

MMBD352LT1, MMBD353LT1, MMBD354LT1, MMBD355LT1

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
- Pb-Free Packages are Available

MAXIMUM RATINGS (EACH DIODE)

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

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

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.

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.

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

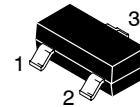
| Rating | Symbol | Min | Max | Unit |
|--|--------|-----|------------|---------------|
| Forward Voltage ($I_F = 10$ mAdc) | V_F | - | 0.60 | V |
| Reverse Leakage Current (Note 3) ($V_R = 3.0$ V) ($V_R = 7.0$ V) | I_R | - | 0.25 10 | μA |
| Capacitance ($V_R = 0$ V, $f = 1.0$ MHz) | C | - | 1.0 | pF |

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

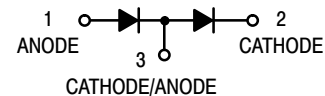


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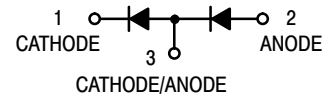
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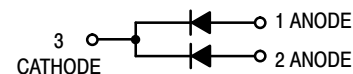
SOT-23 (TO-236)
CASE 318



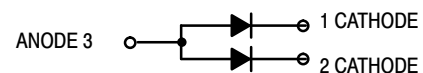
MMBD352LT1
STYLE 11



MMBD353LT1
STYLE 19

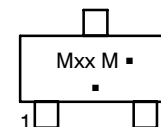


MMBD354LT1
STYLE 9



MMBD355LT1
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.

MMBD352LT1, MMBD353LT1, MMBD354LT1, MMBD355LT1

TYPICAL CHARACTERISTICS

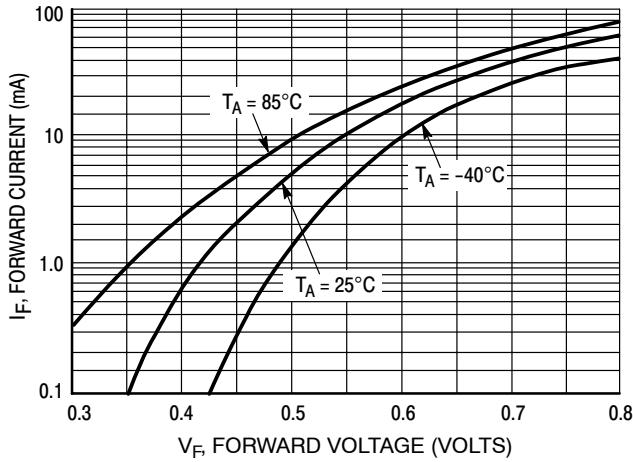


Figure 1. Forward Voltage

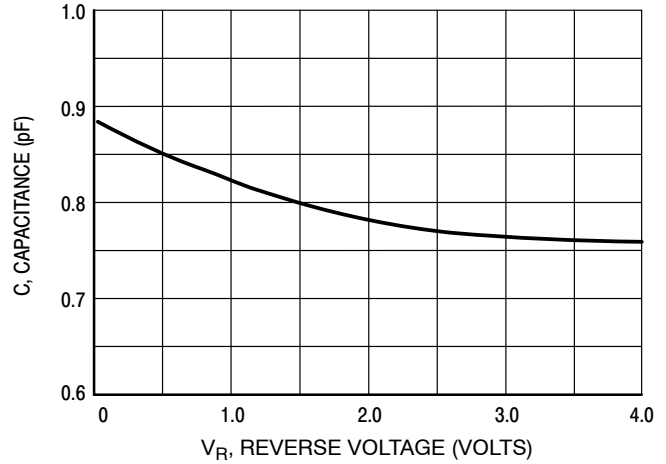


Figure 2. Capacitance

ORDERING INFORMATION

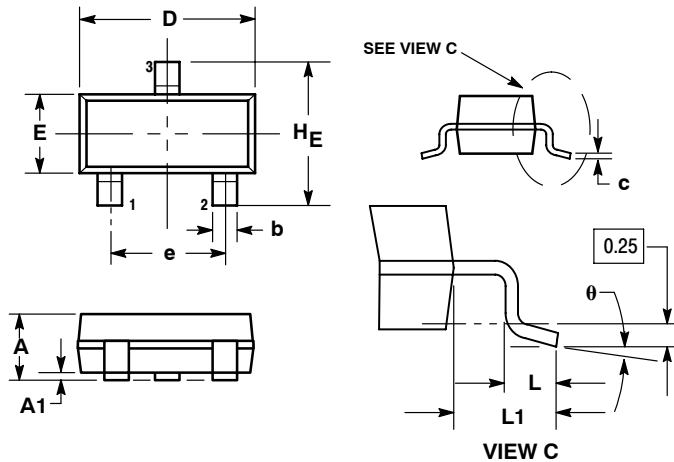
| Device | Marking | Package | Shipping [†] |
|-------------|---------|------------------|----------------------------|
| MMBD352LT1 | M5G | SOT-23 | 3,000 Units / Tape & Reel |
| MMBD352LT1G | | SOT-23 (Pb-Free) | 3,000 Units / Tape & Reel |
| MMBD352LT3 | | SOT-23 | 10,000 Units / Tape & Reel |
| MMBD352LT3G | | SOT-23 (Pb-Free) | 10,000 Units / Tape & Reel |
| MMBD353LT1 | M4F | SOT-23 | 3,000 Units / Tape & Reel |
| MMBD353LT1G | | SOT-23 (Pb-Free) | 3,000 Units / Tape & Reel |
| MMBD353LT3 | | SOT-23 | 10,000 Units / Tape & Reel |
| MMBD353LT3G | | SOT-23 (Pb-Free) | 10,000 Units / Tape & Reel |
| MMBD354LT1 | M6H | SOT-23 | 3,000 Units / Tape & Reel |
| MMBD354LT1G | | SOT-23 (Pb-Free) | 3,000 Units / Tape & Reel |
| MMBD355LT1 | MJ1 | SOT-23 | 3,000 Units / Tape & Reel |
| MMBD355LT1G | | 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.

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PACKAGE DIMENSIONS

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



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 | 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 |

MMBD352LT1

STYLE 11:

1. ANODE
2. CATHODE
3. CATHODE-ANODE

MMBD353LT1

STYLE 19:

1. CATHODE
2. ANODE
3. CATHODE-ANODE

MMBD354LT1

STYLE 9:

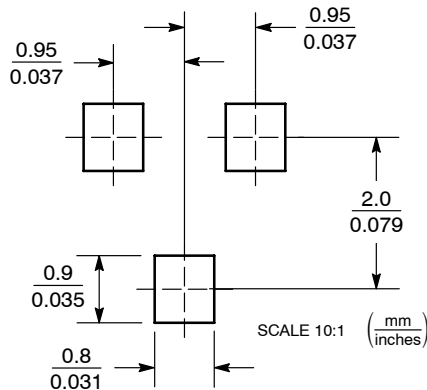
1. ANODE
2. ANODE
3. CATHODE

MMBD355LT1

STYLE 12:

1. CATHODE
2. CATHODE
3. ANODE

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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