

MMBD352LT1G, MMBD353LT1G, NSVMMBD353LT1G, MMBD354LT1G, NSVMMBD354LT1G, MMBD355LT1G



ON Semiconductor®

www.onsemi.com

Dual Hot Carrier Mixer Diodes

These devices are designed primarily for UHF mixer applications but are suitable also for use in detector and ultra-fast switching circuits.

Features

- Very Low Capacitance – Less Than 1.0 pF @ Zero V
- Low Forward Voltage – 0.5 V (Typ) @ $I_F = 10$ mA
- NSV 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)

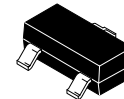
| Rating | Symbol | Value | Unit |
|----------------------------|--------|-------|----------|
| Continuous Reverse Voltage | V_R | 7.0 | V_{CC} |

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.

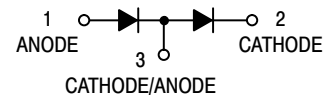
THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|---|-----------------|-------------|----------------------------|
| Total Device Dissipation FR-5 Board, (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°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°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 | $^\circ\text{C}$ |

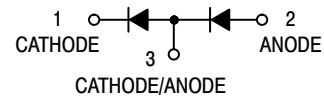
1. FR-5 = 1.0 x 0.75 x 0.062 in.
2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.



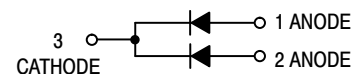
SOT-23 (TO-236)
CASE 318



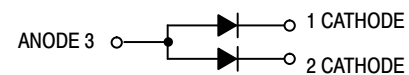
MMBD352LT1G
STYLE 11



MMBD353LT1G
NSVMMBD353LT1G
STYLE 19

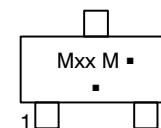


MMBD354LT1G
NSVMMBD354LT1G
STYLE 9



MMBD355LT1G
STYLE 12

MARKING DIAGRAM



Mxx = 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

See detailed ordering, marking, and shipping information in the package dimensions section on page 2 of this data sheet.

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

| Rating | Symbol | Min | Max | Unit |
|--|----------------|--------|------------|------|
| Forward Voltage (I _F = 10 mA _{dc}) | V _F | - | 0.60 | V |
| Reverse Leakage Current (Note 3) (V _R = 3.0 V) (V _R = 7.0 V) | I _R | - - | 0.25 10 | μA |
| Capacitance (V _R = 0 V, f = 1.0 MHz) | C | - | 1.0 | pF |

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.

ORDERING INFORMATION

| Device | Marking | Package | Shipping [†] |
|----------------|---------|---------------------|----------------------------|
| MMBD352LT1G | M5G | SOT-23 (Pb-Free) | 3,000 Units / Tape & Reel |
| MMBD352LT3G | M5G | SOT-23 (Pb-Free) | 10,000 Units / Tape & Reel |
| MMBD353LT1G | M4F | SOT-23 (Pb-Free) | 3,000 Units / Tape & Reel |
| NSVMMBD353LT1G | M4F | SOT-23 (Pb-Free) | 3,000 Units / Tape & Reel |
| MMBD353LT3G | M4F | SOT-23 (Pb-Free) | 10,000 Units / Tape & Reel |
| MMBD354LT1G | M6H | SOT-23 (Pb-Free) | 3,000 Units / Tape & Reel |
| NSVMMBD354LT1G | M6H | SOT-23 (Pb-Free) | 3,000 Units / Tape & Reel |
| MMBD355LT1G | MJ1 | SOT-23 (Pb-Free) | 3,000 Units / 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.

