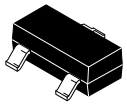
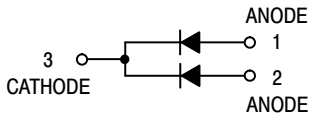
Monolithic Dual Switching Diodes

MMBD2837LT1G, MMBD2838LT1G, SMMBD2837LT1G



SOT−23 (TO−236AB)
CASE 318
STYLE 9



Features

- S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable
- 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

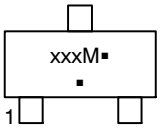
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

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

1. FR−5 = 1.0 × 0.75 × 0.062 in.
2. Alumina = 0.4 × 0.3 × 0.024 in. 99.5% alumina.

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

See detailed ordering, marking and shipping information in the package dimensions section on page 4 of this data sheet.

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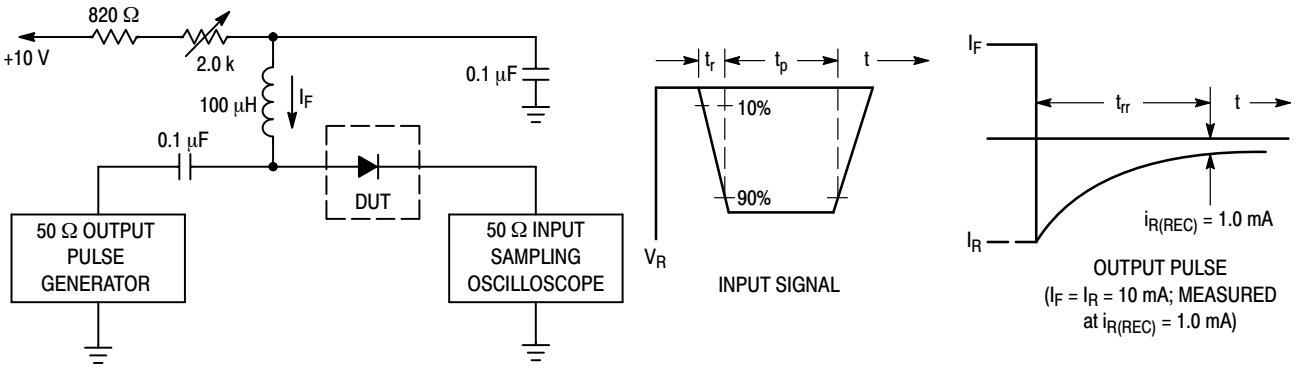
ELECTRICAL CHARACTERISTICS (EACH DIODE) (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Reverse Breakdown Voltage ($I_{(BR)}$ = 100 μAdc) MMBD2837LT1G, SMMBD2837LT1G MMBD2838LT1G	$V_{(BR)}$	 35 75	 – –	Vdc
Reverse Voltage Leakage Current (Note 3.) (V_R = 30 Vdc) MMBD2837LT1G, SMMBD2837LT1G (V_R = 50 Vdc) MMBD2838LT1G	I_R	 – –	 0.1 0.1	μAdc
Diode Capacitance (V_R = 0 V, f = 1.0 MHz)	C_T	–	4.0	pF
Forward Voltage (I_F = 10 mAdc) (I_F = 50 mAdc) (I_F = 100 mAdc)	V_F	 – – –	 1.0 1.0 1.2	Vdc
Reverse Recovery Time (I_F = I_R = 10 mAdc, $I_{R(REC)}$ = 1.0 mAdc) (Figure 1)	t_{rr}	–	4.0	ns

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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



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

Figure 1. Recovery Time Equivalent Test Circuit

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CURVES APPLICABLE TO EACH CATHODE

