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°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

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.

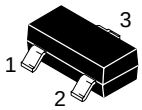
ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (EACH DIODE)

Rating	Symbol	Min	Max	Unit
Forward Voltage (I_F = 10 mAdc)	V_F	−	0.60	V
Reverse Voltage Leakage Current (Note 3) (V_R = 3.0 V) (V_R = 7.0 V)	I_R	 − −	 0.25 10	V_{CC}
Capacitance (V_R = 0 V, f = 1.0 MHz)	C	−	1.0	pF

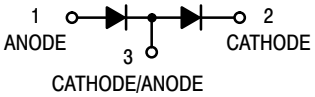
3. For each individual diode while the second diode is unbiased.

ON Semiconductor®

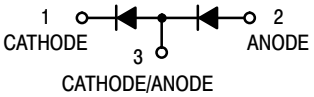
http://onsemi.com



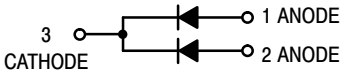
SOT−23 (TO−236)
CASE 318



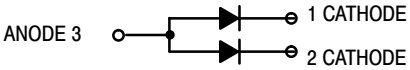
MMBD352LT1
STYLE 11



MMBD353LT1
STYLE 19

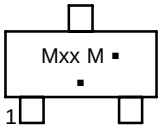


MMBD354LT1
STYLE 9



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.

February, 2006 − Rev. 5
Publication Order Number:
MMBD352LT1/D

TYPICAL CHARACTERISTICS

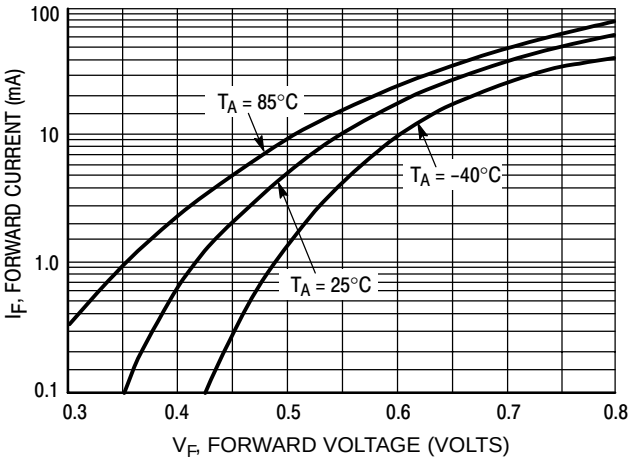


Figure 1. Forward Voltage

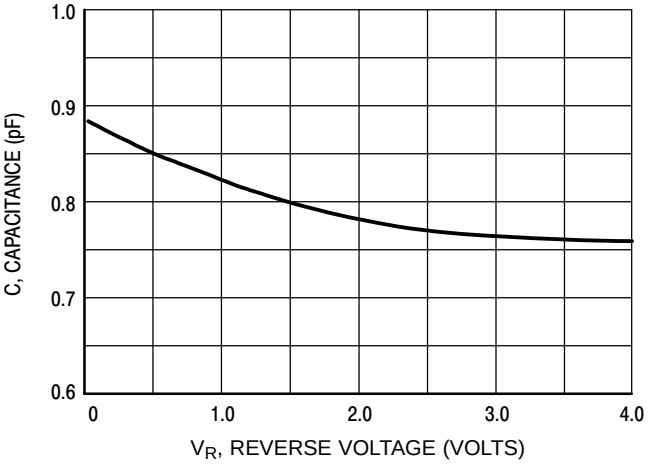


Figure 2. Capacitance

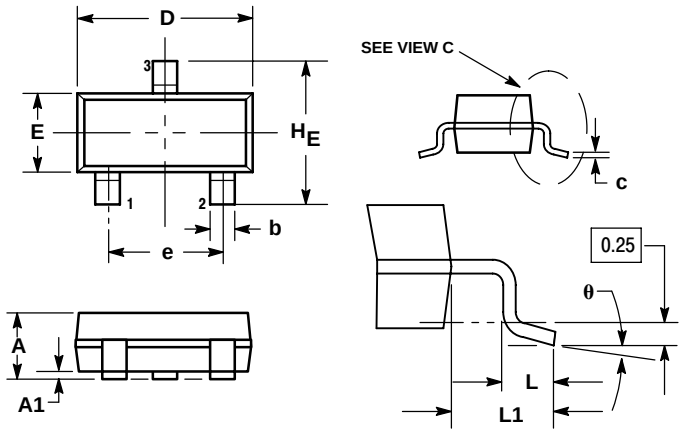
ORDERING INFORMATION

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.

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.

	MILLIMETERS			INCHES		
DIM	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
H_E	2.10	2.40	2.64	0.083	0.094	0.104

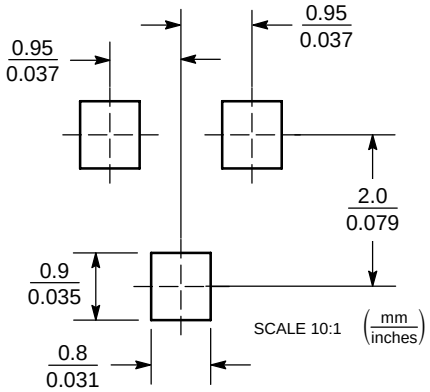
MMBD352LT1
STYLE 11:
PIN 1. ANODE
2. CATHODE
3. CATHODE−ANODE

MMBD353LT1
STYLE 19:
PIN 1. CATHODE
2. ANODE
3. CATHODE−ANODE

MMBD354LT1
STYLE 9:
PIN 1. ANODE
2. ANODE
3. CATHODE

MMBD355LT1
STYLE 12:
PIN 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.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 61312, Phoenix, Arizona 85082−1312 USA
Phone: 480−829−7710 or 800−344−3860 Toll Free USA/Canada
Fax: 480−829−7709 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800−282−9855 Toll Free USA/Canada

Japan: ON Semiconductor, Japan Customer Focus Center
2−9−1 Kamimeguro, Meguro−ku, Tokyo, Japan 153−0051
Phone: 81−3−5773−3850

ON Semiconductor Website: http://onsemi.com

Order Literature: http://www.onsemi.com/litorder

For additional information, please contact your local Sales Representative.