Sales: 408-778-9952 | General: 408-778-4200 | Fax: 408-778-4300
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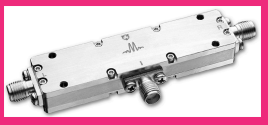
M4-0040LJ

Double-Balanced 0.5 - 40 Mixer

DEVICE OVERVIEW

General Description

M4 diplexed IF mixers are hybrid assemblies that combine a low frequency IF (to DC) with a multi-decade bandwidth RF and LO. M4 mixers are commonly used for single tone analyzers (such as antenna test systems) with ultra-broad frequency ranges.



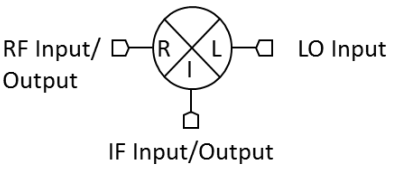
Features

- LO/RF 0.5 to 40.0 GHz
- IF DC to 400 MHz
- 8.0 dB Typical Conversion Loss
- 30 dB Typical LO to RF Isolation
- Super-Broadband RF and LO
- Available with 2.92 or 2.40 mm Connectors

Applications

N/A

Functional Block Diagram



Part Ordering Options

Part Number	Description	Package	Connectors	Green Status	Product Lifecycle	Export Classification	Recommended Replacement
M4-0040LJ	Double-Balanced 0.5 - 40 Mixer	J	Standard	Non-RoHS	Not Recommended for New Design	EAR99	-
M4-0040LJV	Double-Balanced 0.5 - 40 Mixer	JVV	Standard	Consult Factory	Not Recommended for New Design	EAR99	-
M4-0040HJ	Double-Balanced 0.5 - 40 Mixer	J	Standard	Consult Factory	End of Life	EAR99	-

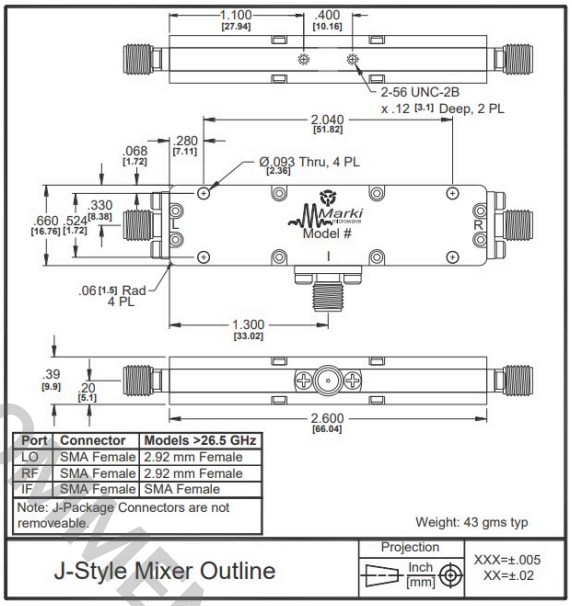
Table Of Contents

Revision History

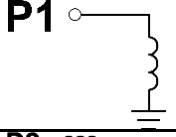
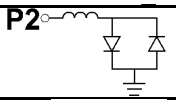
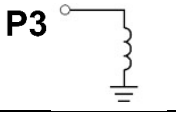
Revision Code	Revision Date	Comment
-	2007-03-01	Datasheet initial Release
A	2019-06-01	H-Diode Spec Removed
B	2025-01-29	Updated Conversion Loss as per ECN

Port Configuration and Functions

Port Diagram



Port Functions

Port	Function	Connector Type	Description	Equivalent Circuit for Package
Port 1	LO	SMAF	Port 1 is DC short for the J package.	
Port 2	IF	SMAF	Port 2 is diode connected for the J Package.	
Port 3	RF	SMAF	Port 3 is DC short for the J Package.	

