

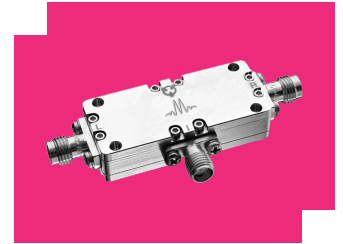
# M4-0050HTV

## Double-Balanced Mixers

### 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 .5 to 50.0 GHz
- IF DC to 300 MHz
- 9.0 dB Typical Conversion Loss
- 27 dB Typical LO to RF Isolation
- Super-Broadband RF and LO

#### Applications

N/A

#### Functional Block Diagram



#### Part Ordering Options

Part Number	Description	Package	Connectors	Green Status	Product Lifecycle	Export Classification	Recommended Replacement
M4-0050HTV	Double-Balanced Mixers	TV	<u>Standard</u>	<u>Consult Factory.</u>	End of Life	EAR99	-
<u>M4-0050LTV</u>	Double-Balanced Mixers	TV	<u>Standard</u>	Non-RoHS	Released	EAR99	-

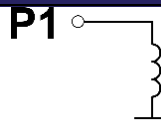
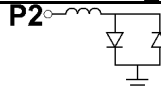
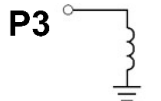
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**Port Configuration and Functions**

**Port Functions**

Port	Function	Connector Type	Description	Equivalent Circuit for Package
Port 1	LO	2.4F	Port 1 is DC short for the TV package.	
Port 2	IF	SMAF	Port 2 is diode connected for the TV Package.	
Port 3	RF	-	Port 3 is DC short for the TV Package.	

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**Specifications**

**Package Information**

Parameter	Details	Rating
Dimensions	-	43.18 x 18.8 mm

**Recommended Operating Conditions**

Parameter	Min	Nominal	Max	Unit
LO Input Power	16	-	19	-

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**Electrical Specifications**

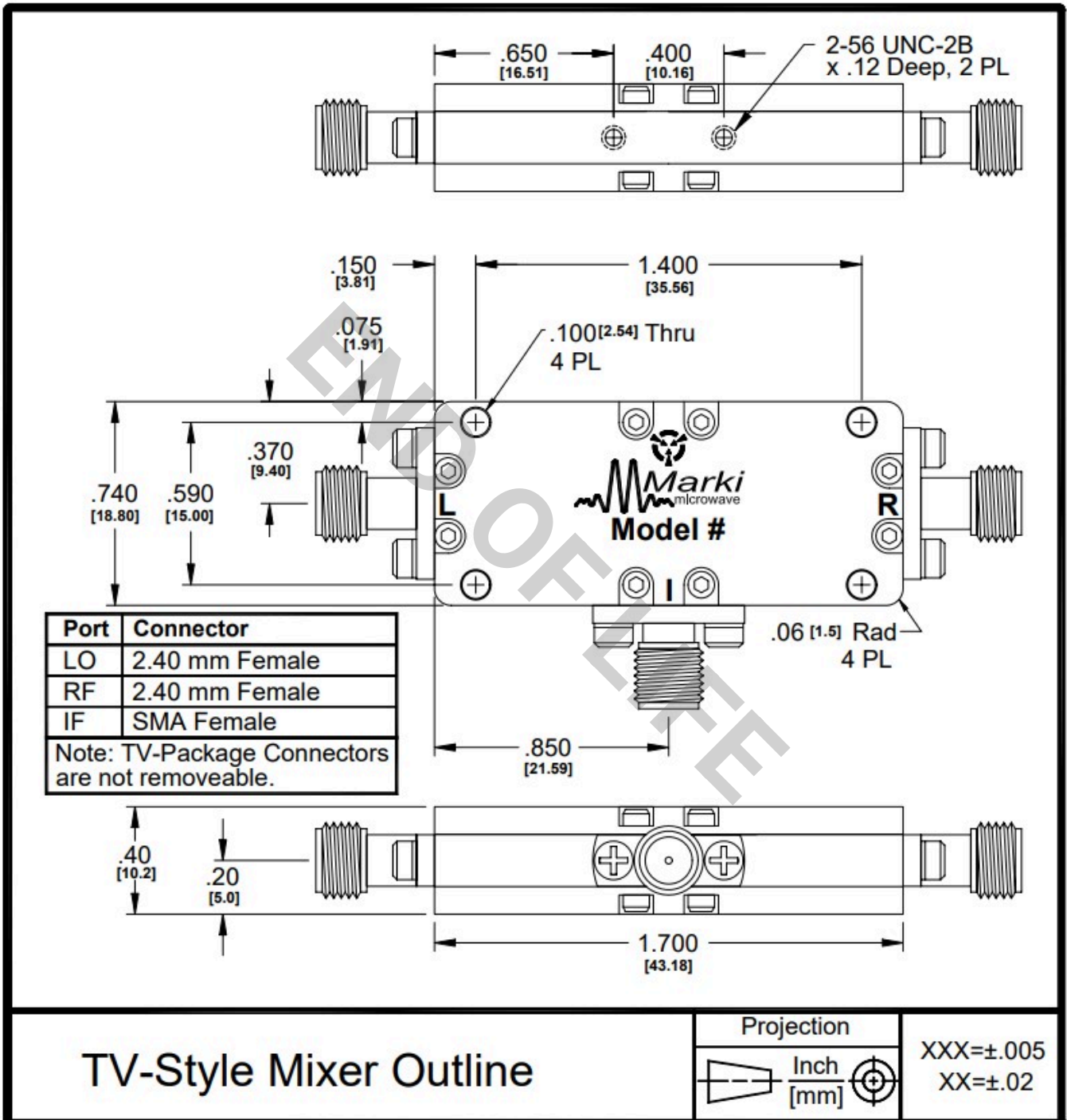
Specifications guaranteed from -55 to +100°C, measured in a 50-Ohm system.

Parameter	Test Conditions	Min	Typ	Max	Unit
Conversion Loss	LO/RF=.5-50 GHz IF=DC-.1 GHz	-	9	14	dB
Conversion Loss	LO/RF=.5-50 GHz IF=DC-.3 GHz	-	10	15.5	dB
Input 1 dB Compression	LO/RF=.5-50 GHz LO drive level, H Diode Option=16-19 dBm	-	9	-	dBm
Input IP3	LO/RF=.5-50 GHz LO drive level, H Diode Option=16-19 dBm	-	19	-	dBm
Isolation, LO to IF	LO/RF=.5-50 GHz	-	27	-	dB
Isolation, LO to RF	LO/RF=.5-50 GHz	-	27	-	dB
Isolation, RF to IF	LO/RF=.5-50 GHz	-	25	-	dB
IF Frequency Range	-	0	-	0.3	GHz
RF Frequency Range	-	0.5	-	50	GHz

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**Mechanical Data**

**Outline Drawing**



## 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.

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