

# MMBD2837LT1G, MMBD2838LT1G, SMMBD2837LT1G

## Monolithic Dual Switching Diodes

### Features

- AEC-Q101 Qualified and PPAP Capable
- S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant\*

### MAXIMUM RATINGS (EACH DIODE)

Rating	Symbol	Value	Unit
Peak Reverse Voltage	$V_{RM}$	75	Vdc
D.C. Reverse Voltage MMBD2837LT1G, SMMBD2837LT1G MMBD2838LT1G	$V_R$	30 50	Vdc
Peak Forward Current	$I_{FM}$	450 300	mAdc
Average Rectified Current	$I_O$	150 100	mAdc

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.

### 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	$^\circ\text{C}$

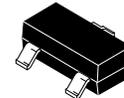
1. FR-5 =  $1.0 \times 0.75 \times 0.062$  in.
2. Alumina =  $0.4 \times 0.3 \times 0.024$  in. 99.5% alumina.

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

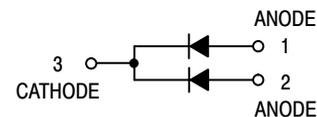


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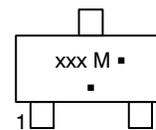
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SOT-23 (TO-236AB)  
CASE 318  
STYLE 9



### MARKING DIAGRAM



- xxx = Specific Device Code
- A5 = MMBD2837LT1G,  
SMMBD2837LT1G
- MA6 = MMBD2838LT1G
- 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†
MMBD2837LT1G	SOT-23 (Pb-Free)	3,000 / Tape & Reel
SMMBD2837LT1G	SOT-23 (Pb-Free)	3,000 / Tape & Reel
MMBD2838LT1G	SOT-23 (Pb-Free)	3,000 / Tape & Reel

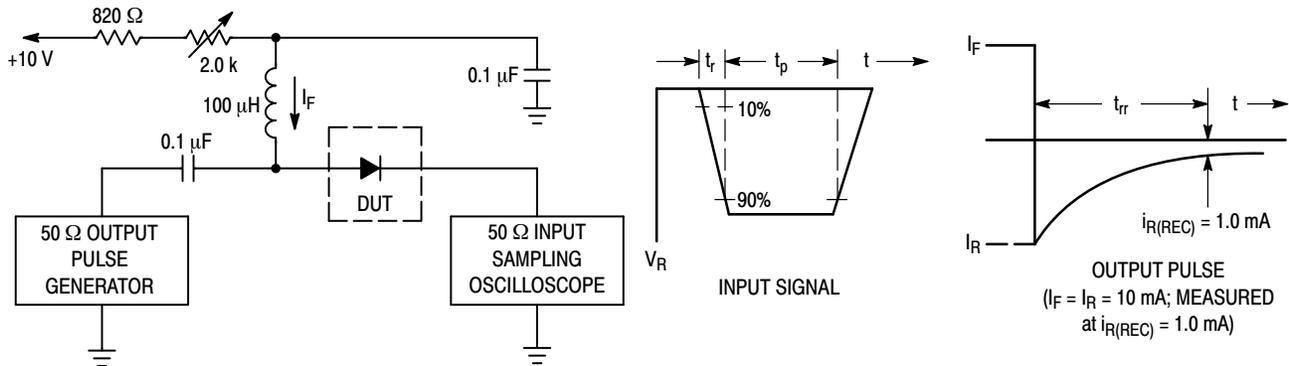
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

# MMBD2837LT1G, MMBD2838LT1G, SMMBD2837LT1G

## 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 ( $I_{(BR)} = 100 \mu\text{A dc}$ ) MMBD2837LT1G, SMMBD2837LT1G MMBD2838LT1G	$V_{(BR)}$	35 75	- -	Vdc
Reverse Voltage Leakage Current (Note 3.) ( $V_R = 30 \text{ Vdc}$ ) MMBD2837LT1G, SMMBD2837LT1G ( $V_R = 50 \text{ Vdc}$ ) MMBD2838LT1G	$I_R$	- -	0.1 0.1	$\mu\text{A dc}$
Diode Capacitance ( $V_R = 0 \text{ V}$ , $f = 1.0 \text{ MHz}$ )	$C_T$	-	4.0	pF
Forward Voltage ( $I_F = 10 \text{ mA dc}$ ) ( $I_F = 50 \text{ mA dc}$ ) ( $I_F = 100 \text{ mA dc}$ )	$V_F$	- - -	1.0 1.0 1.2	Vdc
Reverse Recovery Time ( $I_F = I_R = 10 \text{ mA dc}$ , $I_{R(REC)} = 1.0 \text{ mA dc}$ ) (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**

