

# MMBD452LT1G

## Dual 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.

#### Features

- Extremely Low Minority Carrier Lifetime
- Very Low Capacitance
- Low Reverse Leakage
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

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

Rating	Symbol	Value	Unit
Reverse Voltage	$V_R$	30	V
Forward Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_F$	225 1.8	mW mW/ $^\circ\text{C}$
Operating Junction Temperature Range	$T_J$	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to +150	$^\circ\text{C}$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

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

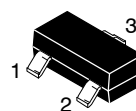
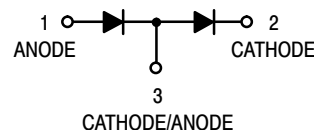
Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage ( $I_R = 10 \mu\text{A}$ )	$V_{(BR)R}$	30	-	-	V
Total Capacitance ( $V_R = 15 \text{ V}$ , $f = 1.0 \text{ MHz}$ ) Figure 1	$C_T$	-	0.9	1.5	pF
Reverse Leakage ( $V_R = 25 \text{ V}$ ) Figure 3	$I_R$	-	13	200	nA <sub>dc</sub>
Forward Voltage ( $I_F = 1.0 \text{ mA}_{dc}$ ) Figure 4	$V_F$	-	0.38	0.45	V <sub>dc</sub>
Forward Voltage ( $I_F = 10 \text{ mA}_{dc}$ ) Figure 4	$V_F$	-	0.52	0.6	V <sub>dc</sub>



ON Semiconductor®

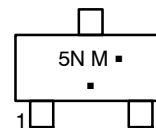
<http://onsemi.com>

### 30 VOLTS DUAL HOT-CARRIER DETECTOR AND SWITCHING DIODES



SOT-23 (TO-236)  
CASE 318  
STYLE 11

#### MARKING DIAGRAM



5N = Device Code  
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†
MMBD452LT1G	SOT-23 (Pb-Free)	3,000 / Tape & Reel

