

## DOUBLE-BALANCED MIXERS

**M1-0412**

### Features

- LO/RF 4.0 to 12.0 GHz
- IF DC to 4.0 GHz
- 5.0 dB Typical Conversion Loss
- 40 dB Typical LO to RF Isolation
- Very-Broadband LO and RF

NOTE: This product is not recommended for new designs in Microstrip and Surface Mount packages. [Please see this letter for more information.](#)



**Electrical Specifications** - Specifications guaranteed from -55 to +100°C, measured in a 50-Ohm system.

Parameter	LO (GHz)	RF (GHz)	IF (GHz)	Min	Typ	Max	Diode Option LO drive level (dBm)
Conversion Loss (dB)	4.0-12.0 4.0-12.0	4.0-12.0 4.0-12.0	DC-1.0 1.0-4.0		5.0 6.0	7.0 8.0	
Isolation (dB)				25			
LO-RF	4.0-12.0	4.0-12.0			40		
LO-IF	4.0-12.0	4.0-12.0			30		
RF-IF	4.0-12.0	4.0-12.0			25		
Input 1 dB Compression (dBm)	4.0-12.0	4.0-12.0			+2 +5 +8 +11 +14		L (+7 to +10) M (+10 to +13) N (+13 to +16) H (+16 to +19) S (+19 to +22)
Input Two-Tone Third Order Intercept Point (dBm)	4.0-12.0	4.0-12.0			+12 +15 +18 +21 +24		L (+7 to +10) M (+10 to +13) N (+13 to +16) H (+16 to +19) S (+19 to +22)

### Part Number Options

Please specify diode level and package style by adding to model number.						
Package Options			Examples			
Connectorized	<a href="#">A</a>		M1-0412LA			
Package Options Not Recommended for New Designs			Examples			
Microstrip <sup>1,2,3</sup>	<a href="#">E</a>		<u>M1-0412</u>	<u>L</u>	<u>E</u>	<u>-2</u>
Surface Mount <sup>1,2,3</sup>	<a href="#">EZ</a>		(Model)	(Diode Option)	(Package)	(I-Port Configuration)

<sup>1</sup>Connectorized test fixtures available for most microstrip and surface mount packages. Consult factory.

<sup>2</sup>For non-connectorized packages, specify I-port configuration by adding -1 or -2 suffix to model number. Default is -2 configuration when not specified.

<sup>3</sup>EZ/E packages are offered in support of designed in projects only. Expected obsolescence date is 2017. For new designs consult the [MMIC and Microlithic Mixer](#) catalog.



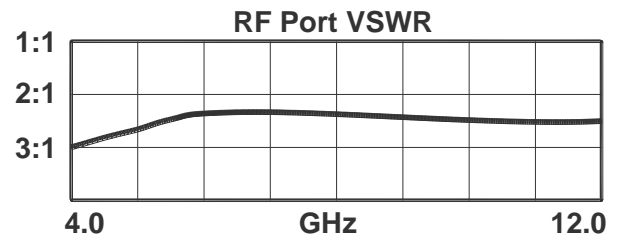
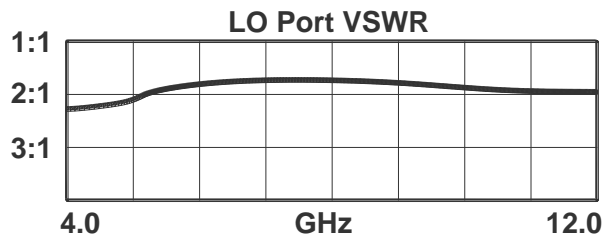
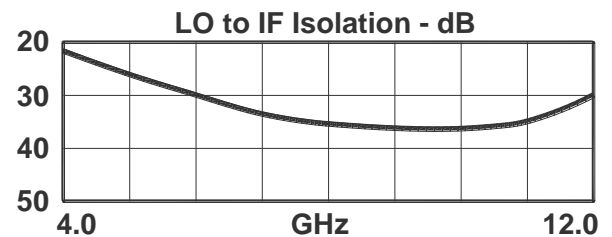
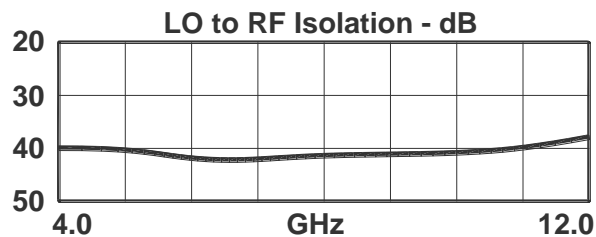
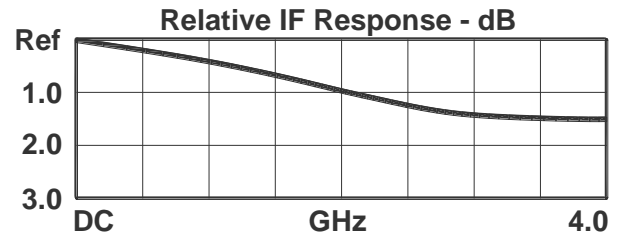
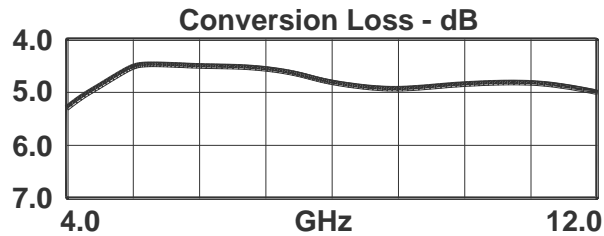
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LO/RF 4.0 to 12.0 GHz  
IF DC to 4.0 GHz

Typical Performance



### DATA SHEET NOTES:

1. Mixer Conversion Loss Plot IF frequency is 100 MHz.
2. Mixer Noise Figure typically measures within +0.5 dB of conversion loss for IF frequencies greater than 5 MHz.
3. Conversion Loss typically degrades less than 0.5 dB for LO drives 2 dB below the lowest and 3 dB above highest nominal LO drive levels.
4. Conversion Loss typically degrades less than 0.5 dB at +100°C and improves less than 0.5 dB at -55°C.
5. Maximum input power is +23 dBm at +25°C, derated linearly to +20 dBm at +100°C.
6. Specifications are subject to change without notice. Contact Marki Microwave for the most recent specifications and data sheets.
7. Standard configuration for A, B, and C outlines are with connectors and bottom spacer.
8. Catalog mixer circuits are continually improved. Configuration control requires custom mixer model numbers and specifications.

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