

MMDL301T1

Preferred Device

Silicon Hot-Carrier Diodes

Schottky Barrier Diode

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 available in a Surface Mount package.

- Extremely Low Minority Carrier Lifetime – 15 ps (Typ)
- Very Low Capacitance – 1.5 pF (Max) @ $V_R = 15$ V
- Low Reverse Leakage – $I_R = 13$ nA dc (Typ)
- Device Marking: 4T

MAXIMUM RATINGS ($T_J = 125^\circ\text{C}$ unless otherwise noted)

Symbol	Rating	Value	Unit
V_R	Reverse Voltage	30	Volts

THERMAL CHARACTERISTICS

Symbol	Characteristic	Max	Unit
P_D	Total Device Dissipation FR-5 Board,* $T_A = 25^\circ\text{C}$ Derate above 25°C	200 1.57	mW mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	635	$^\circ\text{C}/\text{W}$
T_J, T_{stg}	Junction and Storage Temperature Range	-55 to +150	$^\circ\text{C}$

*FR-5 Minimum Pad

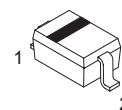


ON Semiconductor

Formerly a Division of Motorola

<http://onsemi.com>

30 VOLTS SILICON HOT-CARRIER DETECTOR AND SWITCHING DIODES



PLASTIC
SOD-323
CASE 477



ORDERING INFORMATION

Device	Package	Shipping
MMDL301T1	SOD-323	3000 / Tape & Reel

Preferred devices are recommended choices for future use and best overall value.

