## Double-Balanced Mixer,

10 MHz -3GHz

## Features

- Usable to 4 GHz
- Impedance: 50 Ohms Nominal
- Maximum Input Power: 600 mW max. @ $25^{\circ} \mathrm{C}$, Derated linearly to $85^{\circ} \mathrm{C} @ 3.2 \mathrm{~mW} /{ }^{\circ} \mathrm{C}$
- IF Port Current: 50 mA Max.
- MIL-STD 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.

## FP-2



Pin Configuration

| Pin No. | Function | Pin No. | Function |
| :---: | :---: | :---: | :---: |
| 1 | GND | 5 | LO |
| 2 | GND | 6 | GND |
| 3 | GND | 7 | GND |
| 4 | IF | 8 | RF |

[^0]Visit www.macomtech.com for additional data sheets and product information.

## Double-Balanced Mixer,

$10 \mathrm{MHz}-3 \mathrm{GHz}$

## Electrical Specifications ${ }^{1}$ : $\mathrm{T}_{\mathrm{A}}=-55^{\circ} \mathrm{C}$ to $+85^{\circ} \mathrm{C}$

| Parameter | Test Conditions | Frequency | Units | Min | Typ | Max |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Frequency Range | RF, LO Ports IF Port | $\begin{aligned} & 0.01-3 \mathrm{GHz} \\ & 0.01-3 \mathrm{GHz} \end{aligned}$ | $\begin{aligned} & \mathrm{GHz} \\ & \mathrm{GHz} \end{aligned}$ | - | - |  |
| Conversion Loss |  |  | dB | - | - | 8.0 |
| Isolation | LO to RF | $\begin{gathered} 10-500 \mathrm{MHz} \\ 500-1000 \mathrm{MHz} \\ 1000-3000 \mathrm{MHz} \end{gathered}$ | $\begin{aligned} & \mathrm{dB} \\ & \mathrm{~dB} \\ & \mathrm{~dB} \end{aligned}$ | $\begin{aligned} & 25 \\ & 30 \\ & 25 \end{aligned}$ | - | - |
|  | LO to IF | $\begin{gathered} 10-500 \mathrm{MHz} \\ 500-1000 \mathrm{MHz} \\ 1000-3000 \mathrm{MHz} \end{gathered}$ | $\begin{aligned} & \mathrm{dB} \\ & \mathrm{~dB} \\ & \mathrm{~dB} \end{aligned}$ | $\begin{aligned} & 20 \\ & 25 \\ & 25 \end{aligned}$ | - | - |
|  | RF to IF | $\begin{gathered} 10-500 \mathrm{MHz} \\ 500-1000 \mathrm{MHz} \\ 1000-3000 \mathrm{MHz} \end{gathered}$ | $\begin{aligned} & \mathrm{dB} \\ & \mathrm{~dB} \\ & \mathrm{~dB} \end{aligned}$ | $\begin{aligned} & 20 \\ & 25 \\ & 20 \end{aligned}$ | - | - |
| DC Polarity | Negative | - | - | - | - | - |
| DC Offset |  |  | mV | - | $\leq 7$ | - |
| RF Input | 1 dB Compression 1 dB Desensitization |  | dBm dBm | - | $\begin{aligned} & +7 \\ & +5 \end{aligned}$ | - |
| SSB Noise Figure | Within 1 dB of Conversion Loss Max. | - | - | - | - | - |
| Typical Two Tone IM Ratio | With -10 dBm input, each input 25 MHz and 35 MHz IF | $100-2000 \mathrm{MHz}$ | dB | - | >56 | - |

1. All specifications apply when operated at +10 to +13 dBm available LO power with 50 ohm source and load impedance.
2. Conversion Loss is specified for IF frequency of 10 MHz to 2 GHz . See IF port bandwidth graph.

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## Typical Performance Curves



ISOLATION


CONVERSION LOSS VS LO POWER



Ordering Information

| Part Number | Package |
| :---: | :---: |
| MD-123 PIN | FP-2 |


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