

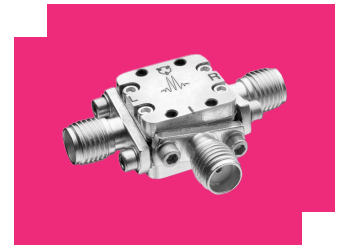
# M2-0440LN

## Triple-Balanced 4 - 40 GHz Mixer

### DEVICE OVERVIEW

#### General Description

M2 triple balanced mixers are hybrid assemblies that have been hand-tuned to feature low conversion loss and high isolations. M2 mixers offer ultrabroadband overlapping frequency coverage on all 3 ports. Many M2 mixers have replaced with MM2 mixers with superior performance, repeatability, and availability. M2 mixers suitable for systems where an MM2 mixer is not available.



#### Features

- LO/RF 4.0 to 40.0 GHz
- IF .5 to 20.0 GHz
- 10 dB Typical Conversion Loss
- 25 dB Typical LO to RF Isolation
- Ultra-Broadband RF, LO, and IF

#### Applications

N/A

#### Functional Block Diagram



#### Part Ordering Options

Part Number	Description	Package	Connectors	Green Status	Product Lifecycle	Export Classification	Recommended Replacement
M2-0440LN	Triple-Balanced 4 - 40 GHz Mixer	N	<u>Standard</u>	Non-RoHS	Not Recommended for New Design	EAR99	-
<u>M2-0440LNV</u>	Triple-Balanced 4 - 40 GHz Mixer	NV	<u>Standard</u>	<u>Consult Factory</u>	Not Recommended for New Design	EAR99	-

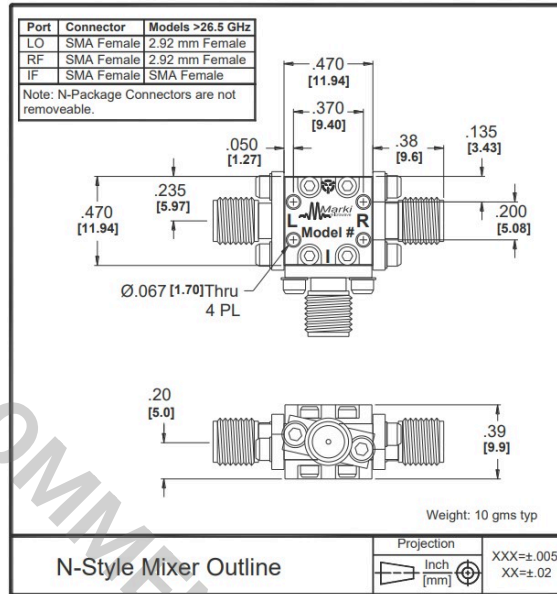
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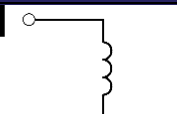
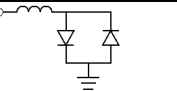
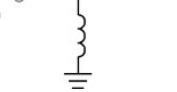
NOT RECOMMENDED FOR NEW DESIGN

**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 N package.	<b>P1</b> 
Port 2	IF	SMAF	Port 2 is diode connected for the N Package.	<b>P2</b> 
Port 3	RF	SMAF	Port 3 is DC short for the P Package.	<b>P3</b> 

**Specifications**

**Package Information**

Parameter	Details	Rating
Weight	Package name: N	10g
Dimensions	-	11.94 x 11.94 mm