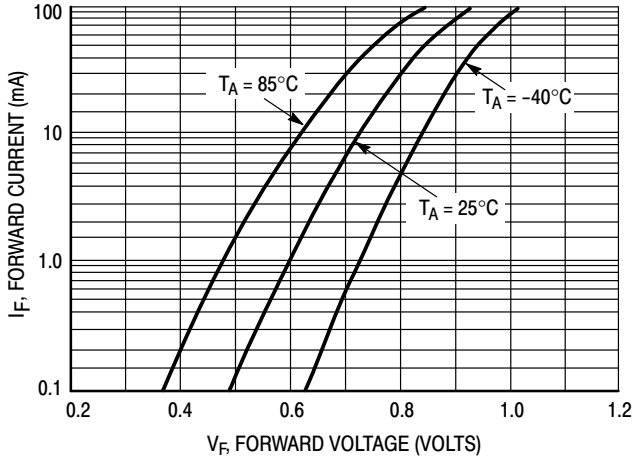

Figure 2. Forward Voltage

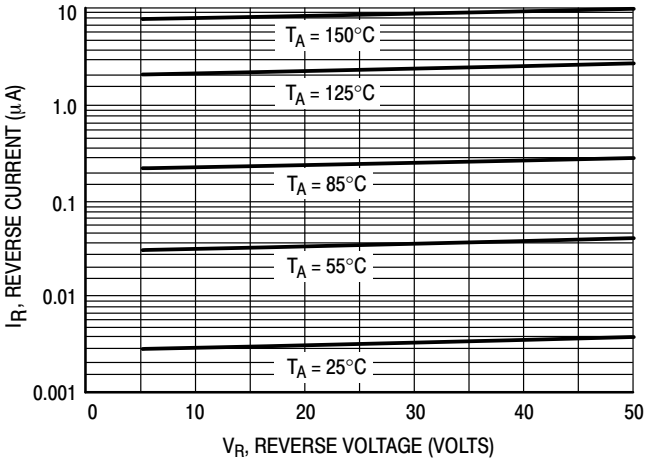

Figure 3. Leakage Current

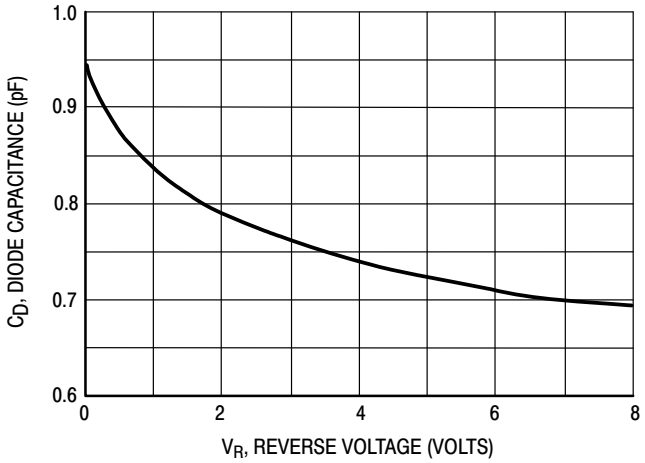

Figure 4. Capacitance

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ORDERING INFORMATION

Device	Specific Marking Code	Package	Shipping†
MMBD2837LT1G MMBD2837LT1G-NC SMMBD2837LT1G* SMMBD2837LT1G-NC*	A5	SOT-23 (Pb-Free)	3,000 / Tape & Reel
MMBD2838LT1G MMBD2838LT1G-NC	MA6		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.

* S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

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REVISION HISTORY

Revision	Description of Changes	Date
10	Added “-NC” OPNs to order table.	9/21/2026

This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.

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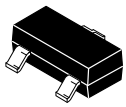

SCALE 4:1

SOT−23 (TO−236) 2.90x1.30x1.00 1.90P
CASE 318
ISSUE AU

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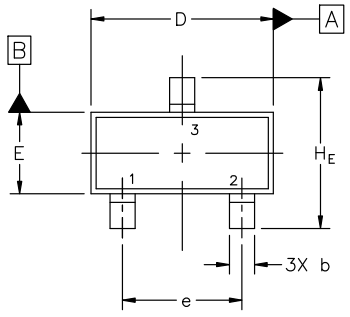
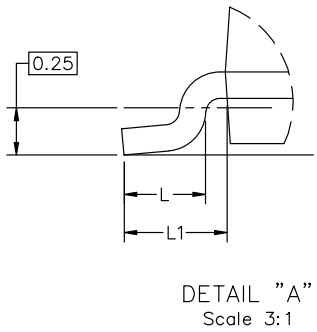
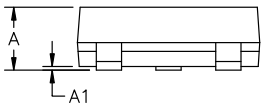


