

#### **Double-Balanced Mixer**

Rev. V4

#### **Features**

- LO 10 TO 1500 MHz
- RF 10 TO 1500 MHz
- IF DC TO 1000 MHz
- LO DRIVE: +13 dBm (NOMINAL)
- HIGH ISOLATION: 35 dB (TYP.)
- AVAILABLE IN SURFACE MOUNT

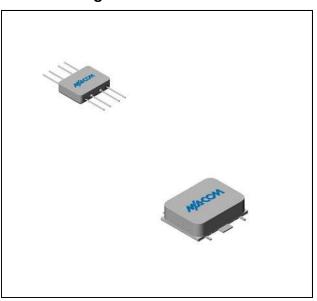
# **Description**

The M4B is a double balanced mixer, designed for use in military, commercial, and test equipment applications. The design utilizes Schottky ring quad diodes and broadband 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. Environmental screening is available to MIL-STD-883, MIL-STD-202, or MIL-DTL-28837, consult factory.

# **Ordering Information**

Part Number	Package
M4B	Flatpack
SM4B	Surface Mount

# **Product Image**



# Electrical Specifications: $Z_0 = 50\Omega$ Lo = +13 dBm (Downconverter application only)

Parameter	Test Conditions	Units	Typical	Guaranteed	
Farameter	rest Conditions			+25ºC	-54º to +85ºC
SSB Conversion Loss (max) & SSB Noise Figure (max)	$fR = 0.01 \text{ to } 1.2 \text{ GHz},  fL = 0.01 \text{ to } 1.2 \text{ GHz},  fI = 0.0004 \text{ to } 0.2 \text{ GHz} \\ fR = 0.01 \text{ to } 1.5 \text{ GHz},  fL = 0.01 \text{ to } 1.5 \text{ GHz},  fI = 0.0004 \text{ to } 0.2 \text{ GHz} \\ fR = 0.01 \text{ to } 1.5 \text{ GHz},  fL = 0.01 \text{ to } 1.5 \text{ GHz},  fI = 0.0004 \text{ to } 1 \text{ GHz} \\ \end{cases}$	dB dB dB	7.5 8.0 8.5	8.5 9.0 9.5	9.0 9.5 10.0
Isolation, L to R (min)	fL = 0.01 to 0.6 GHz fL = 0.6 to 1.2 GHz fL = 1.2 to 1.5 GHz	dB dB dB	45 35 28	35 25 22	33 23 20
Isolation, L to I (min)	fL = 0.1 to 0.6 GHz fL = 0.6 to 1.2 GHz fL = 1.2 to 1.5 GHz	dB dB dB	40 30 23	30 25 18	28 23 16
1 dB Conversion Comp.	fL @ +13 dBm	dBm	+7		
Input IP3					

Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available.

Commitment to produce in volume is not guaranteed.

<sup>•</sup> North America Tel: 800.366.2266 • Europe Tel: +353.21.244.6400

India Tel: +91.80.4155721
China Tel: +86.21.2407.1588
Visit www.macomtech.com for additional data sheets and product information.

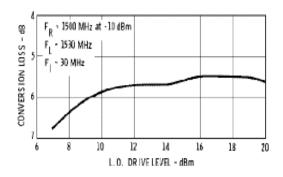


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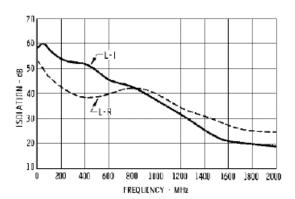
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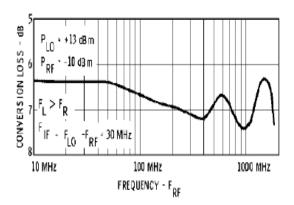
# **Typical Performance Curves**

#### Conversion Loss

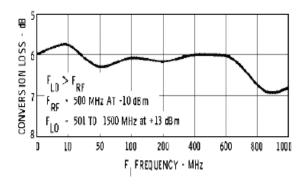


#### Isolation





# Conversion Loss



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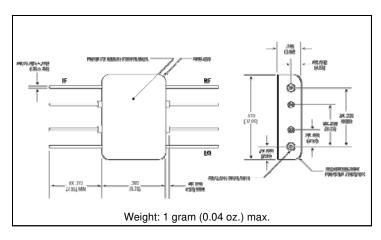
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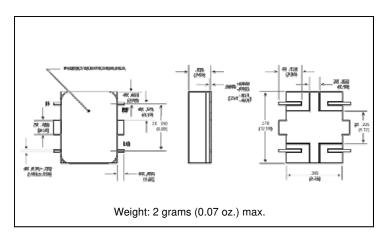
# **Absolute Maximum Ratings**

Parameter	Absolute Maximum		
Operating Temperature	-54ºC to +100ºC		
Storage Temperature	-65ºC to +100ºC		
Peak Input Power	+23 dBm max @ +25°C +17 dBm max @ +100°C		
Peak Input Current	50 mA DC		

# Outline Drawing: Flatpack \*



# Outline Drawing: Surface Mount \*



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

Commitment to produce in volume is not guaranteed.