

**Applications**

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

**Features**

- ▼ RF Frequency: 24.0 - 26.5 GHz
- ▼ LO Frequency: 11.75 - 13.0 GHz
- ▼ IF Frequency: DC - 1 GHz
- ▼ Conversion loss: 10 dB, (typ.)
- ▼ No External Bias Required

**Product Description**

The MSB112 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.

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

Specification	Min	Typ	Max	Unit
RF Frequency	24		26.5	GHz
LO Frequency	11.75		13	GHz
IF Frequency	DC		1	GHz
LO Power		11	16	dBm
P1 dB Input		0		dBm
Downconverter conversion loss		10	15	dB
Upconverter conversion loss		9	14	dB
RF Return Loss		12		dB
IF Return Loss		12		dB
Isolation				
LO-RF		14		dB
LO-IF		14		dB
2LO- IF		65		dB
2LO- RF		45		dB
RF-IF		40		dB

**Absolute Maximum Ratings (T<sub>OP</sub> = 25°C)**

Parameter	Min	Max	Unit
Input LO Drive		18	dBm
Assy. Temperature (60 seconds)		300	°C

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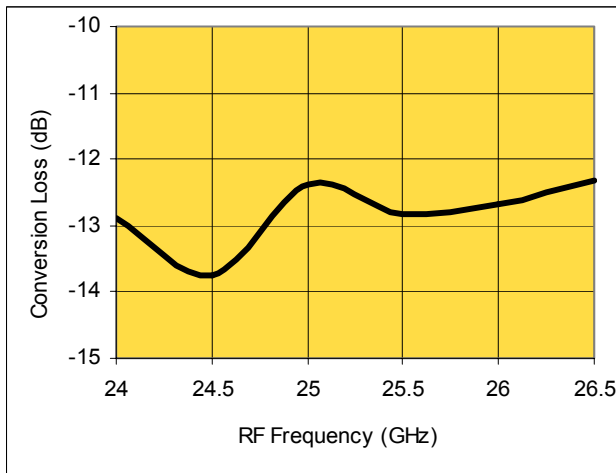


Product Datasheet **Discontinued 12/12/2003**

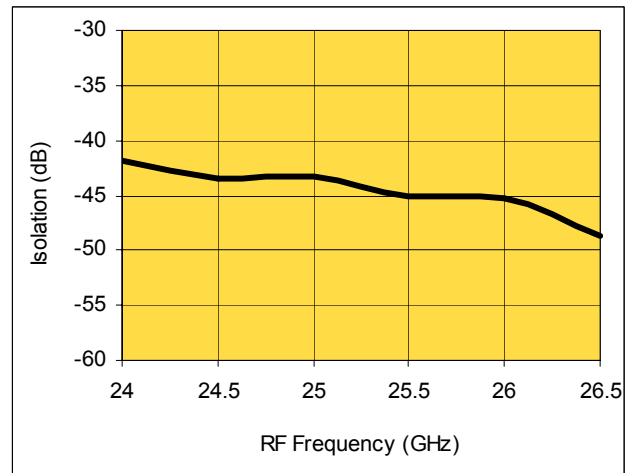
Revision: December 12, 2003

**Measured Performance Characteristics ( $T_{OP} = 25^{\circ}C$ )**  
 **$P_{LO} = 11$  dBm;  $P_{RF} = -20$  dBm; IF= 500 MHz**