MMDL301T1

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

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

TYPICAL ELECTRICAL CHARACTERISTICS

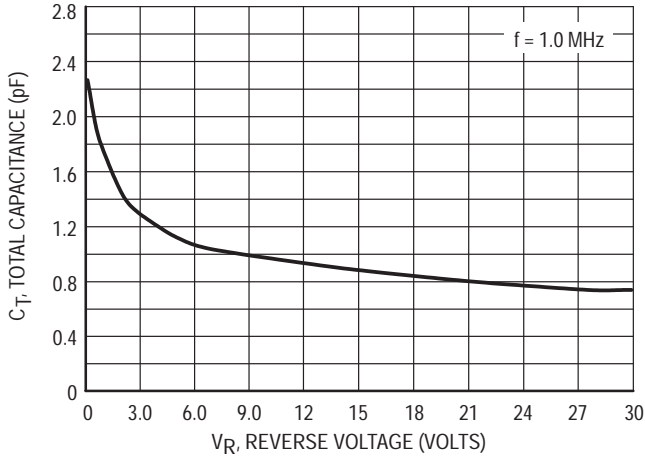


Figure 1. Total Capacitance

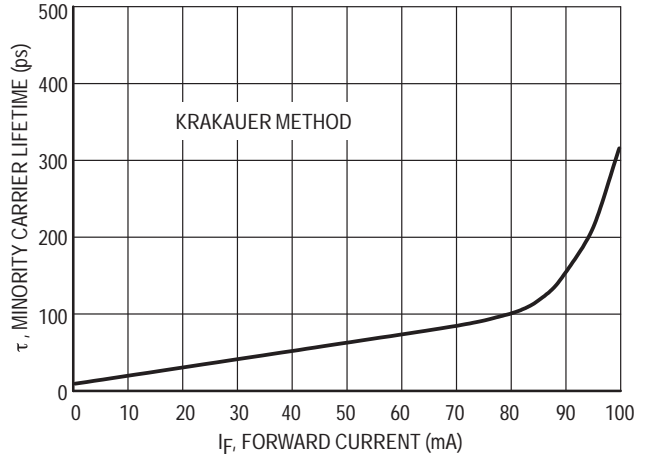


Figure 2. Minority Carrier Lifetime

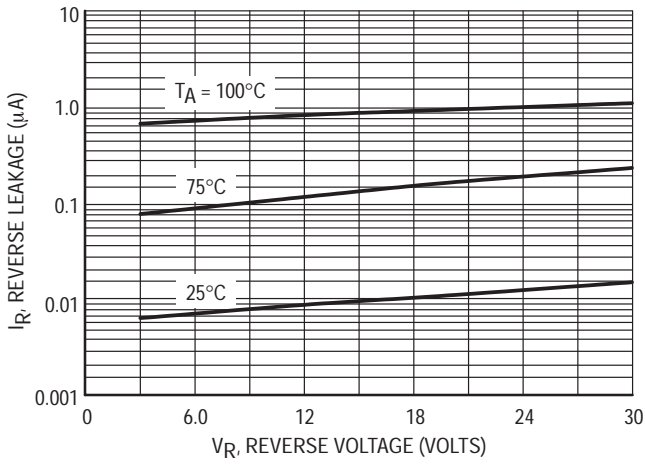


Figure 3. Reverse Leakage

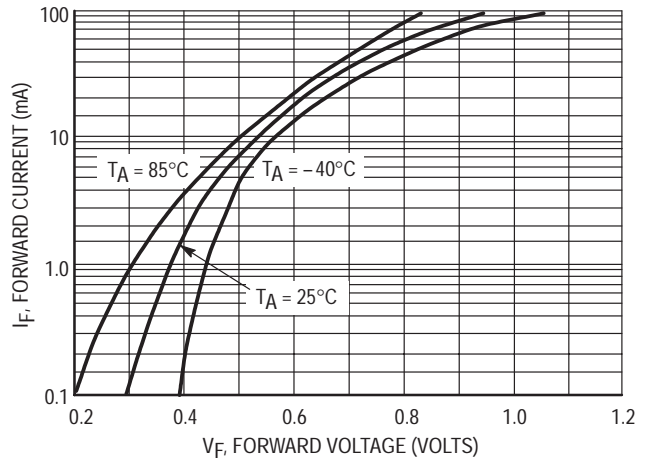


Figure 4. Forward Voltage

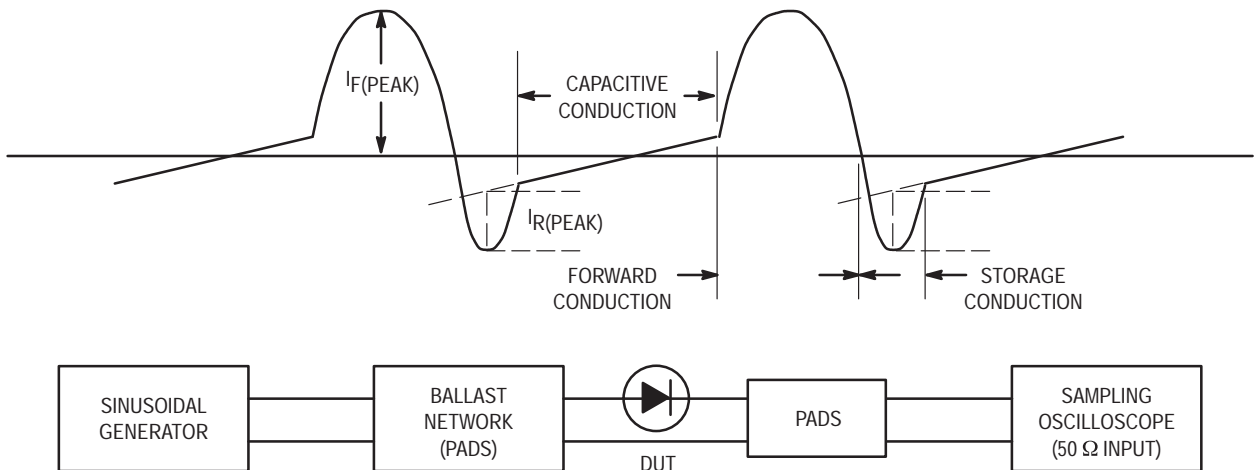
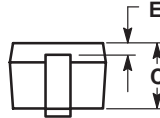
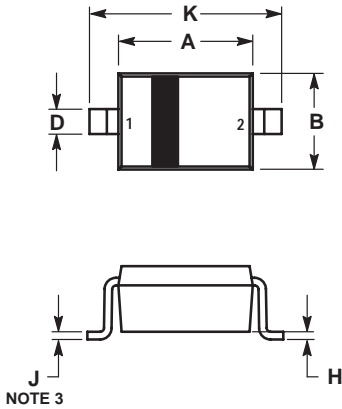


Figure 5. Krakauer Method of Measuring Lifetime

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PACKAGE DIMENSIONS

SOD-323 PLASTIC PACKAGE CASE 477-02 ISSUE A



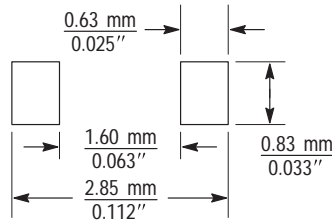
NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. LEAD THICKNESS SPECIFIED PER L/F DRAWING WITH SOLDER PLATING.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.60	1.80	0.063	0.071
B	1.15	1.35	0.045	0.053
C	0.80	1.00	0.031	0.039
D	0.25	0.40	0.010	0.016
E	0.15 REF		0.006 REF	
H	0.00	0.10	0.000	0.004
J	0.089	0.177	0.0035	0.0070
K	2.30	2.70	0.091	0.106


STYLE 1:

- PIN 1. CATHODE
- ANODE



($\frac{\text{mm}}{\text{inches}}$)

SOD-323 Soldering Footprint

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