**Recommended Operating Conditions**

Parameter	Min	Nominal	Max	Unit
LO Input Power	10	-	20	-

NOT RECOMMENDED FOR NEW DESIGN

**Electrical Specifications**

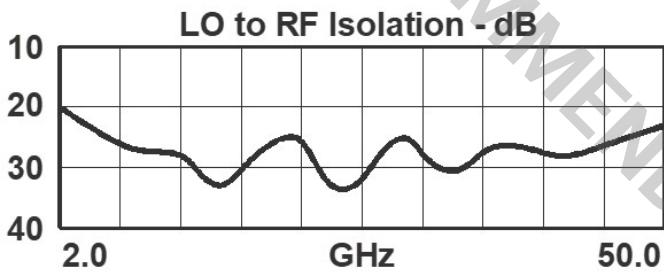
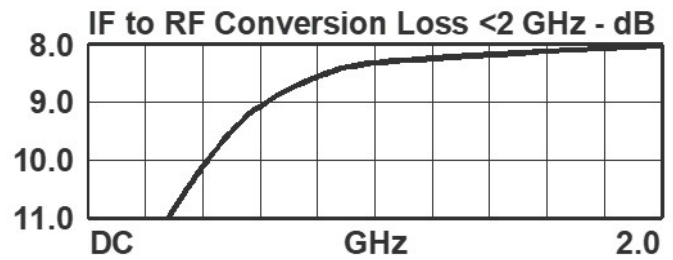
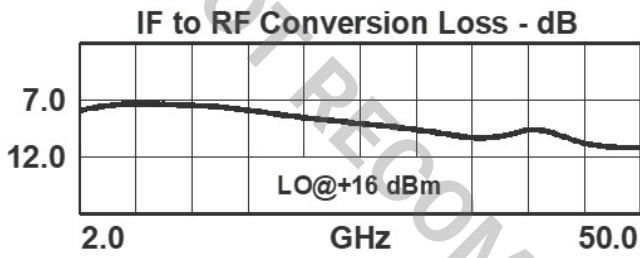
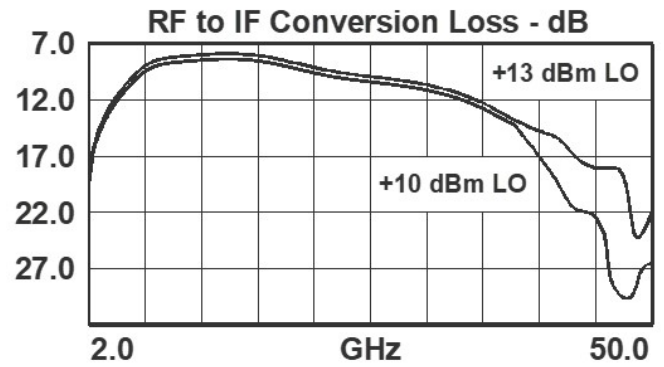
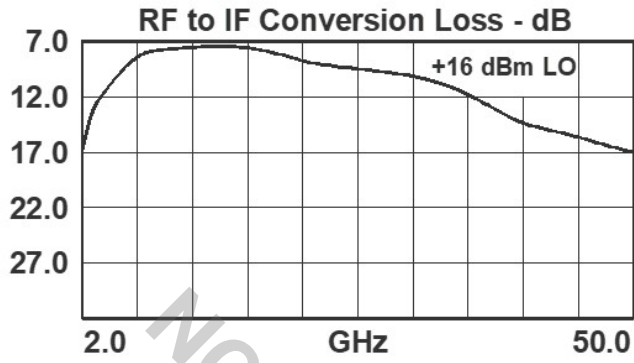
Specifications guaranteed from -55 to +100°C, measured in a 50-Ohm system.

Parameter	Test Conditions	Min	Typ	Max	Unit
Conversion Loss	LO/RF=4-40 GHz IF=0.5-20 GHz	-	10	15	dB
Input 1 dB Compression	LO/RF=4-40 GHz L Diode drive level=10-20 dBm	-	5	-	dBm
Input IP3 <sup>1</sup>	LO/RF=4-40 GHz L Diode drive level=10-20 dBm	-	15	-	dBm
Isolation, LO to IF	LO/RF=4-40 GHz	-	25	-	dB
Isolation, LO to RF	LO/RF=4-40 GHz	18	25	-	dB
Isolation, RF to IF	LO/RF=4-40 GHz	-	20	-	dB
IF Frequency Range	-	0.5	-	20	GHz
RF Frequency Range	-	4	-	40	GHz

<sup>[1]</sup> +13 dBm LO minimum recommended for best performance.

