

Features

- ▼ RF Frequency: 37.0 - 42.0 GHz
- ▼ LO Frequency: 17.5 - 21.0 GHz
- ▼ IF Frequency: DC - 2 GHz
- ▼ Conversion loss: 12 dB, (typ.)
- ▼ No External Bias Required

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

Specification	Min	Typ	Max	Unit
RF Frequency	37		42	GHz
LO Frequency	17.5		21	GHz
IF Frequency	DC		2	GHz
LO Power		14	18	dBm
P1 dB Input		7		dBm
Downconverter conversion loss		12	15	dB
Upconverter conversion loss		11	14	dB
RF Return Loss		12		dB
IF Return Loss		12		dB
Isolation				
LO-RF		9		dB
LO-IF		17		dB
2LO- IF		60		dB
2LO- RF		44		dB
RF-IF		16		dB

Applications

- ▼ Point-to-Point Digital Radios
- ▼ Point-to-Multipoint Digital Radios

Product Description

The MSB121 is a monolithic HBT schottky diode sub-harmonic mixer designed for use in commercial digital radios and wireless LANs. The small die size allows for extremely compact packaging. No external bias is needed. RF and LO ports are AC coupled. IF port is DC coupled. 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_{OP} = 25°C)

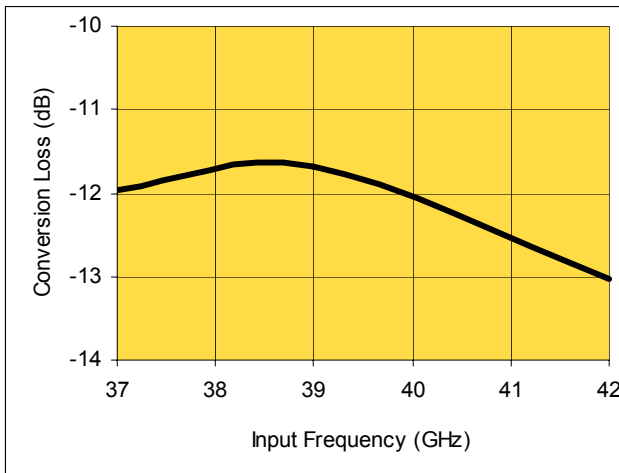
Parameter	Min	Max	Unit
Input LO Drive		19	dBm
Assy. Temperature (60 seconds)		300	°C

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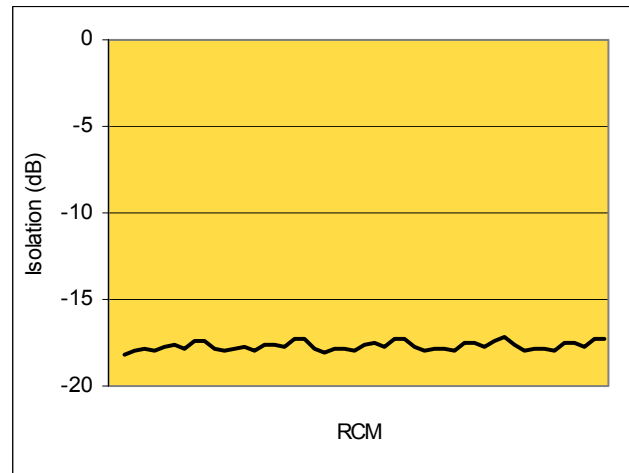
Measured Performance Characteristics (T_{OP} = 25°C)

Downconverter Conversion Loss



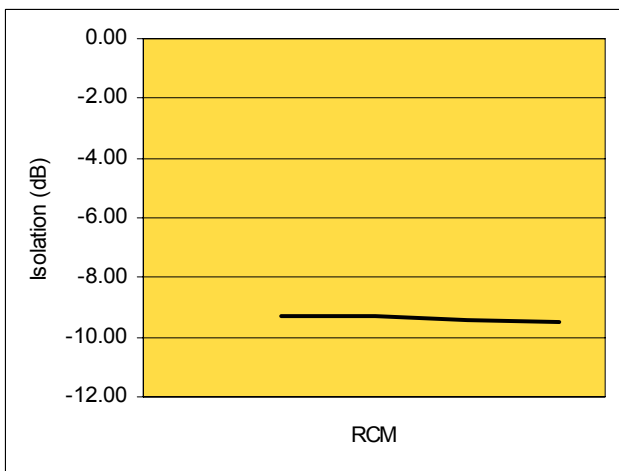
P_{RF}=-5 dBm; P_{LO}=14 dBm; IF= 1.5 GHz

