MBH100

91 – 99 GHz Mixer

Preliminary Datasheet

Revision: November 2007

X=1300 μm Y=1500 μm

Applications

- ♦ Short Haul / High Capacity Links
- ♦ Wireless LANs

Features

- ♦ RF frequency: 91 to 99 GHz
- ♦ Conversion Loss: 11.5 dB, (typ.)
- ♦ Singly balanced
- ♦ Functions as an up-converter or down-converter
- ♦ Die Size: < 2.0 sq. mm

Product Description

The MBH100 is a W-Band monolithic HEMT schottky diode, singly balanced mixer designed for use in commercial digital radios and wireless LANs. The design requires no external bias and can be used as an upconverter and as a downconverter. To ensure rugged and reliable operation, HEMT devices are fully passivated. Both bond pad and backside metallization are Ti/Au, which is compatible with conventional die attach, thermocompression, and thermosonic wire bonding assembly techniques.

Performance Characteristics (T_{OP} = 25°C)

Specification	Min	Typ	Max	Unit
RF frequency	91		99	GHz
LO frequency	91		99	GHz
IF frequency	DC		3	GHz
LO power		10		dBm
Conversion loss				
Upconverter				dB
Downconverter		11.5	12.5	dB
LO-RF isolation		TBD		dB
RF return loss		TBD		dB
IF return loss		TBD		dB

Absolute Maximum Ratings (T_{OP} = 25°C)

Parameter	Min	Max	Unit
Input LO Drive		16	dBm
Assy. Temperature (60 seconds)		300	°C

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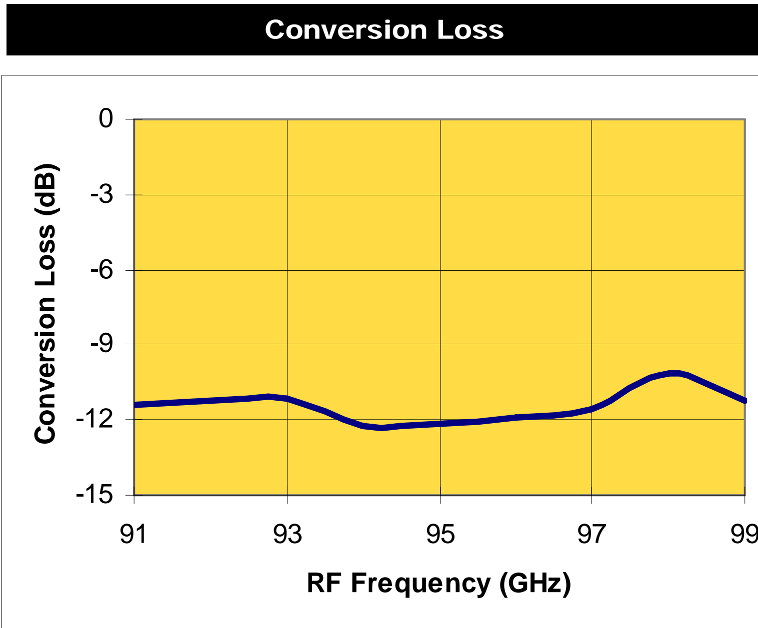
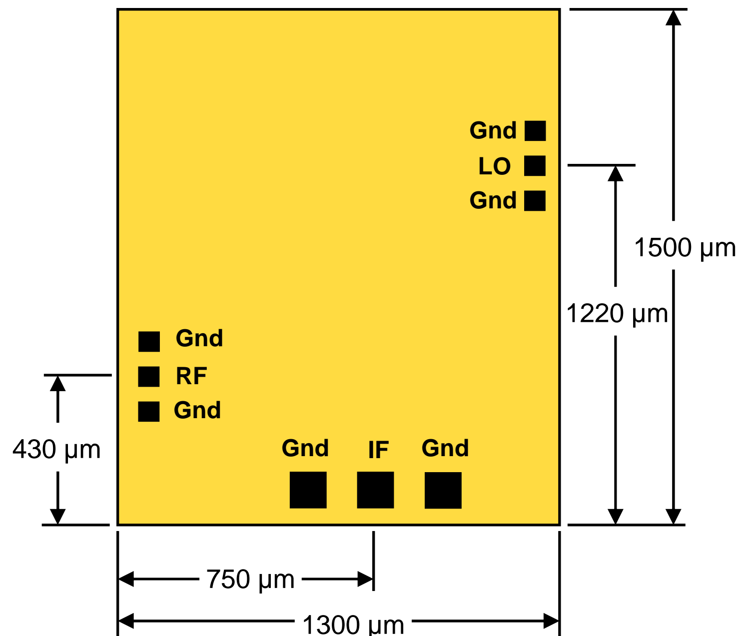
**Measured Performance Characteristics (T_{OP} = 25°C)
PLO= 10 dBm; PRF= -10 dBm; IF= 1 GHz**



Die Size and Bond Pad Locations

X Dimension: 1300 ± 25 µm
Y Dimension: 1500 ± 25 µm
Bond Pad Dimensions:
IF: 101 x 101 µm ± 0.5 µm
RF & LO: 50 x 50 µm ± 0.5 µm
Chip Thickness = 101 ± 5 µm



Recommended Assembly Note

Best performance obtained from use of <10 mil (long) by 3 by 0.5 mil ribbon.

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