

X=1200 μm Y=1000 μm

Features

- ◆ RF Frequency: 35 to 45 GHz
- ◆ Conversion loss: 8 dB, (typ.)
- ◆ Functions as up- or down-converter
- ◆ No External Bias Required
- ◆ Die Size: 1.2 sq. mm

Performance Characteristics (T<sub>OP</sub> = 25°C)

Specification	Min	Typ	Max	Unit
RF Frequency	35		45	GHz
LO Frequency	35		45	GHz
IF Frequency	DC		5	GHz
LO Power		16		dBm
Input P1 dB		7		dBm
Input IP3		16		dBm
Conversion Loss				
Upconverter		8	11	dB
Downconverter		8.5	11	dB
RF Return Loss	10	12		dB
IF Return Loss	10	12		dB
Isolation				
LO-RF	30	33		dB
LO-IF	13	17		dB
RF-IF	22	26		dB

Applications

- ◆ Point-to-Point Digital Radios
- ◆ Point-to-Multipoint Digital Radios
- ◆ Radar

Description

The MDB162 is a monolithic HBT schottky diode star mixer designed for use in commercial digital radios and wireless LANs. The design requires no external bias and can be used as an upconverter as well as a downconverter. To ensure rugged and reliable operation, HBT 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<sub>OP</sub> = 25°C)

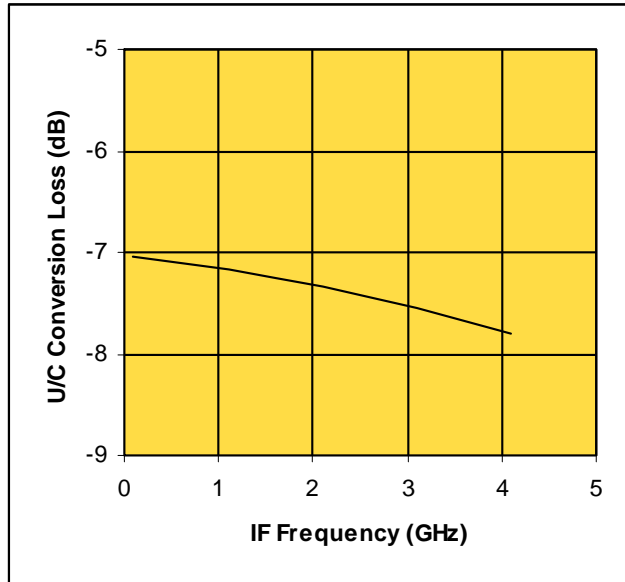
Parameter	Min	Max	Unit
Assy. Temperature (60 seconds)		300	°C

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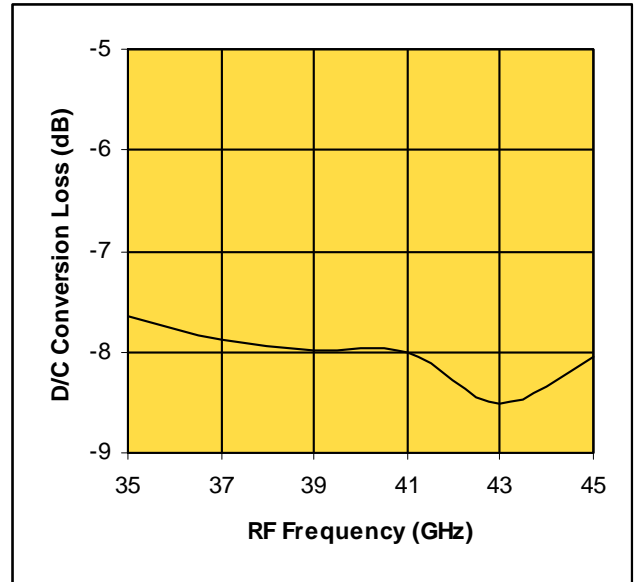
Measured Performance Characteristics ( $T_{OP} = 25^{\circ}C$ )

**Upconverter Conversion Loss**



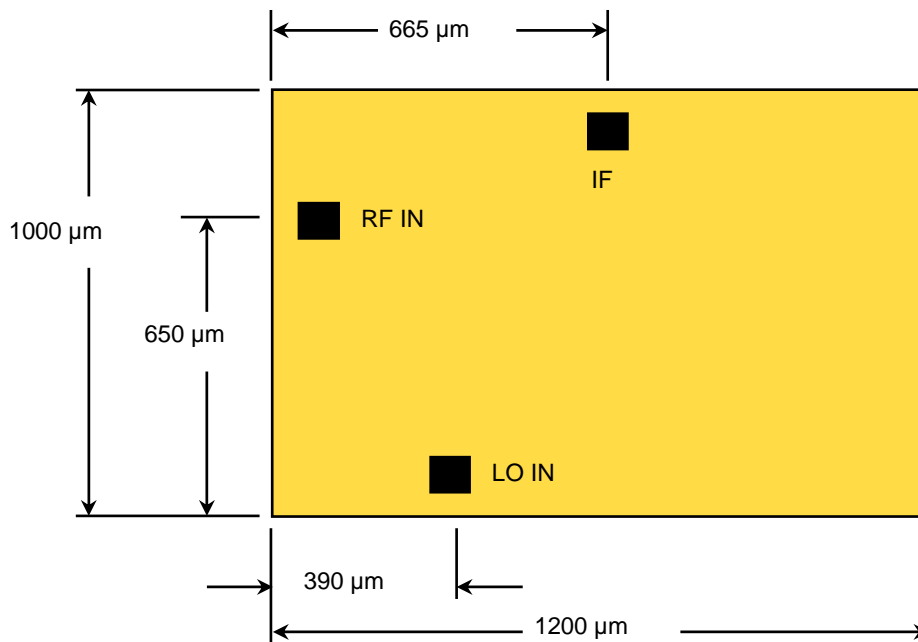
RF=40.1-45 GHz, LO=40 GHz, IF=0.1-4.1 GHz, PLO=+16 dBm, PRF=-10 dBm

**Downconverter Conversion Loss**



RF=35-45 GHz, LO=33-43 GHz, IF=2 GHz, PLO=+16 dBm, PRF=-10 dBm

Die Size and Bond Pad Locations



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