

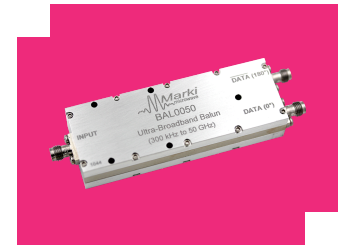
# BAL-0050

## Broadband Isolation Balun (300KHz to 50 GHz)

### DEVICE OVERVIEW

#### General Description

The BAL-0050 is a broadband balun, featuring high isolation and is hand-tuned for optimal phase and amplitude balance over a 300 kHz to 50 GHz bandwidth. It serves as an excellent choice for analog to digital converters, balanced receivers, baseband digital modulations, and signal integrity enhancement.



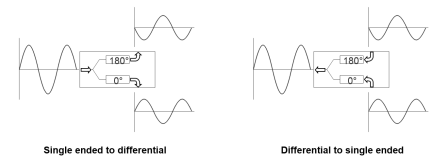
#### Features

- 300 kHz to 50 GHz Balun (Balanced to Unbalanced Transformer)
- 2:1 Transformer (50 Ω unbalanced, 100 Ω differential/50 Ω balanced port)
- Termination insensitive: Particularly suited to testing poorly matched or non 50 Ω devices or for extending 2 port VNAs for differential testing

#### Applications

- Analog to Digital Converters
- Balanced Receivers
- Baseband Digital Modulation
- Signal Integrity

#### Functional Block Diagram



#### Part Ordering Options

Part Number	Description	Connectors	Green Status	Product Lifecycle	Export Classification
BAL-0050	Broadband Isolation Balun (300KHz to 50 GHz)	<u>Standard</u>	REACH RoHS	Released	EAR99

