

# MMBD2837LT1, MMBD2838LT1

## Monolithic Dual Switching Diodes

### Features

- Pb-Free Packages are Available

### MAXIMUM RATINGS (EACH DIODE)

Rating	Symbol	Value	Unit
Peak Reverse Voltage	$V_{RM}$	75	Vdc
D.C. Reverse Voltage MMBD2837LT1 MMBD2838LT1	$V_R$	30 50	Vdc
Peak Forward Current	$I_{FM}$	450 300	mAdc
Average Rectified Current	$I_O$	150 100	mAdc

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.

### THERMAL CHARACTERISTICS

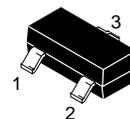
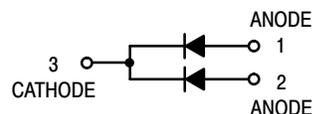
Rating	Symbol	Value	Unit
Total Device Dissipation FR-5 Board (Note 1) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate, (Note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

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



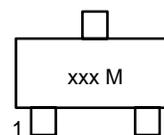
ON Semiconductor®

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SOT-23 (TO-236AB)  
CASE 318  
STYLE 9

### MARKING DIAGRAM



xxx = Specific Device Code  
MMBD2837LT1 – A5  
MMBD2838LT1 – MA6  
M = Date Code

### ORDERING INFORMATION

Device	Package	Shipping†
MMBD2837LT1	SOT-23	3000 Tape & Reel
MMBD2837LT1G	SOT-23 (Pb-Free)	3000 Tape & Reel
MMBD2838LT1	SOT-23	3000 Tape & Reel
MMBD2838LT1G	SOT-23 (Pb-Free)	3000 Tape & Reel

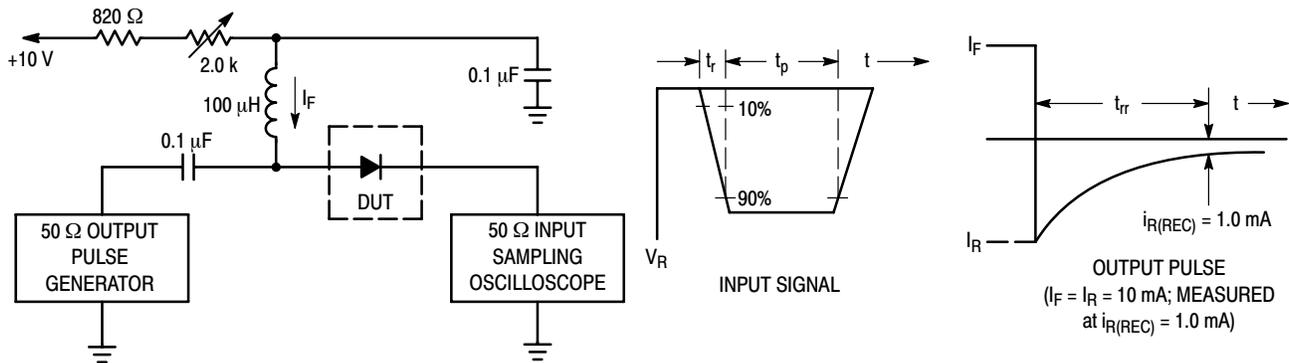
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

# MMBD2837LT1, MMBD2838LT1

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

Characteristic	Symbol	Min	Max	Unit	
<b>OFF CHARACTERISTICS</b>					
Reverse Breakdown Voltage ( $I_{(BR)} = 100 \mu\text{Adc}$ )	MMBD2837LT1 MMBD2838LT1	$V_{(BR)}$	35 75	- -	Vdc
Reverse Voltage Leakage Current (Note 3.) ( $V_R = 30 \text{ Vdc}$ ) ( $V_R = 50 \text{ Vdc}$ )	MMBD2837LT1 MMBD2838LT1	$I_R$	- -	0.1 0.1	$\mu\text{Adc}$
Diode Capacitance ( $V_R = 0 \text{ V}$ , $f = 1.0 \text{ MHz}$ )		$C_T$	-	4.0	pF
Forward Voltage ( $I_F = 10 \text{ mAdc}$ ) ( $I_F = 50 \text{ mAdc}$ ) ( $I_F = 100 \text{ mAdc}$ )		$V_F$	- - -	1.0 1.0 1.2	Vdc
Reverse Recovery Time ( $I_F = I_R = 10 \text{ mAdc}$ , $I_{R(REC)} = 1.0 \text{ mAdc}$ ) (Figure 1)		$t_{rr}$	-	4.0	ns