Specifications

Package Information

Parameter	Details	Rating
Weight	Package name: J	43g
Dimensions	-	66.04 x 16.76 mm

Recommended Operating Conditions

Parameter	Min	Nominal	Max	Unit
LO Input Power	10	-	13	-

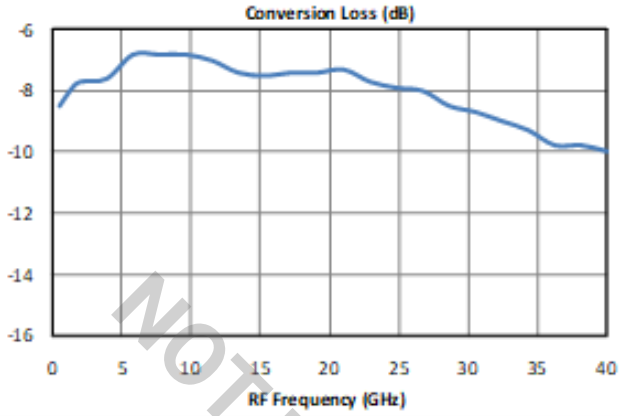
Electrical Specifications

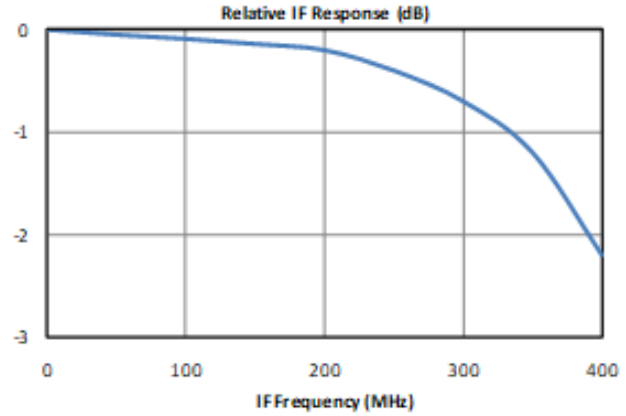
Specifications guaranteed from -55 to +100°C, measured in a 50-Ohm system.

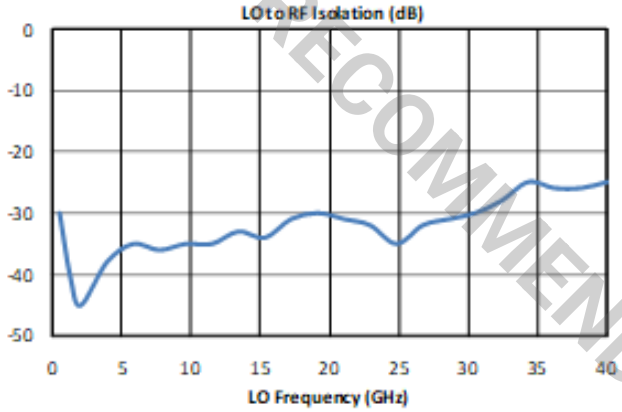
Parameter	Test Conditions	Min	Typ	Max	Unit
Conversion Loss [1]	RF/LO=0.5-40 GHz IF=91MHz	-	7	13.5	dB
Input 1 dB Compression	RF/LO=0.5-40 GHz L Diode drive level=10-13 dBm	-	3	-	dBm
Input IP3	RF/LO=0.5-40 GHz L Diode drive level=10-13 dBm	-	13	-	dBm
Isolation, RF to IF	RF/LO=0.5-40 GHz	-	25	-	dB
IF Frequency Range	-	0	-	0.4	GHz
Isolation, LO to RF	-	-	30	-	dB
RF Frequency Range	-	0.5	-	40	GHz

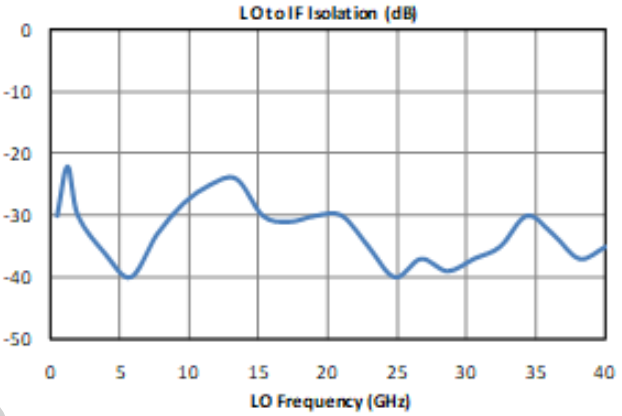
[1] RF frequency range guaranteed with high side LO. Using a LO frequency lower than the RF frequency, will reduce the low end of the RF frequency range.

