

**TO-5 Double-Balanced Mixer,  
5 - 500 MHz**

**MAC-51  
V3**

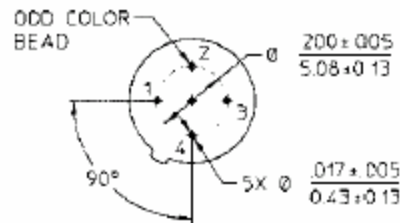
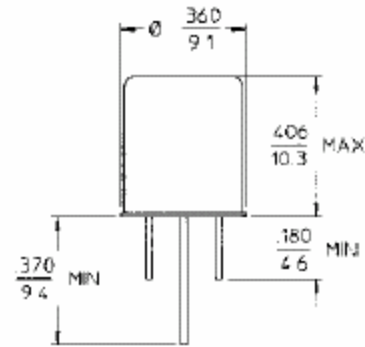
**Features**

- Convenient Microstrip or Stripline Mounting
- Low Conversion Loss: 7 dB
- Impedance: 50 Ohms Nominal
- Maximum Input Power: 300 mW max. @ 25°C, Derated linearly to 85°C @ 3.2 mW/°C
- IF Port Current: 50 mA Max.
- MIL-STD-883 Screening Available

**Description**

Transformers convert the LO and RF paths to balanced lines connecting to a low barrier, Schottky diode ring quad. These transformers help provide excellent isolation between ports. Conversion Loss is low. The direct connection of the IF port to the diode quad allows these mixers to be used as phase detectors and bi-phase modulators.

**TO-5-2**



Lower dimensions are in mm  
Unless otherwise noted: XXX = ±0.10 (XX = ±0.25)  
XX = ±0.02 (X = ±0.5)  
Weight (Approx) 0.11 Ounces 3 Grams

**Pin Configuration**

Pin No.	Function	Pin No.	Function
1	LO	3	RF
2	IF	4	GND

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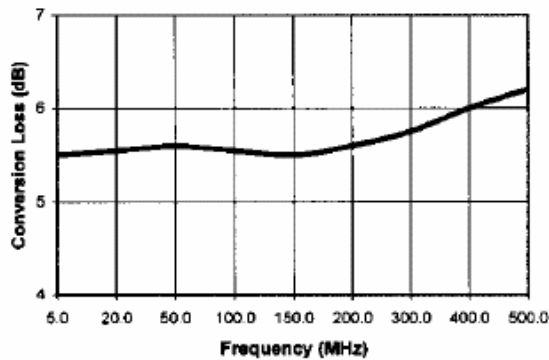
**Electrical Specifications<sup>1</sup>: T<sub>A</sub> = -55°C to +85°C**

Parameter	Test Conditions	Frequency	Units	Min	Typ	Max
Frequency Range	RF, LO Ports IF Port	5 - 500 DC - 500	MHz MHz	— —	— —	— —
Conversion Loss		—	dB	—	—	7.0
Isolation	LO to RF	5 - 50 MHz	dB	35	—	—
		50 - 500 MHz	dB	25	—	—
	LO to IF	5 - 50 MHz	dB	35	—	—
		50 - 500 MHz	dB	25	—	—
	RF to IF	5 - 50 MHz	dB	20	—	—
		50 - 500 MHz	dB	20	—	—
DC Polarity	Negative	—	—	—	—	—
DC Offset			mV	—	≤3	—
RF Input <sup>2</sup>	1 dB Compression 1 dB Desensitization		dBm dBm	— —	+2 -1.5	— —
SSB Noise Figure	Within 1 dB of Conversion Loss Max.	—	—	—	—	—

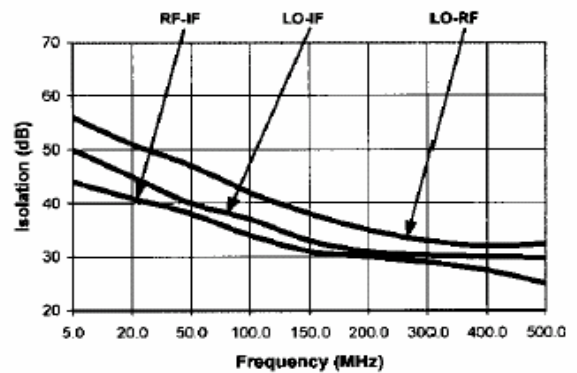
1. All specifications apply when operated at +7 dBm available LO power with 50 ohm source and load impedance.
2. Measured at 100 MHz

**Typical Performance Curves**

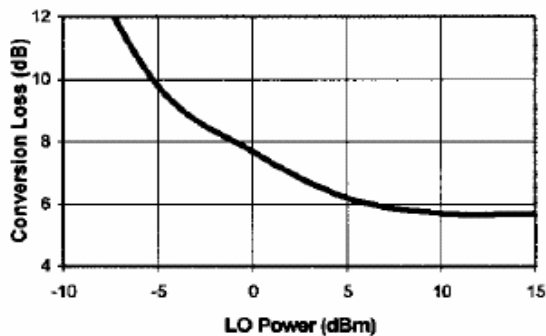
**Conversion Loss**



**Isolation**



**Conversion Loss vs. LO Power**



**Ordering Information**

Part Number	Package
MAC-51 PIN	TO-5-2