

# 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<br>MMBD2837LT1<br>MMBD2838LT1 | $V_R$    | 30<br>50   | Vdc  |
| Peak Forward Current                               | $I_{FM}$ | 450<br>300 | mAdc |
| Average Rectified Current                          | $I_O$    | 150<br>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.

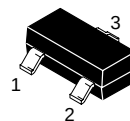
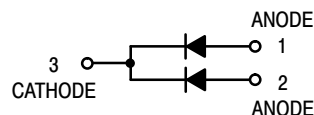
### THERMAL CHARACTERISTICS

| Rating                                                                                                              | Symbol          | Value       | Unit                       |
|---------------------------------------------------------------------------------------------------------------------|-----------------|-------------|----------------------------|
| Total Device Dissipation FR-5 Board<br>(Note 1) $T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$         | $P_D$           | 225<br>1.8  | mW<br>mW/ $^\circ\text{C}$ |
| Thermal Resistance,<br>Junction-to-Ambient                                                                          | $R_{\theta JA}$ | 556         | $^\circ\text{C}/\text{W}$  |
| Total Device Dissipation Alumina<br>Substrate, (Note 2) $T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$           | 300<br>2.4  | mW<br>mW/ $^\circ\text{C}$ |
| Thermal Resistance,<br>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.

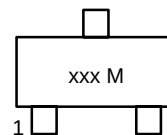


ON Semiconductor®



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<br>(Pb-Free) | 3000 Tape & Reel |
| MMBD2838LT1  | SOT-23              | 3000 Tape & Reel |
| MMBD2838LT1G | SOT-23<br>(Pb-Free) | 3000 Tape & Reel |

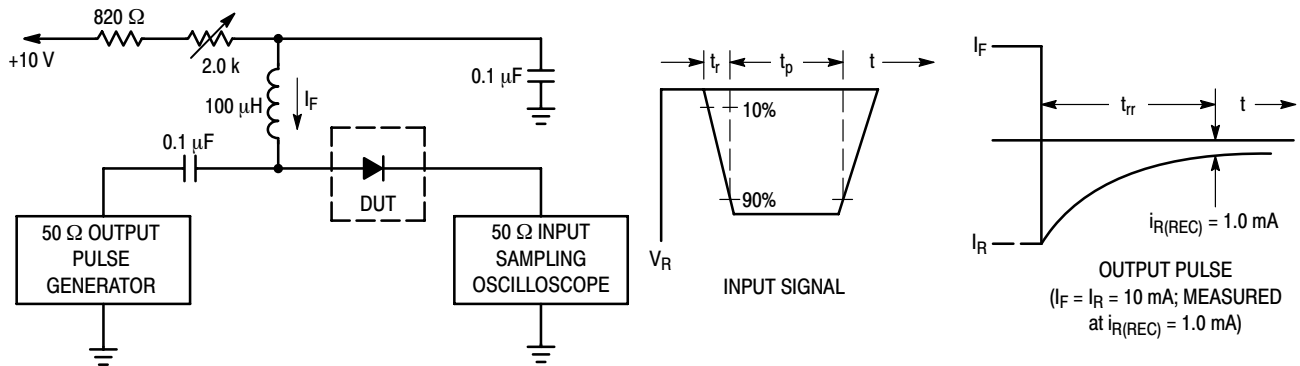
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

# 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<br>MMBD2838LT1 | $V_{(BR)}$ | 35<br>75    | –<br>–            | Vdc             |
| Reverse Voltage Leakage Current (Note 3.)<br>( $V_R = 30 \text{ Vdc}$ )<br>( $V_R = 50 \text{ Vdc}$ )      | MMBD2837LT1<br>MMBD2838LT1 | $I_R$      | –<br>–      | 0.1<br>0.1        | $\mu\text{Adc}$ |
| Diode Capacitance ( $V_R = 0 \text{ V}$ , $f = 1.0 \text{ MHz}$ )                                          |                            | $C_T$      | –           | 4.0               | pF              |
| Forward Voltage ( $I_F = 10 \text{ mAdc}$ )<br>( $I_F = 50 \text{ mAdc}$ )<br>( $I_F = 100 \text{ mAdc}$ ) |                            | $V_F$      | –<br>–<br>– | 1.0<br>1.0<br>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 kΩ 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**

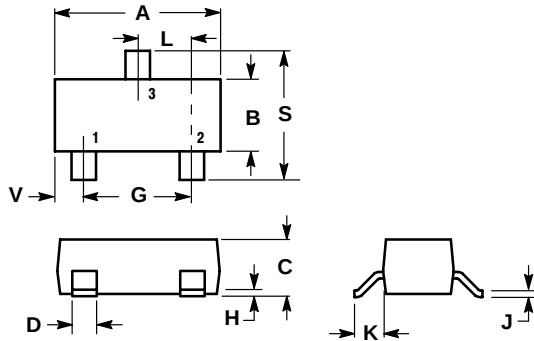
# MMBD2837LT1, MMBD2838LT1

## PACKAGE DIMENSIONS

SOT-23 (TO236)

CASE 318-18

ISSUE AK



### NOTES:

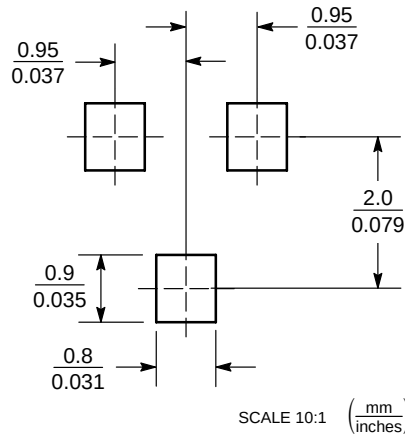
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318-01 THRU -07 AND -09 OBSOLETE, NEW STANDARD 318-08.

| 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  
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.