RF to IF Isolation



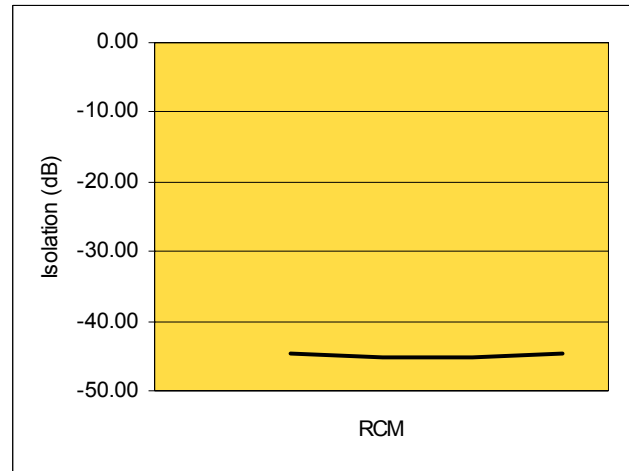
RF= 38.5 GHz @ -5 dBm; LO= 18.75 @ 14 dBm

LO to RF Isolation



LO= 19 GHz @ 15 dBm

2LO to RF Isolation



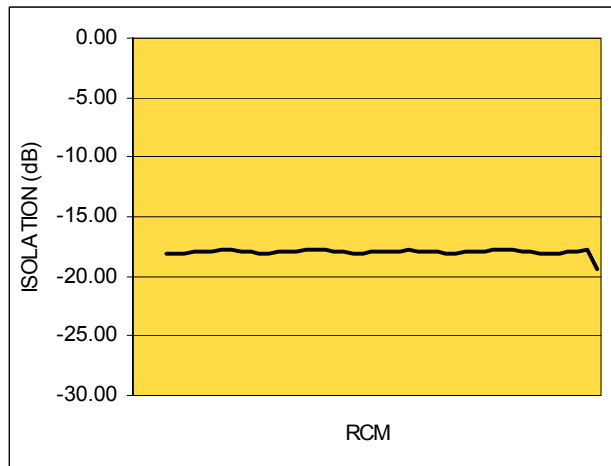
LO= 19 GHz @ 15 dBm

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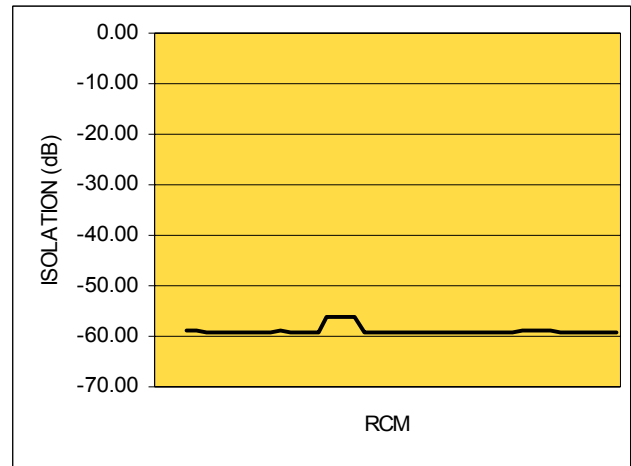
Measured Performance Characteristics (T_{OP} = 25°C)

LO to IF Isolation



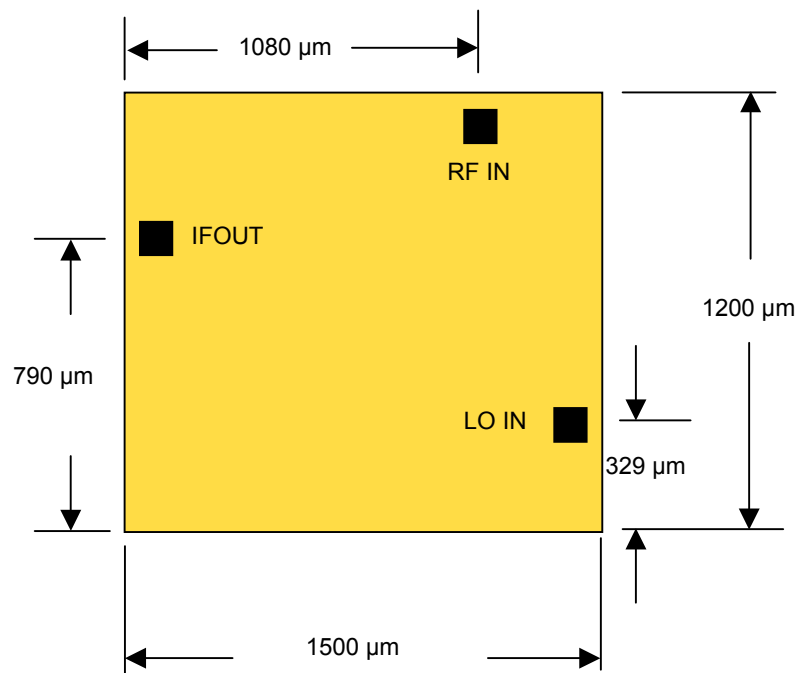
LO= 19 GHz@ 14 dBm

2LO to IF Isolation



LO= 19 GHz@ 14 dBm

Die Size and Bond Pad Locations



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