# MAC-50

## TO-5 Double-Balanced Mixer, 0.2 - 200 MHz

Rev. V3

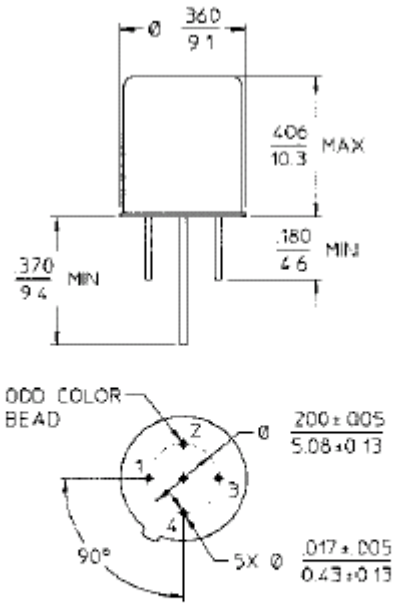
### Features

- Convenient Microstrip or Stripline Mounting
- Low Conversion Loss: -6 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 = ±.010 (.XX = ±0.25)
.XX = ±.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[1]: $T_A$ = -55°C to +85°C

| Parameter | Test Conditions | Frequency | Units | Min | Typ | Max |
|---|---|---|---|---|---|---|
| Frequency Range | RF, LO Ports<br>IF Port | 0.2 - 200<br>DC - 200 | MHz<br>MHz | —<br>— | —<br>— | —<br>— |
| Conversion Loss | | — | dB | — | — | 6.0 |
| Isolation | LO to RF | 0.2 - 50 MHz<br>50 - 200 MHz | dB<br>dB | 35<br>25 | —<br>— | —<br>— |
| | LO to IF | 0.2 - 50 MHz<br>50 - 200 MHz | dB<br>dB | 35<br>25 | —<br>— | —<br>— |
| | RF to IF | 0.2 - 50 MHz<br>50 - 200 MHz | dB<br>dB | 25<br>20 | —<br>— | —<br>— |
| DC Polarity | Negative | — | — | — | — | — |
| DC Offset | | | mV | — | ≤1 | — |
| RF Input[2] | 1 dB Compression<br>1 dB Desensitization | | dBm<br>dBm | —<br>— | +1<br>-3 | —<br>— |
| 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



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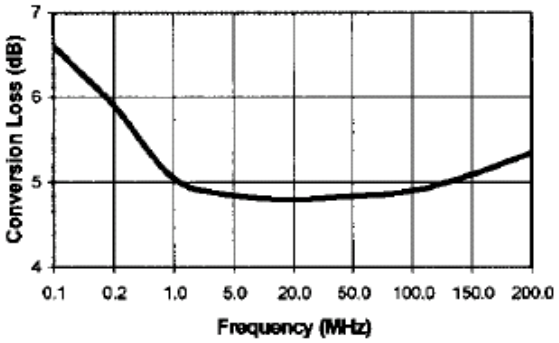
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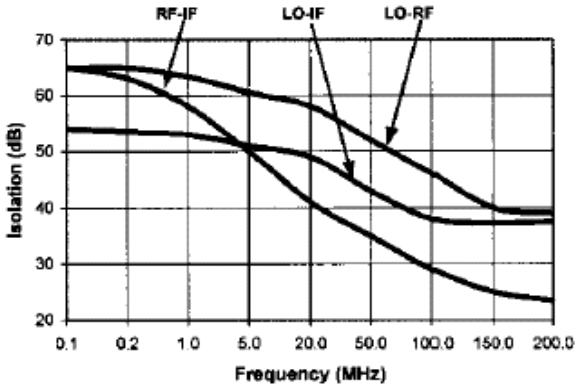
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### Typical Performance Curves

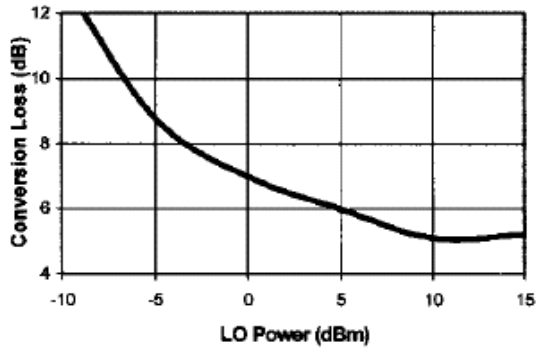
***Conversion Loss***




***Isolation***




***Conversion Loss vs. LO Power***




***Ordering Information***

| Part Number | Package |
|---|---|
| MAC-50 PIN | TO-5-2 |



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