† For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

# MMBD452LT1G

## TYPICAL ELECTRICAL CHARACTERISTICS

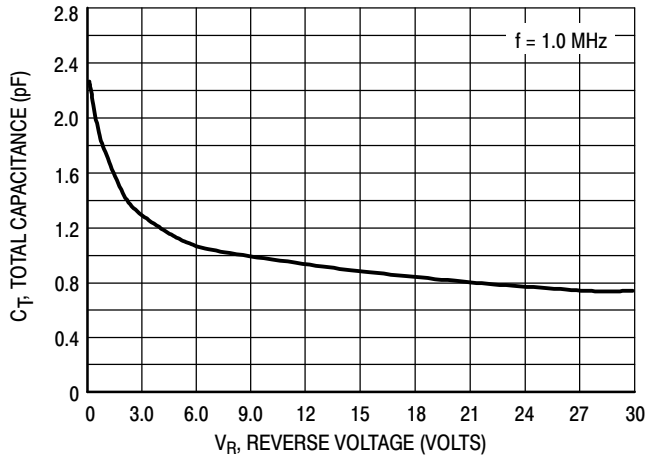


Figure 1. Total Capacitance

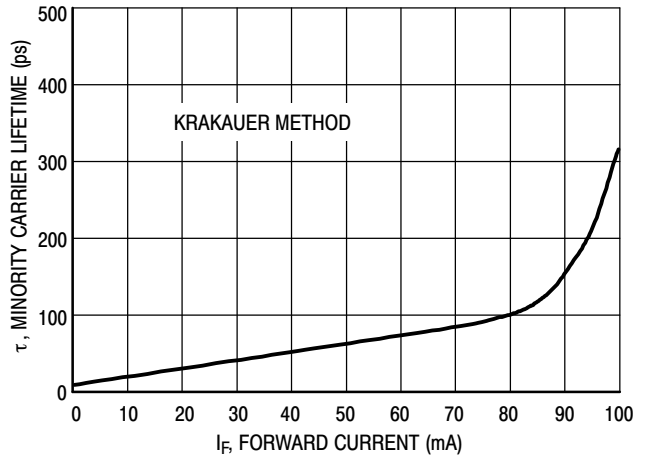


Figure 2. Minority Carrier Lifetime

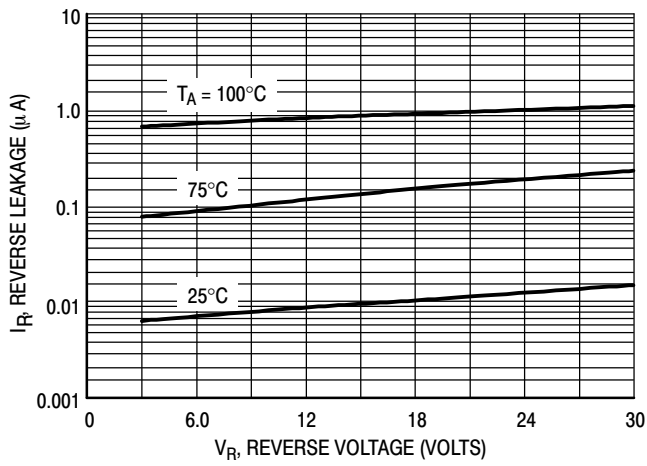


Figure 3. Reverse Leakage

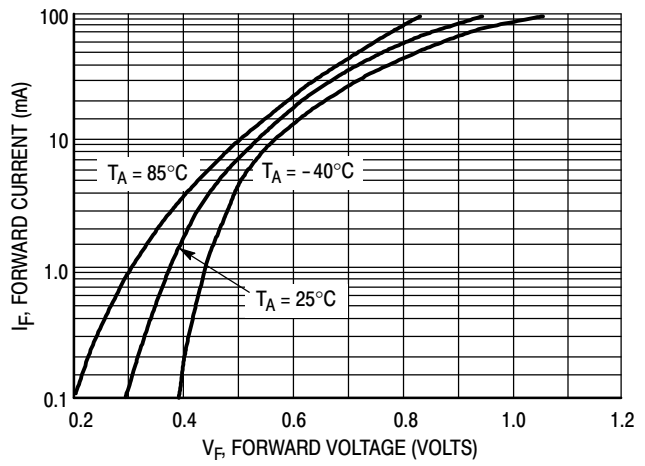


Figure 4. Forward Voltage

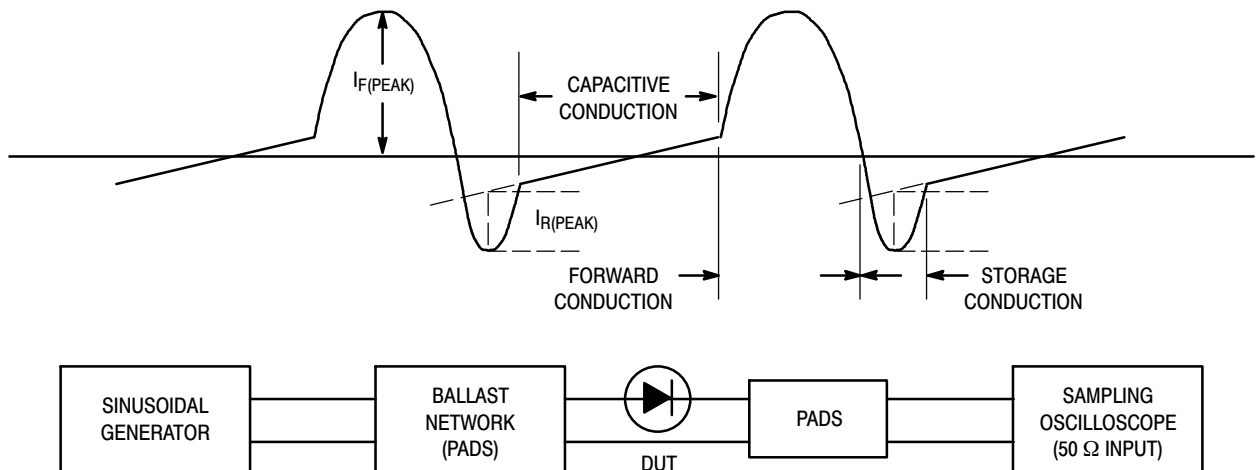
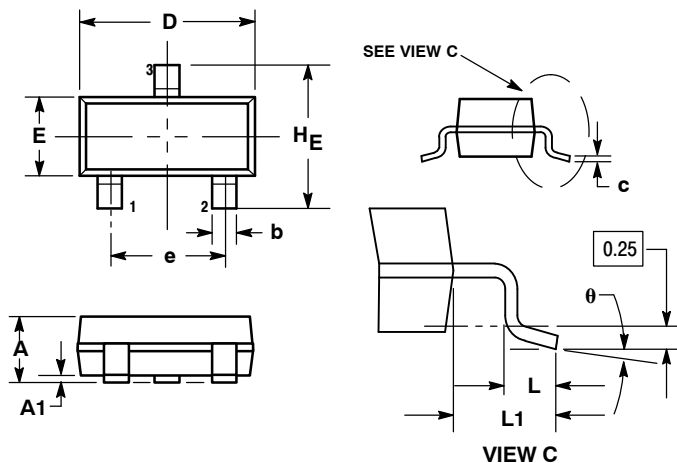


Figure 5. Krakauer Method of Measuring Lifetime

# MMBD452LT1G

## PACKAGE DIMENSIONS

SOT-23 (TO-236)  
CASE 318-08  
ISSUE AN



NOTES:

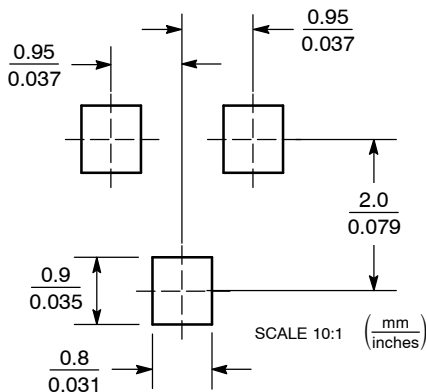
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318-01 THRU -07 AND -09 OBSOLETE, NEW STANDARD 318-08.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.015	0.018	0.020
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.081
L	0.10	0.20	0.30	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
HE	2.10	2.40	2.64	0.083	0.094	0.104

STYLE 11:

- PIN 1. ANODE
- CATHODE
- CATHODE-ANODE

### SOLDERING FOOTPRINT\*



\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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