M74 / M74C

Double-Balanced Mixer



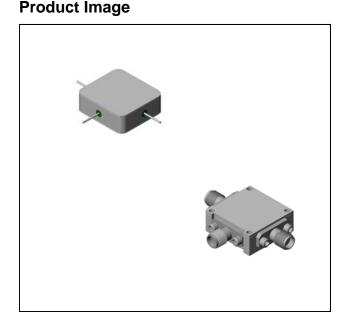
Rev. V3

Features

- LO 5 TO 18 GHz
- RF 7 TO 18 GHz
- IF DC TO 3 GHz
- LO DRIVE: +10 dBm (NOMINAL)
- VERY SMALL PACKAGE

Description

The M74 is a double balanced mixer, designed for use in military, commercial and test equipment applications. The design utilizes Schottky ring quad diodes and broadband soft dielectric and ferrite baluns to attain excellent performance. This mixer can also be used as a phase detector and/or bi-phase modulator since the IF port is DC coupled to the diodes. The use of high temperature solder and welded assembly processes used internally makes it ideal for use in manual, semi-automated assembly. Environmental screening available to MIL-STD-883, MIL-STD-202, or MIL-DTL-28837, consult factory.



Ordering Information

| Part Number | Package | |
|-------------|-------------------|--|
| M74 | Minpac | |
| M74C | SMA Connectorized | |

Electrical Specifications: $Z_0 = 50\Omega$ Lo = +10 dBm (Downconverter application only)

| Parameter | Test Conditions | Units | Typical | Guaranteed | |
|--|--|----------------------|--------------------------|--------------------------|--------------------------|
| Falameter | Test conditions | | | +25⁰C | -54º to +85ºC |
| SSB Conversion Loss (max) & SSB Noise Figure (max) | $\begin{array}{l} fR = 7 \mbox{ to } 16 \mbox{ GHz}, \mbox{ fL} = 6 \mbox{ to } 17 \mbox{ GHz}, \mbox{ fI} = 0.03 \mbox{ to } 1 \mbox{ GHz} \\ fR = 7 \mbox{ to } 16 \mbox{ GHz}, \mbox{ fL} = 5 \mbox{ to } 18 \mbox{ GHz}, \mbox{ fI} = 0.03 \mbox{ to } 2 \mbox{ GHz} \\ fR = 8 \mbox{ to } 16 \mbox{ GHz}, \mbox{ fL} = 5 \mbox{ to } 16 \mbox{ GHz}, \mbox{ fI} = 0.03 \mbox{ to } 3 \mbox{ GHz} \\ fR = 16 \mbox{ to } 18 \mbox{ GHz}, \mbox{ fL} = 13 \mbox{ to } 18 \mbox{ GHz}, \mbox{ fI} = 0.03 \mbox{ to } 3 \mbox{ GHz} \\ \end{array}$ | dB dB dB dB | 5.5 6.0 6.5 7.0 | 7.0 8.0 8.5 9.0 | 7.5 8.5 9.0 9.5 |
| Isolation, L to R (min) | fL = 5 to 14 GHz fL = 14 to 18 GHz | dB dB | 40 30 | 22 10 | 20 8 |
| Isolation, L to I (min) | fL = 5 to 8 GHz fL = 8 to 18 GHz | dB dB | 25 25 | 15 15 | 13 13 |
| 1 dB Conversion Comp. fL = +10 dBm | | dBm | +4 | | |
| Input IP3 | fR1=13 GHz at -6 dBm,fR2=13.01GHz at -6 dBm, fL = 14 GHz at = +10 dBm | dBm | +11 | | |

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Visit www.macomtech.com for additional data sheets and product information.

Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples indo nert data may be available. Commitment to produce in volume is not guaranteed.

M74 / M74C

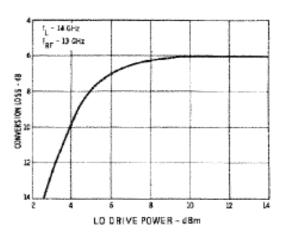
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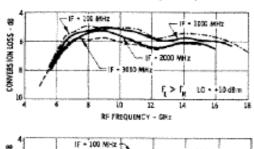
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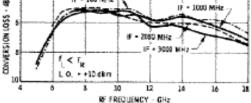
Typical Performance Curves

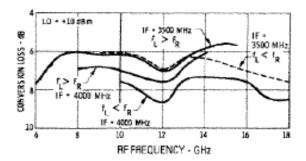
Conversion Loss vs. LO Drive Power



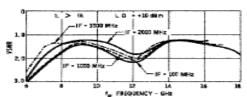
Conversion Loss vs. Frequency

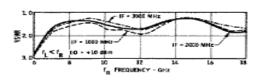


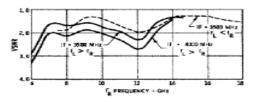




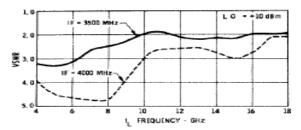


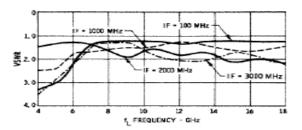






I-Port VSWR





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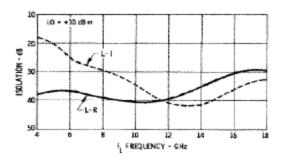


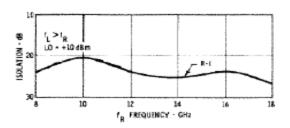
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Absolute Maximum Ratings

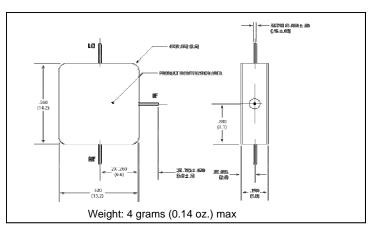
| Parameter | Absolute Maximum | | |
|-----------------------|---|--|--|
| Operating Temperature | -54ºC to +100ºC | | |
| Storage Temperature | -65°C to +100°C | | |
| Peak Input Power | +23 dBm max @ +25⁰C +20 dBm max @ +100⁰C | | |
| Peak Input Current | 100 mA DC | | |

Isolation

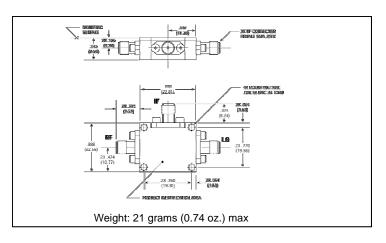




Outline Drawing: Minpac *



Outline Drawing: SMA Connectorized *



* Dimensions are inches (millimeters) ±0.015 (0.38) unless otherwise specified.

L-Port VSWR