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**Specifications**

**Absolute Maximum Ratings**

Parameter	Maximum Rating	Unit
RF Power Handling	1	W

**Package Information**

Parameter	Details	Rating
Weight	-	125g
Dimensions	-	91.44 x 27.94 mm

**Electrical Specifications**

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

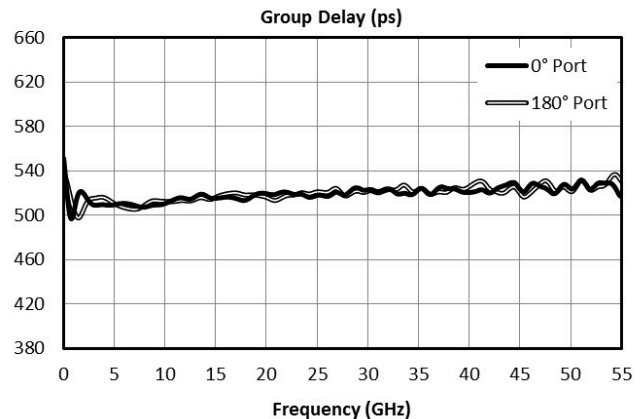
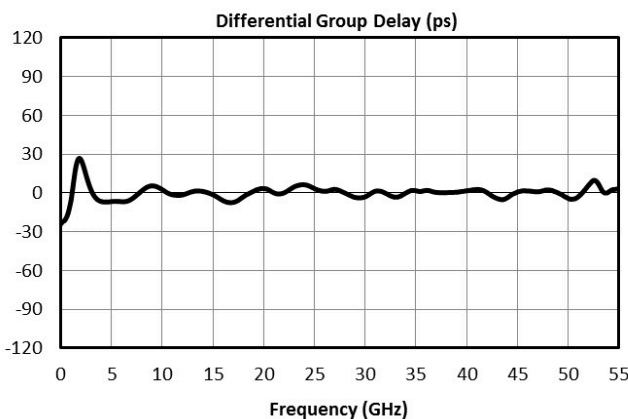
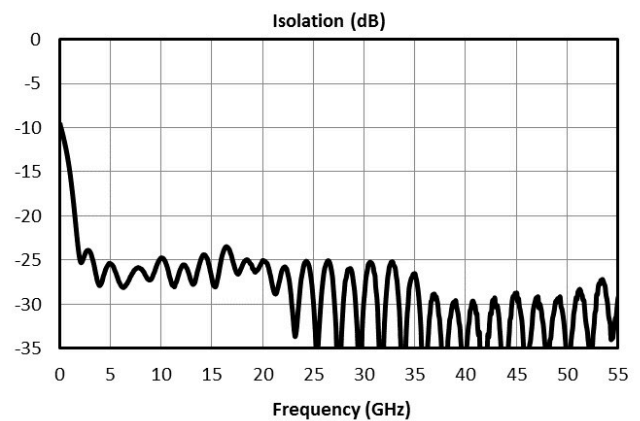
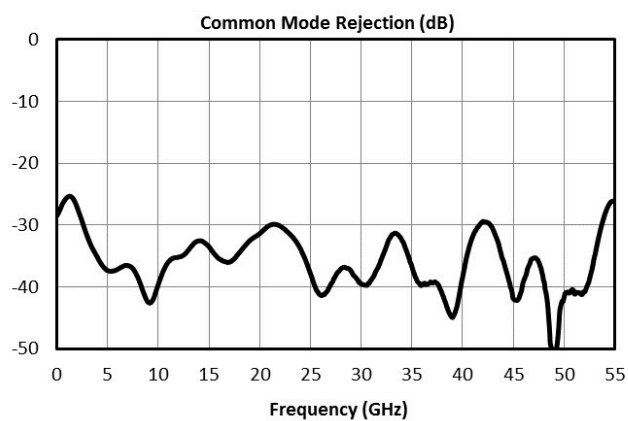
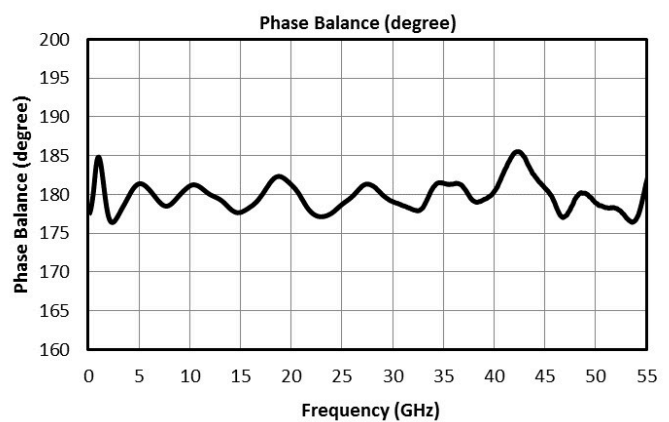
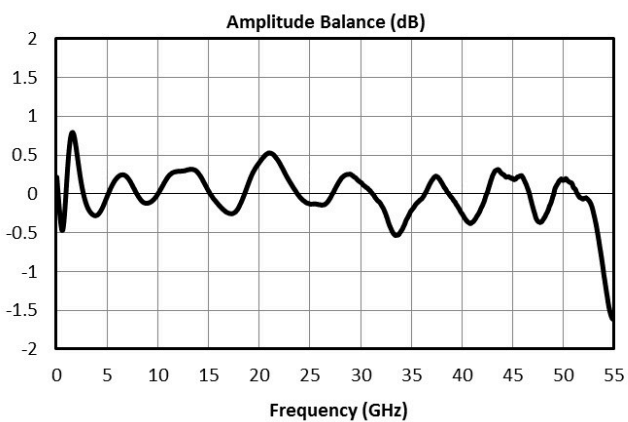
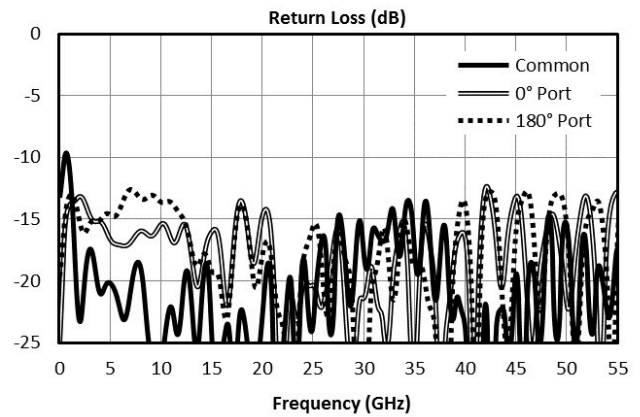