NOT RECOMMENDED FOR NEW DESIGN

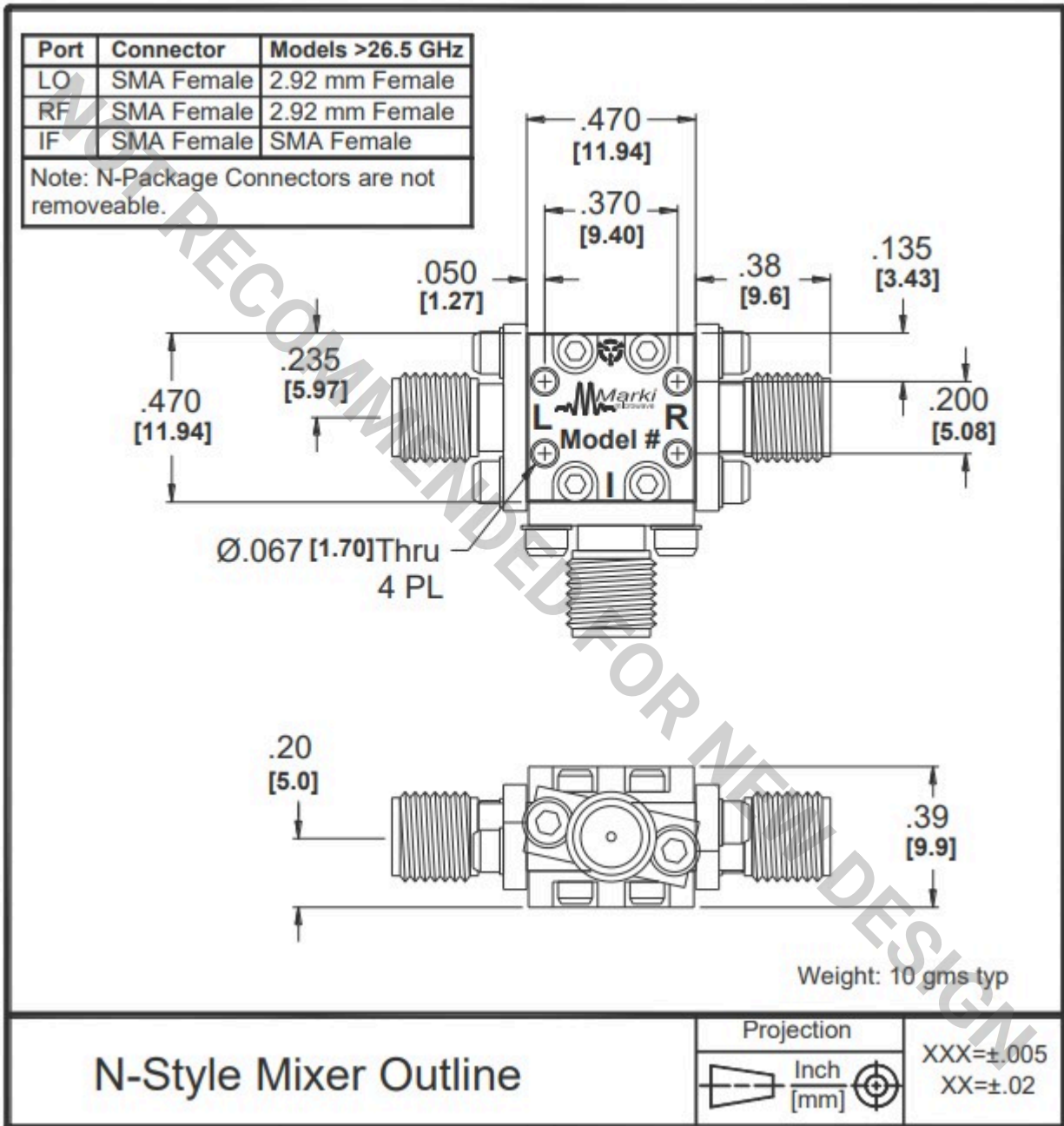
**Typical Performance Plots**



**Mechanical Data**

**Outline Drawing**

Download : [Outline 3D Drawing](#) | [Outline 3D STP](#)



## Notes

1. Mixer Conversion Loss Plot IF frequency is 1 GHz.
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 +26 dBm at +25°C, derated linearly to +23 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.

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