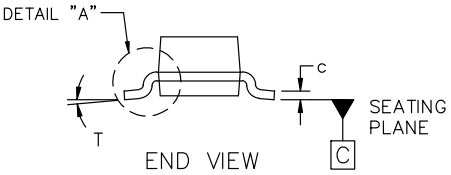
TOP VIEW



DETAIL "A"
Scale 3:1



SIDE VIEW

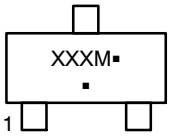


END VIEW

MILLIMETERS			
DIM	MIN	NOM	MAX
A	0.89	1.00	1.11
A1	0.01	0.06	0.10
b	0.37	0.44	0.50
c	0.08	0.14	0.20
D	2.80	2.90	3.04
E	1.20	1.30	1.40
e	1.78	1.90	2.04
L	0.30	0.43	0.55
L1	0.35	0.54	0.69
H_E	2.10	2.40	2.64
T	0°	−−−	10°

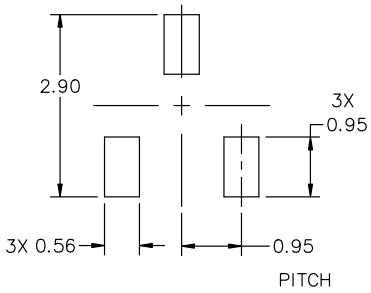
NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSIONS: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

GENERIC
MARKING DIAGRAM*



XXX = Specific Device Code
M = Date Code
▪ = Pb−Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.



RECOMMENDED
MOUNTING FOOTPRINT

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

STYLES ON PAGE 2

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CASE 318
ISSUE AU

DATE 14 AUG 2024

STYLE 1 THRU 5:
CANCELLED

STYLE 6:
PIN 1. BASE
2. EMITTER
3. COLLECTOR

STYLE 7:
PIN 1. EMITTER
2. BASE
3. COLLECTOR

STYLE 8:
PIN 1. ANODE
2. NO CONNECTION
3. CATHODE

STYLE 9:
PIN 1. ANODE
2. ANODE
3. CATHODE

STYLE 10:
PIN 1. DRAIN
2. SOURCE
3. GATE

STYLE 11:
PIN 1. ANODE
2. CATHODE
3. CATHODE−ANODE

STYLE 12:
PIN 1. CATHODE
2. CATHODE
3. ANODE

STYLE 13:
PIN 1. SOURCE
2. DRAIN
3. GATE

STYLE 14:
PIN 1. CATHODE
2. GATE
3. ANODE

STYLE 15:
PIN 1. GATE
2. CATHODE
3. ANODE

STYLE 16:
PIN 1. ANODE
2. CATHODE
3. CATHODE

STYLE 17:
PIN 1. NO CONNECTION
2. ANODE
3. CATHODE

STYLE 18:
PIN 1. NO CONNECTION
2. CATHODE
3. ANODE

STYLE 19:
PIN 1. CATHODE
2. ANODE
3. CATHODE−ANODE

STYLE 20:
PIN 1. CATHODE
2. ANODE
3. GATE

STYLE 21:
PIN 1. GATE
2. SOURCE
3. DRAIN

STYLE 22:
PIN 1. RETURN
2. OUTPUT
3. INPUT

STYLE 23:
PIN 1. ANODE
2. ANODE
3. CATHODE

STYLE 24:
PIN 1. GATE
2. DRAIN
3. SOURCE

STYLE 25:
PIN 1. ANODE
2. CATHODE
3. GATE

STYLE 26:
PIN 1. CATHODE
2. ANODE
3. NO CONNECTION

STYLE 27:
PIN 1. CATHODE
2. CATHODE
3. CATHODE

STYLE 28:
PIN 1. ANODE
2. ANODE
3. ANODE

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