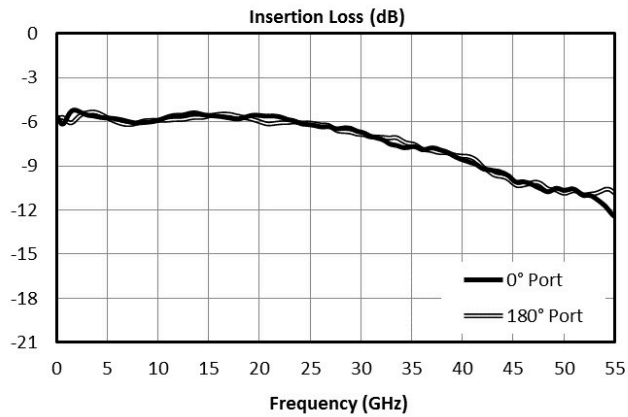
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Amplitude Balance	-	0.0003	50	-	0.7	1.4	dB
Common Mode Rejection	-	0.0003	50	20	28	-	dB
Group Delay	-	0.0003	50	-	520	-	ps
Impedance Ratio	-	-	-	-	2:1	-	
Insertion Loss as a Mode Converter	-	0.0003	35	-	3	6	dB
Insertion Loss as a Mode Converter	-	35	50	-	7	-	dB
Isolation	-	1	50	-	25	-	dB
Nominal Phase Shift	-	0.0003	50	-	180	-	°
Phase Balance	-	0.0003	50	-	4	10	°
Risetime/Falltime <sup>1</sup>	-	0.0003	50	-	5	-	ps
RMS Group Delay Ripple	-	0.0003	50	-	8	-	ps
VSWR (Common)	-	0.0003	50	-	1.5	-	
VSWR (Output)	-	0.0003	50	-	1.6	-	