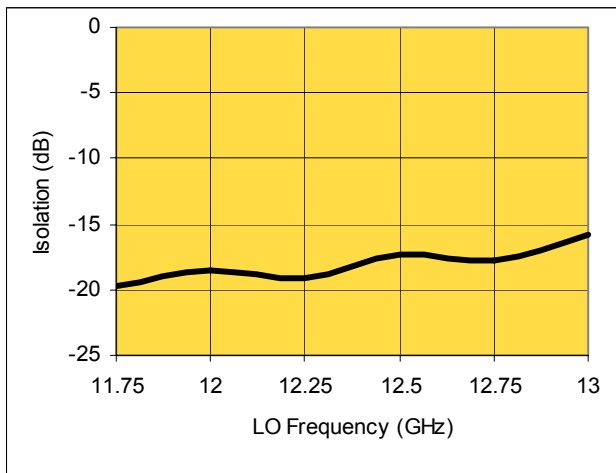
**Downconverter Conversion Loss**



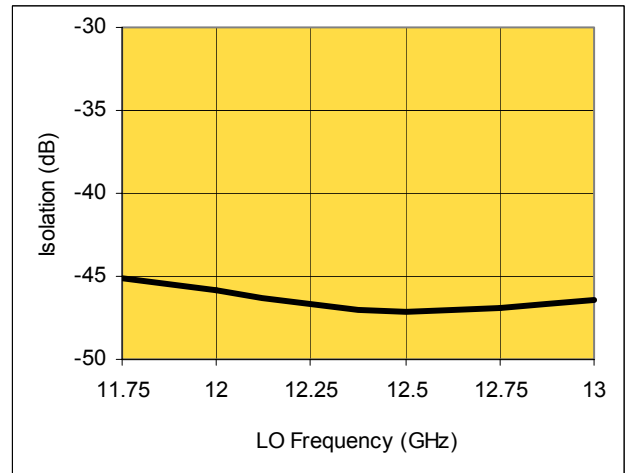
**RF to IF Isolation**



**LO to RF Isolation**



**2LO to RF Isolation**



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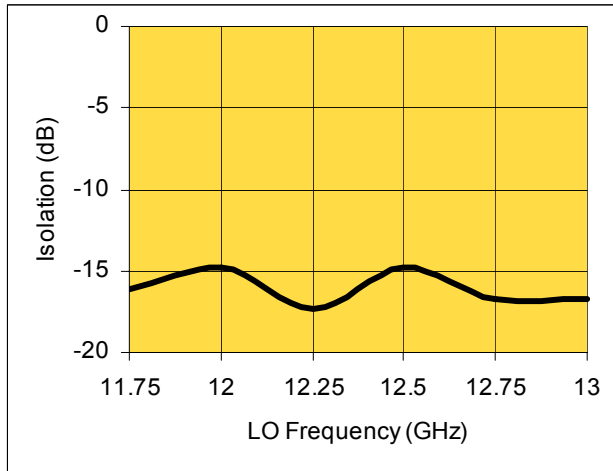


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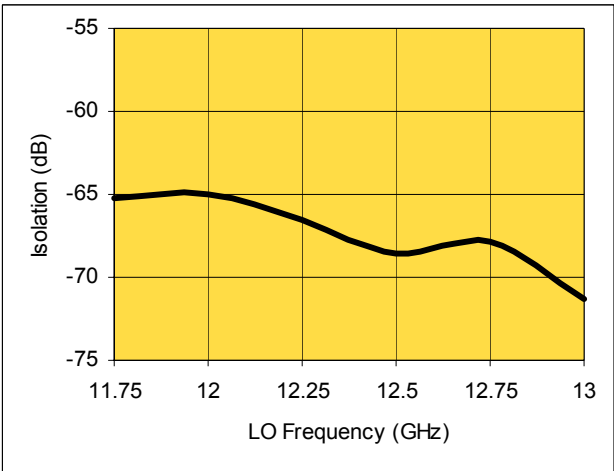
Revision: December 12, 2003

**Measured Performance Characteristics ( $T_{OP} = 25^{\circ}C$ )**  
 $P_{LO} = 11 \text{ dBm}$ ;  $P_{RF} = -20 \text{ dBm}$ ;  $IF = 500 \text{ MHz}$

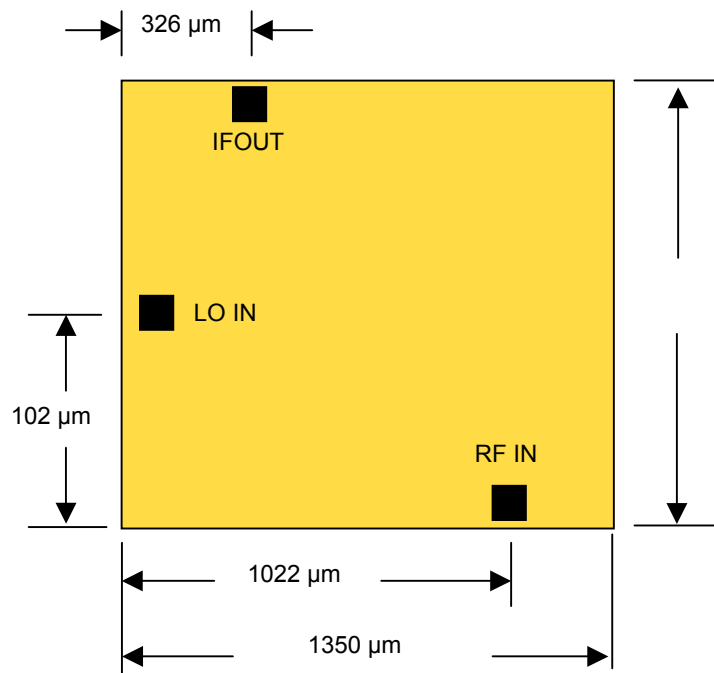
**LO to IF Isolation**



**2LO to IF Isolation**



**Die Size and Bond Pad Locations**



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