TYPICAL CHARACTERISTICS

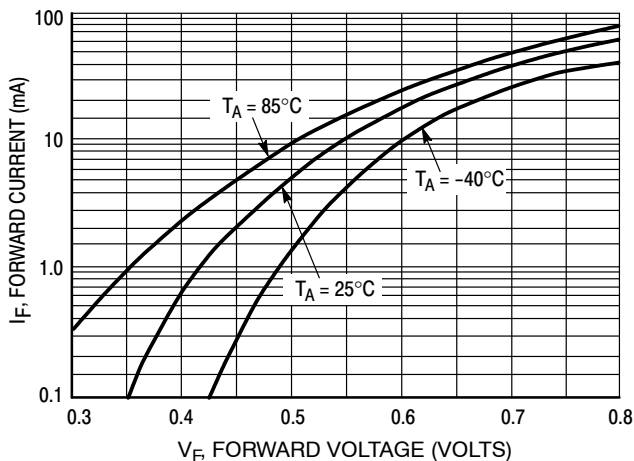


Figure 1. Forward Voltage

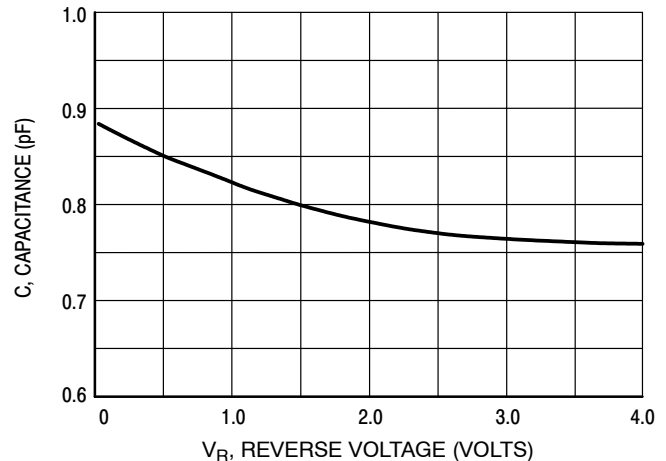
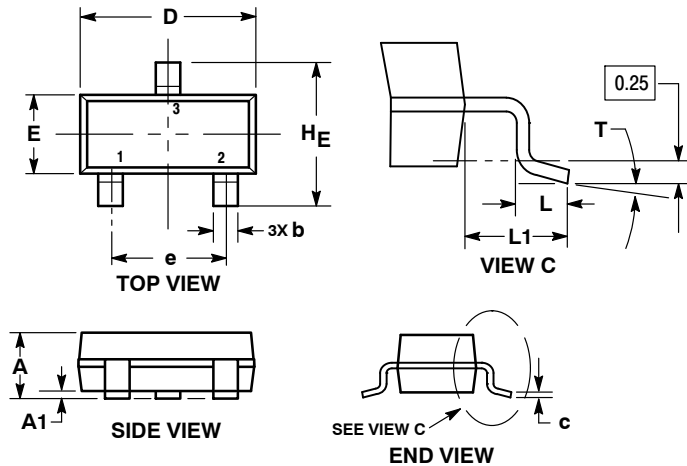


Figure 2. Capacitance

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PACKAGE DIMENSIONS

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



NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: 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.

| DIM | MILLIMETERS | | | INCHES | | |
|----------------|-------------|------|------|--------|-------|-------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.89 | 1.00 | 1.11 | 0.035 | 0.039 | 0.044 |
| A1 | 0.01 | 0.06 | 0.10 | 0.000 | 0.002 | 0.004 |
| b | 0.37 | 0.44 | 0.50 | 0.015 | 0.017 | 0.020 |
| c | 0.08 | 0.14 | 0.20 | 0.003 | 0.006 | 0.008 |
| 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 | 0.080 |
| L | 0.30 | 0.43 | 0.55 | 0.012 | 0.017 | 0.022 |
| L1 | 0.35 | 0.54 | 0.69 | 0.014 | 0.021 | 0.027 |
| H _E | 2.10 | 2.40 | 2.64 | 0.083 | 0.094 | 0.104 |
| T | 0° | --- | 10° | 0° | --- | 10° |

MMBD352LT1G

STYLE 11:

- PIN 1. ANODE
- 2. CATHODE
- 3. CATHODE-ANODE

MMBD353LT1G

NSVMMBD353LT1G

STYLE 19:

- PIN 1. CATHODE
- 2. ANODE
- 3. CATHODE-ANODE

MMBD354LT1G

NSVMMBD354LT1G

STYLE 9:

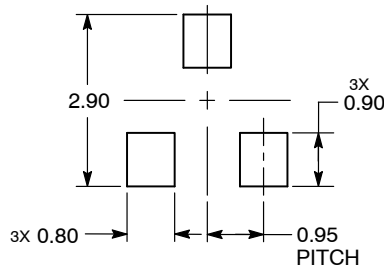
- PIN 1. ANODE
- 2. ANODE
- 3. CATHODE

MMBD355LT1G

STYLE 12:

- PIN 1. CATHODE
- 2. CATHODE
- 3. ANODE

RECOMMENDED SOLDERING FOOTPRINT*



DIMENSIONS: MILLIMETERS

*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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