Typical Performance Plots





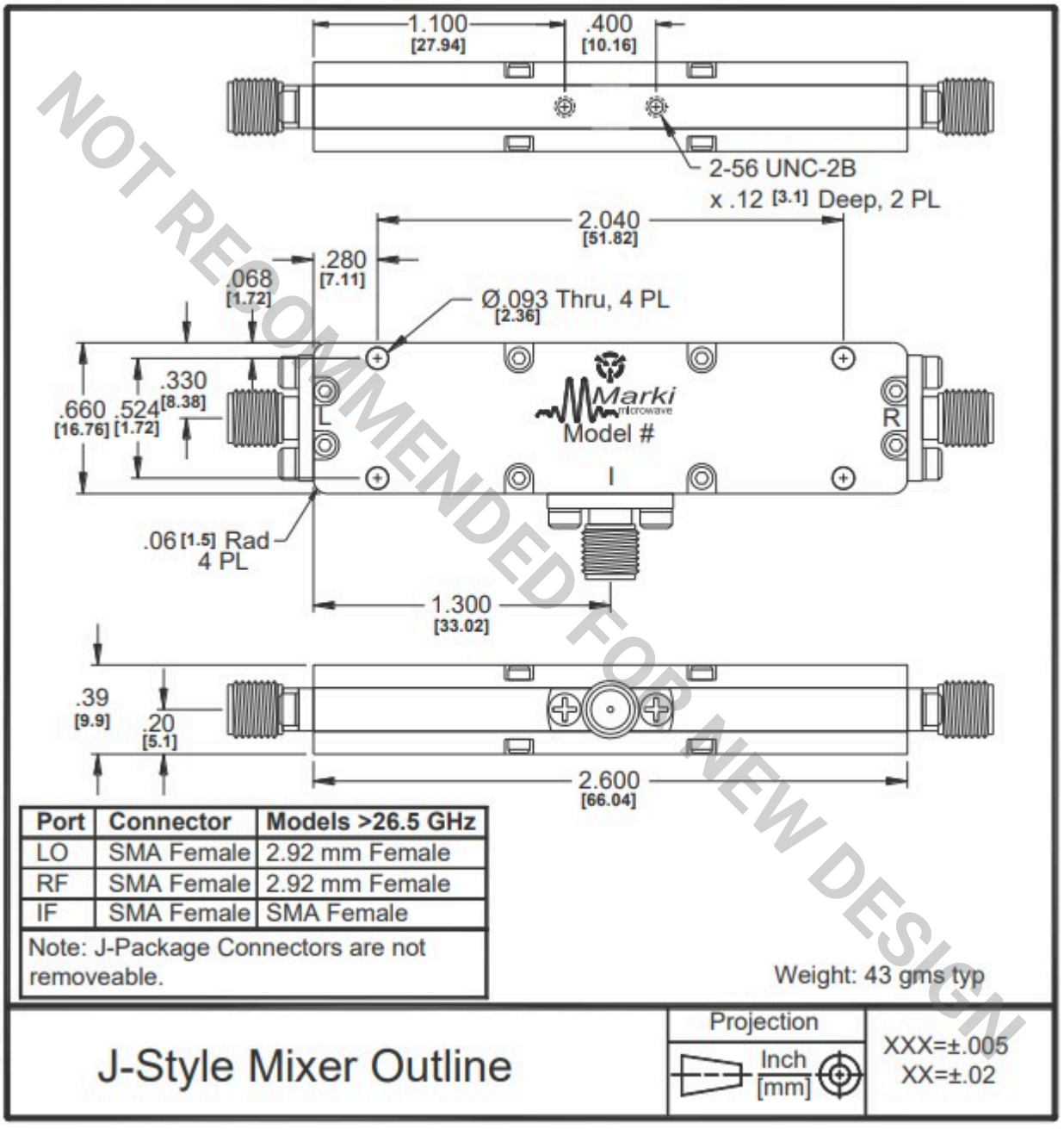




Mechanical Data

Outline Drawing

Download : Outline 3D Drawing | Outline 3D STP



Port	Connector	Models >26.5 GHz
LO	SMA Female	2.92 mm Female
RF	SMA Female	2.92 mm Female
IF	SMA Female	SMA Female
Note: J-Package Connectors are not removeable.		

Notes

1. Mixer Conversion Loss Plot is done with an IF frequency of 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. Catalog mixer circuits are continually improved. Configuration control requires custom mixer model numbers and specifications.

DISCLAIMER