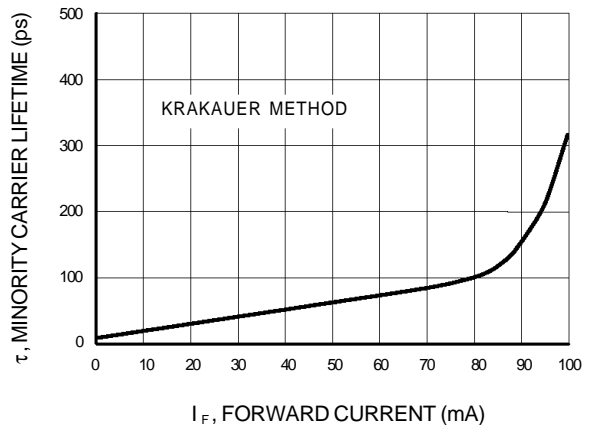


Figure 2. Minority Carrier Lifetime

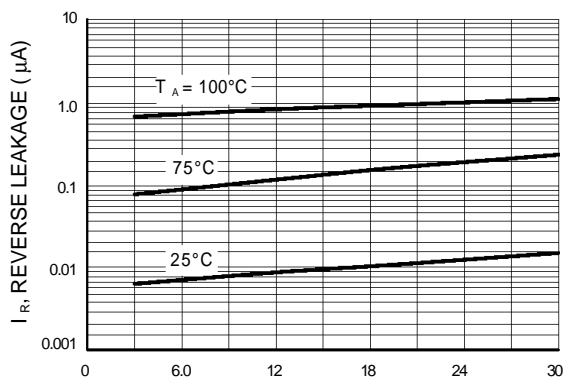


Figure 3. Reverse Leakage

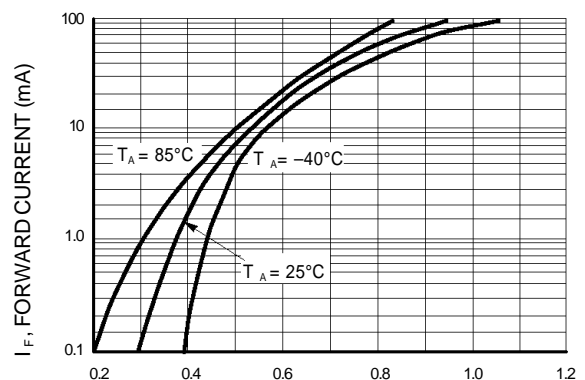


Figure 4. Forward Voltage

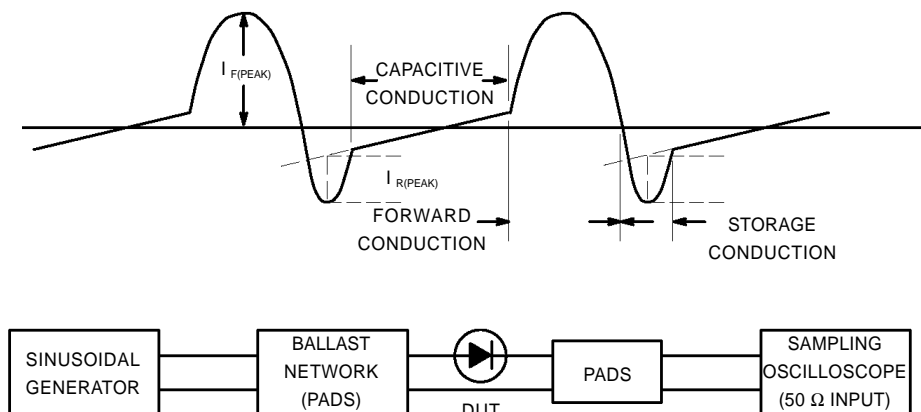


Figure 5. Krakauer Method of Measuring Lifetime