

# MMBD6100LT1

## Monolithic Dual Switching Diode

### Features

- Pb-Free Packages are Available

### MAXIMUM RATINGS (EACH DIODE)

Rating	Symbol	Value	Unit
Reverse Voltage	$V_R$	70	Vdc
Forward Current	$I_F$	200	mAdc
Peak Forward Surge Current	$I_{FM(surge)}$	500	mAdc

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation, FR-5 Board (Note 1) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate (Note 2) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	300 2.4	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	417	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

- FR-5 =  $1.0 \times 0.75 \times 0.062$  in.
- Alumina =  $0.4 \times 0.3 \times 0.024$  in. 99.5% alumina.

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

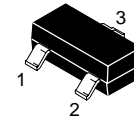
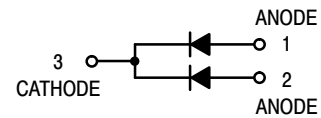
Characteristic	Symbol	Min	Max	Unit
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### OFF CHARACTERISTICS

Reverse Breakdown Voltage ( $I_{BR} = 100 \mu\text{Adc}$ )	$V_{(BR)}$	70	-	Vdc
Reverse Voltage Leakage Current ( $V_R = 50$ Vdc) (For each individual diode while the second diode is unbiased)	$I_R$	-	0.1	$\mu\text{Adc}$
Forward Voltage ( $I_F = 1.0$ mAdc) ( $I_F = 100$ mAdc)	$V_F$	0.55 0.8	0.7 1.1	Vdc
Reverse Recovery Time ( $I_F = I_R = 10$ mAdc, $I_{R(REC)} = 1.0$ mAdc) (Figure 1)	$t_{rr}$	-	4.0	ns
Capacitance ( $V_R = 0$ V)	C	-	2.5	pF

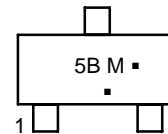


ON Semiconductor®



SOT-23  
CASE 318  
STYLE 9

### DEVICE MARKING



- 5B = Specific Device Code
- M = Date Code\*
- = Pb-Free Package

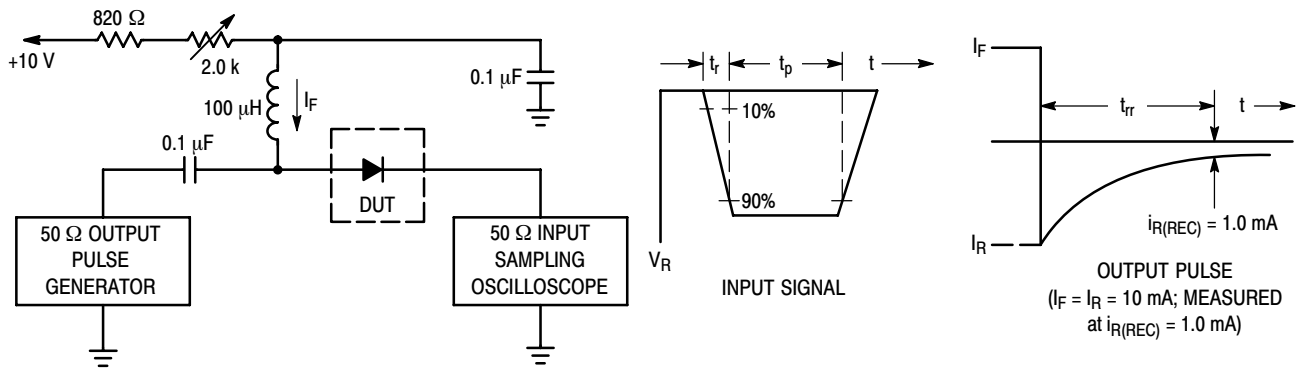
(Note: Microdot may be in either location)  
\*Date Code orientation and/or overbar may vary depending upon manufacturing location.

### ORDERING INFORMATION

Device	Package	Shipping†
MMBD6100LT1	SOT-23	3000/Tape & Reel
MMBD6100LT1G	SOT-23 (Pb-Free)	3000/Tape & Reel
MMBD6100LT3	SOT-23	10,000/Tape & Reel
MMBD6100LT3G	SOT-23 (Pb-Free)	10,000/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.