CURVES APPLICABLE TO EACH CATHODE

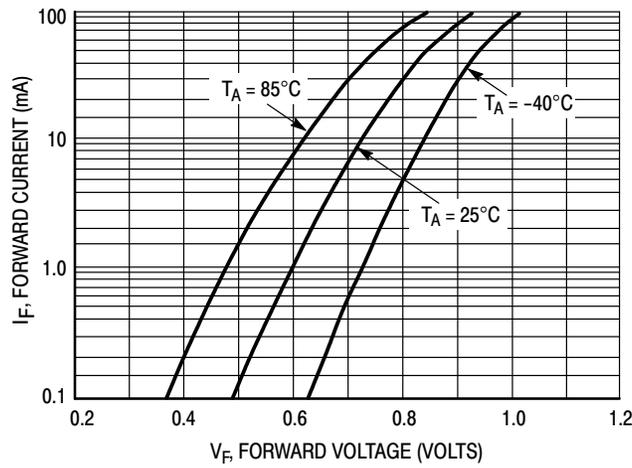


Figure 2. Forward Voltage

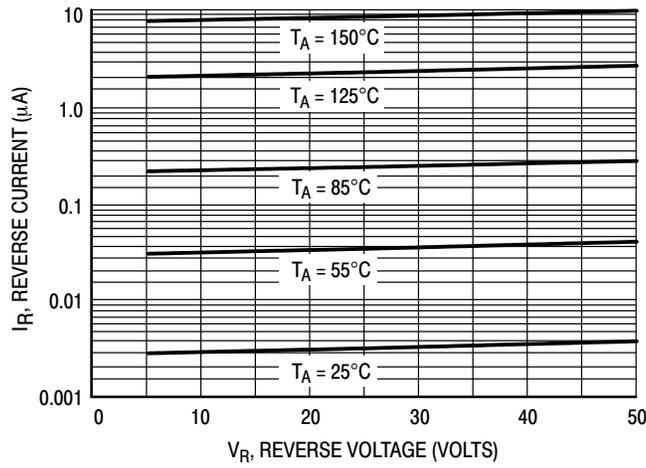


Figure 3. Leakage Current

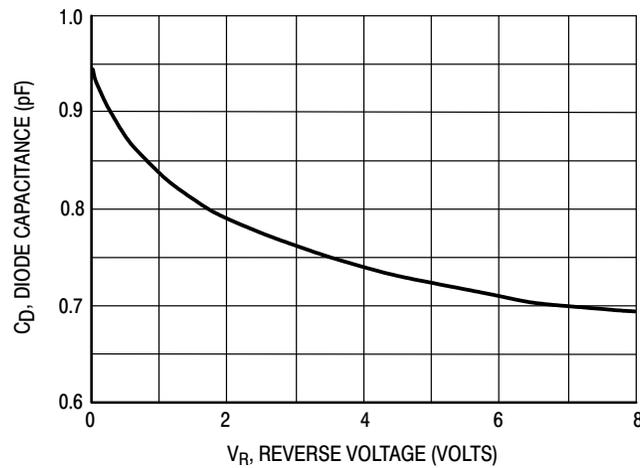
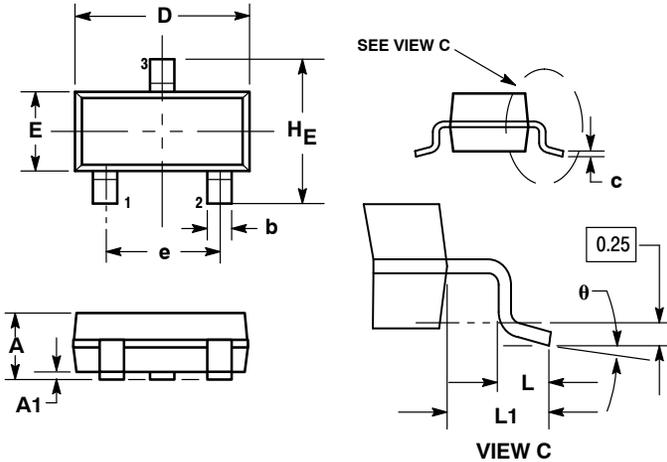


Figure 4. Capacitance

# MMBD2837LT1G, MMBD2838LT1G, SMMBD2837LT1G

## PACKAGE DIMENSIONS

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



NOTES:

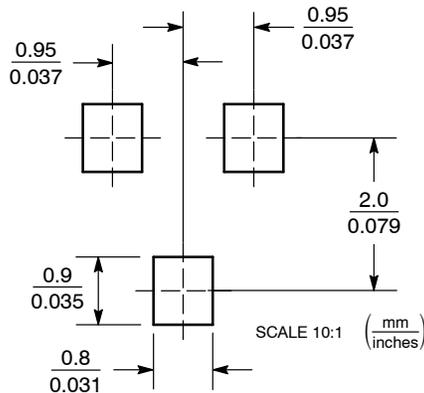
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

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
θ	0°	---	10°	0°	---	10°

STYLE 9:

1. ANODE
2. ANODE
3. CATHODE

### SOLDERING FOOTPRINT



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