

MBH100

91 – 99 GHz

Mixer

NORTHROP GRUMMAN

Product Datasheet

Revision: April 2015



X=1300 μ m Y=1500 μ m

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

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

Applications

- ◆ Short Haul / High Capacity Links
- ◆ Wireless LANs
- ◆ Sensors
- ◆ Radar

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.

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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Web: <http://www.as.northropgrumman.com/mps>

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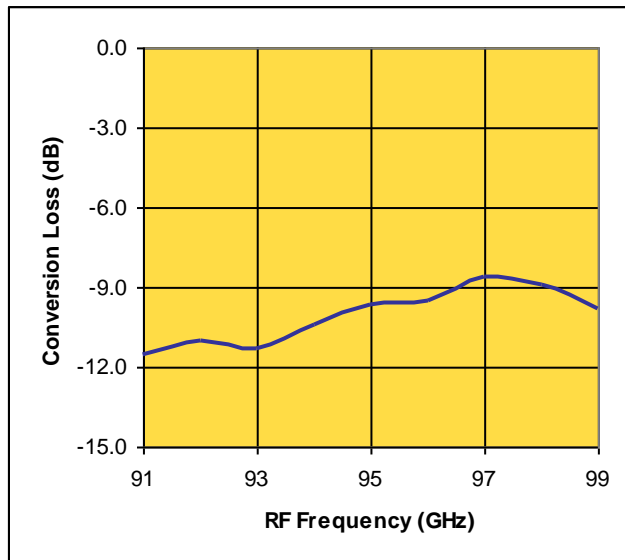
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Measured Performance Characteristics ($T_{OP} = 25^{\circ}C$)
PLO= 10 dBm; PRF= -10 dBm; IF= 1 GHz

Conversion Loss



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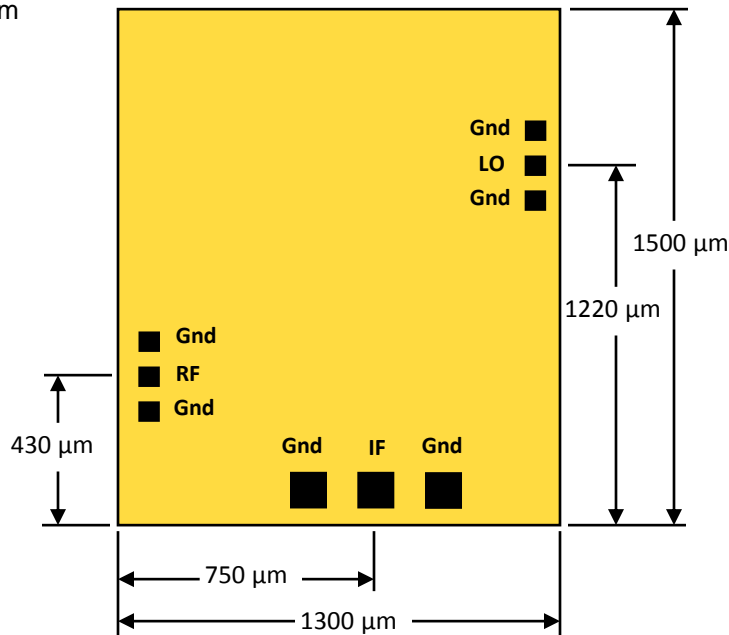
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Die Size and Bond Pad Locations (Not to Scale)

X Dimension: $1300 \pm 25 \mu\text{m}$
Y Dimension: $1500 \pm 25 \mu\text{m}$
Bond Pad Dimensions:
IF: $101 \times 101 \mu\text{m} \pm 0.5 \mu\text{m}$
RF & LO: $51 \times 51 \mu\text{m} \pm 0.5 \mu\text{m}$
Chip Thickness = $101 \pm 5 \mu\text{m}$



Recommended Assembly Notes

- 1) Best performance obtained from use of <6 mil (long) by 1.5 by 0.5 mil ribbon on RF & LO ports.
- 2) Best performance obtained from use of <10 mil (long) by 3 by 0.5 mil ribbon on IF Port.

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