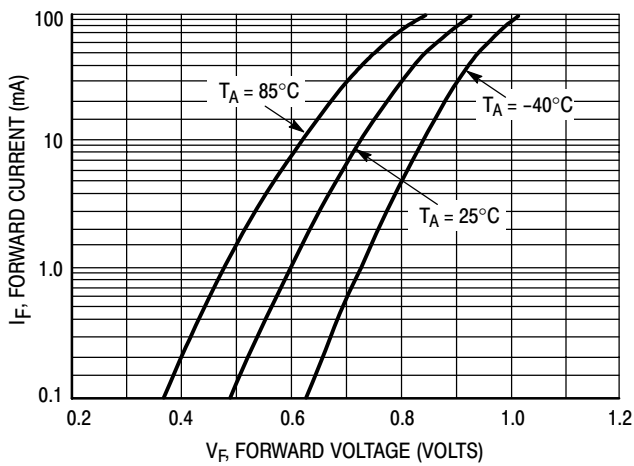
# MMBD6100LT1



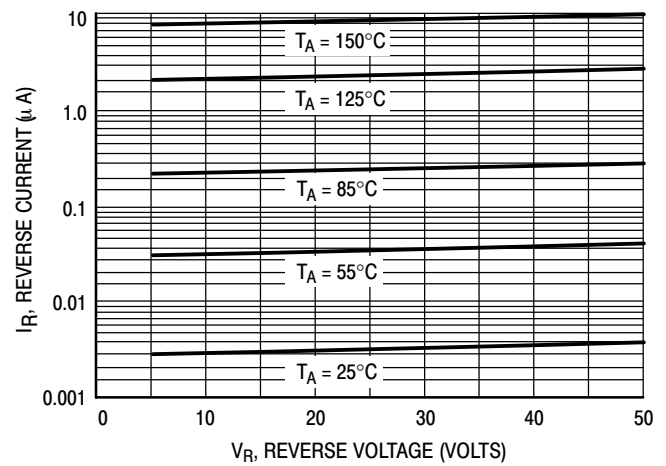
- Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current ( $I_F$ ) of 10 mA.  
 2. Input pulse is adjusted so  $I_{R(\text{peak})}$  is equal to 10 mA.  
 3.  $t_p \gg t_{rr}$

**Figure 1. Recovery Time Equivalent Test Circuit**

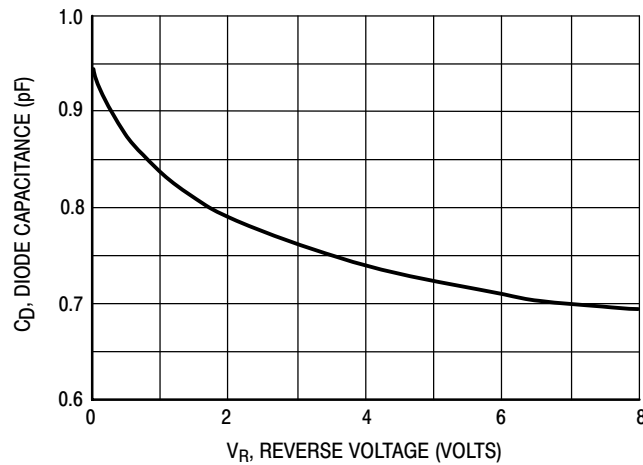
## CURVES APPLICABLE TO EACH CATHODE



**Figure 2. Forward Voltage**



**Figure 3. Leakage Current**

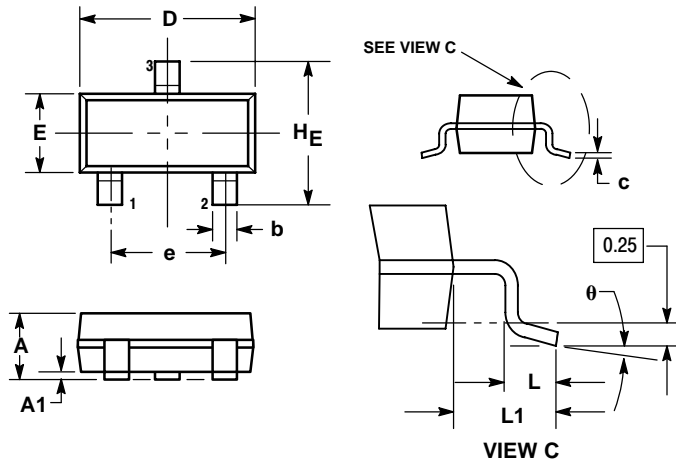


**Figure 4. Capacitance**

# MMBD6100LT1

## PACKAGE DIMENSIONS

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



NOTES:

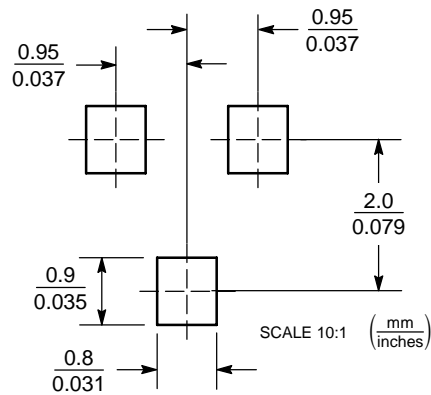
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318-01 THRU -07 AND -09 OBSOLETE, NEW STANDARD 318-08.

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 9:

1. ANODE
2. ANODE
3. CATHODE

### 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.