3. For each individual diode while the second diode is unbiased.



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

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

# MMBD2837LT1, MMBD2838LT1

## CURVES APPLICABLE TO EACH CATHODE

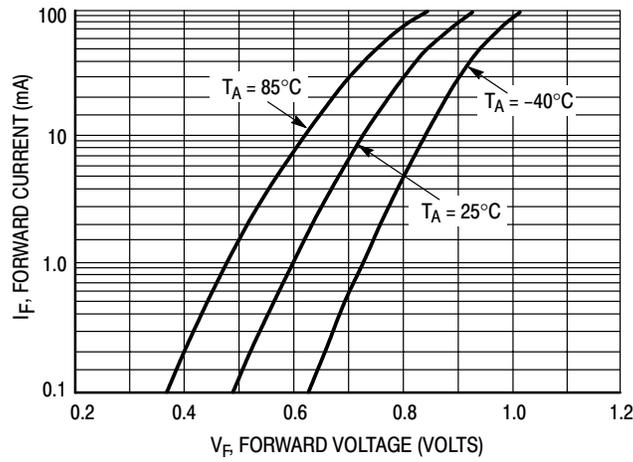


Figure 2. Forward Voltage

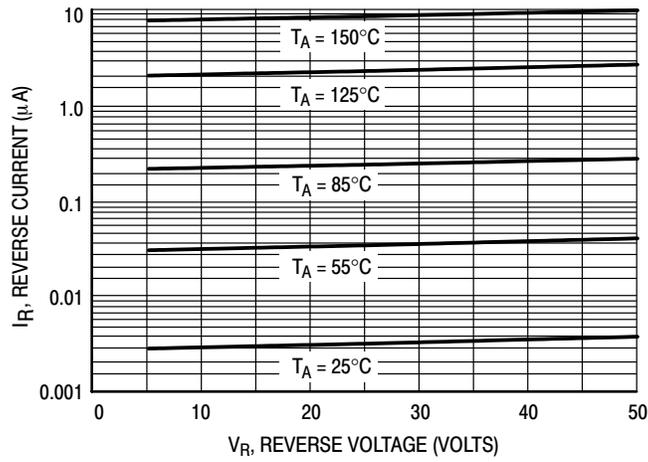


Figure 3. Leakage Current

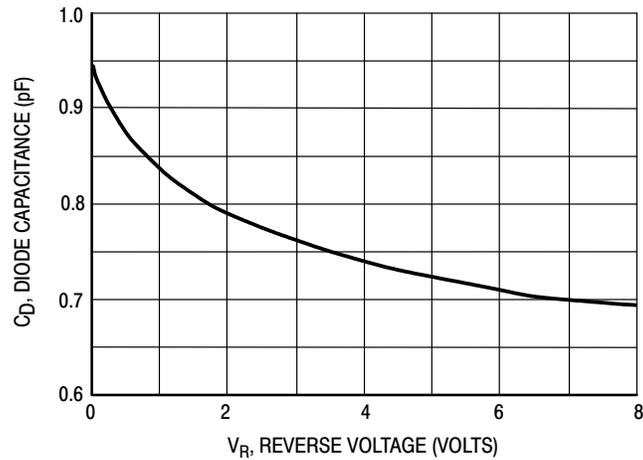
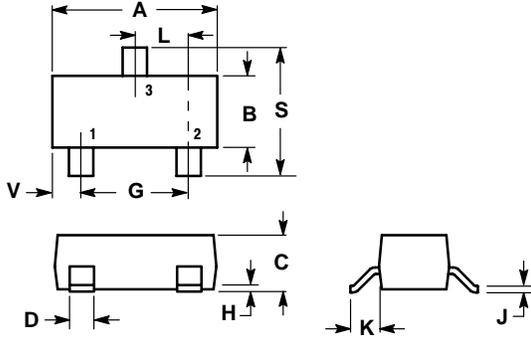


Figure 4. Capacitance

# MMBD2837LT1, MMBD2838LT1

## PACKAGE DIMENSIONS

SOT-23 (TO236)  
CASE 318-18  
ISSUE AK



NOTES:

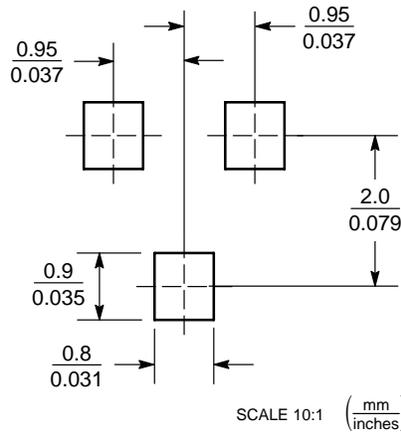
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318-01 THRU -07 AND -09 OBSOLETE, NEW STANDARD 318-08.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

STYLE 9:

- PIN 1. ANODE
- ANODE
- 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.

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