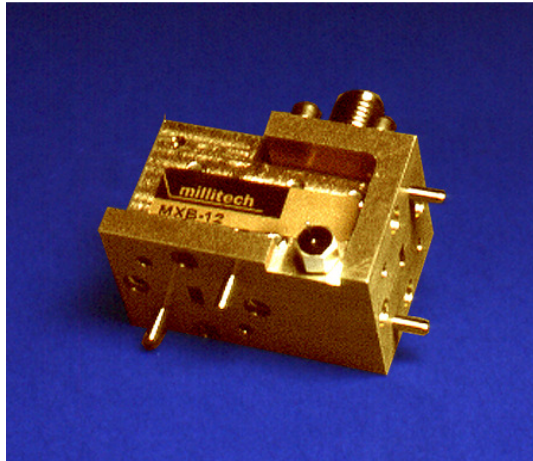


## SERIES MXB

**BIASABLE MIXERS**

**FEATURES:**

- DC biasable
- 0 dBm local oscillator drive level
- Broadband LO and RF
- IF bandwidths up to 5 GHz

**APPLICATIONS:**

- Receiver subsystems
- Broadband downconverters
- Test equipment
- EW/ELINT

**\*\*Not recommended for new designs\*\***

**See MB1-Series for an updated line of  
Biasable mixers.**

**DESCRIPTION**

Millitech series MXB mixers are DC biased to operate with low local oscillator power levels on the order of +1 dBm. These are balanced mixers with low conversion loss over broad RF and LO bandwidths and an IF range which extends up to 5 GHz.

Series MXB mixers are offered in two waveguide bands from 60 to 110 GHz with full waveguide band RF signal coverage. For narrow IF range (up to 2 GHz), the local oscillator frequency can be anywhere within the band. This broadband capability makes these mixers ideally suited for EW

receivers, instrumentation and swept receiver applications, particularly where local oscillator power is at a premium and available only at approximately the 1 dBm level.

External low noise IF preamplifiers can be provided with these mixers for specific IF ranges. The standard product uses the same waveguide band for both LO and RF ports. MXP balanced mixers with integral filters are offered for higher performance applications where reasonable LO power levels (+7 to +13 dBm) are available.

**ELECTRICAL SPECIFICATIONS**

Model Number		MXB-12	MXB-10
Frequency Band and Range (GHz)		E 60-90	W 75-110
Conversion Loss (dB) (max) <sup>*1</sup> (without IF preamplifier)	0.1-5 GHz IF	9.0	11.0
Noise Figure (dB) (DSB max) <sup>*1</sup> (with IF preamplifier)	100-500 MHz IF	9.0	10.0
	100-1000 MHz IF	9.5	10.5
	1-2 GHz IF	10.0	11.0
	2-4 GHz IF	10.0	11.0
	3-5 GHz IF	11.0	12.0
RF Frequency	Full waveguide		
RF Bandwidth	Full waveguide		
RF Input VSWR (typ)	2:1	2:1	
LO Frequency	Full waveguide		
LO Bandwidth (GHz) (min)	IF up to 2 GHz	Full waveguide	
	IF up to 5 GHz	10% of LO center frequency	
LO Drive Power (biased) (dBm) (min) <sup>*2</sup>	0	0	
LO to IF Isolation (dB) (typ)	20	20	
LO to RF Isolation (dB) (typ)	20	20	
RF to IF Gain (dB) (with IF preamplifier) (min)	20	20	
IF Preamp Noise Figure (dB) (typ)	1.5	1.5	
RF and LO Combined Input Power (dBm) (max)	17	17	
IF Output Impedance (ohm) (nom)	50	50	
DC Input Voltage (V) (IF amp) (typ)	15	15	
DC Input Current (mA) (IF amp) (typ)	200	200	
DC Bias Voltage (V) (LO) (typ)	15	15	
Operating Temperature (°C) (specs apply at 25 °C)	0 to 50	0 to 50	

\*1 - Tested with +1 dBm LO drive. Tested at a fixed LO frequency.

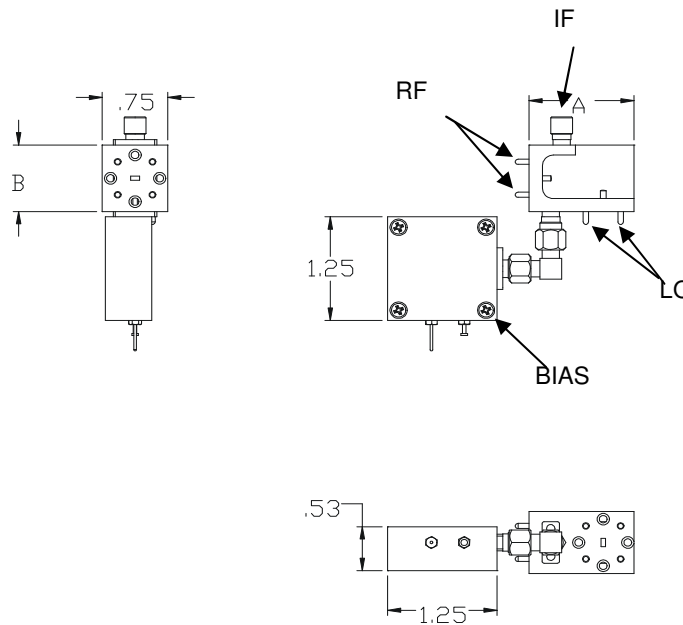
\*2 - An isolator is recommended at local oscillator input for optimum performance.

## MECHANICAL SPECIFICATIONS

Model Number	MXB-12	MXB-10
A (in/mm)	1.20/30.5	1.15/29.2
B (in/mm)	0.75/19.1	0.75/19.1
Flange MIL.F-3922	/67B-009	/67B-010

## OUTLINE DRAWINGS

### Series MXB



## HOW TO ORDER

Specify Model Number MXB-XX-ABCDE
<b>XX</b> = Waveguide Band <b>WR</b> – number
<b>A</b> = Flange Type <b>R</b> – round <b>S</b> – square (threaded or non-threaded)
<b>B</b> = Local Oscillator Waveguide Band <b>R</b> – same as RF band
<b>C</b> = IF Range <b>0</b> – 100-500 MHz <b>1</b> – 100-1000 MHz <b>2</b> – 1-2 GHz <b>3</b> – 2-4 GHz <b>4</b> – 3-5 GHz <b>R</b> – other range (please specify)
<b>D</b> = IF Amplifier Options <b>A</b> – IF amplifier included <b>W</b> – without IF amplifier
<b>E</b> = LO Range <b>F</b> – fullband (IF limited to 2 GHz) <b>S</b> – specified range* <b>X</b> – fixed frequency*
<b>*Please specify IF, LO and RF frequency</b>

### EXAMPLE:

**To Order:** a fullband biasable mixer in WR-10 with a 100 to 1000 MHz IF without an amplifier

**Specify:** MXB-10-RR1WF