<sup>[1]</sup> Default is 2.40 mm female connectors. Consult factory for other connector options.

## BAL-0050

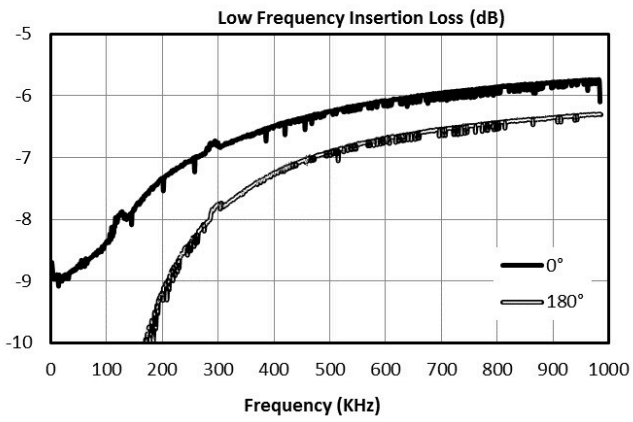
### Broadband Isolation Balun (300KHz to 50 GHz)

#### Typical Performance

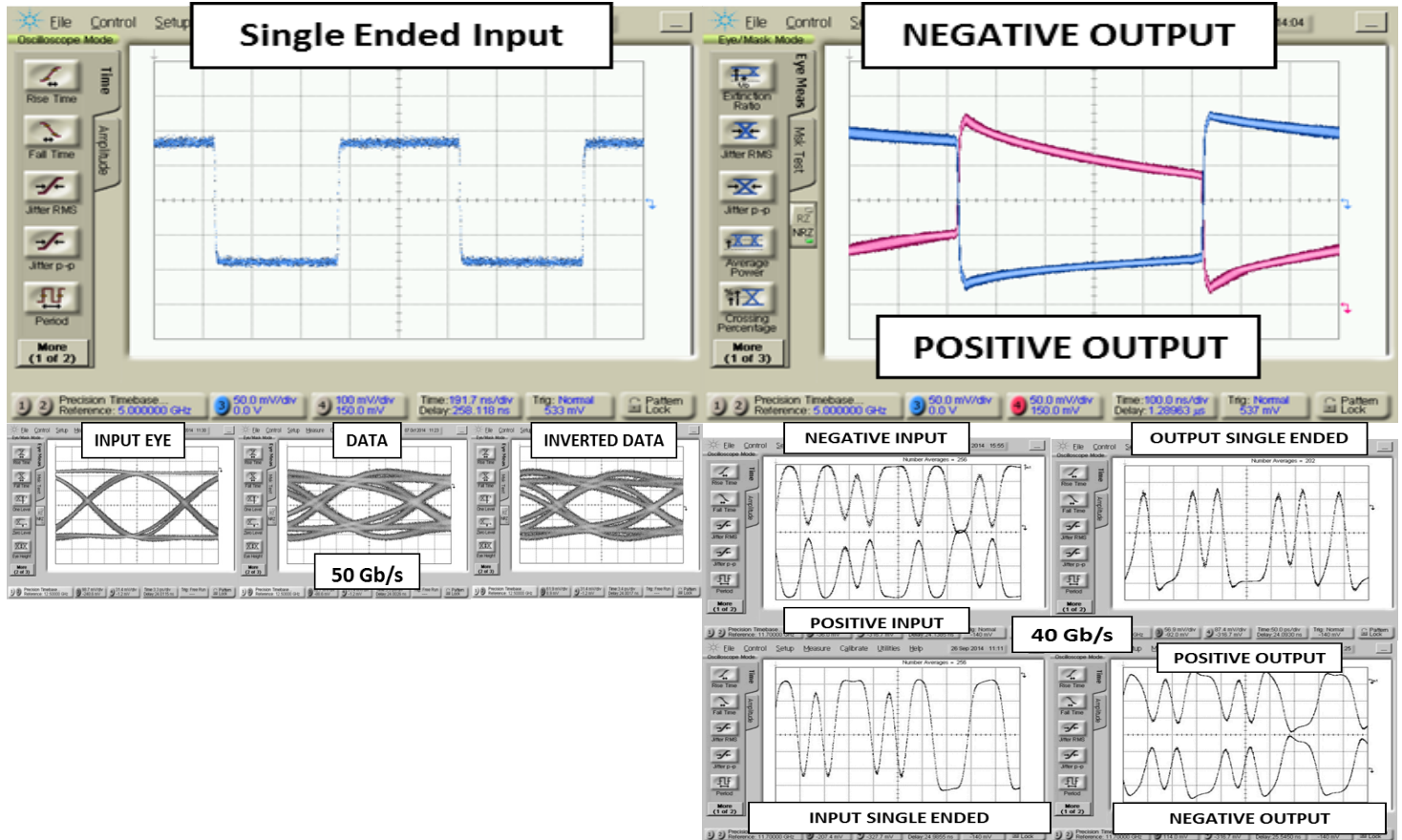


## BAL-0050

Broadband Isolation Balun (300KHz to 50 GHz)

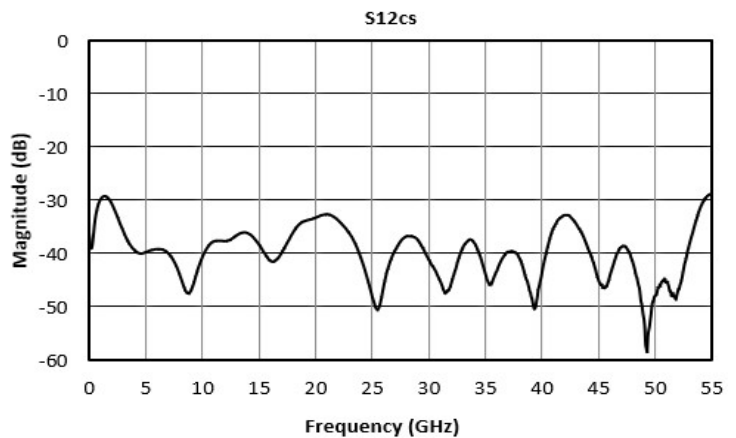
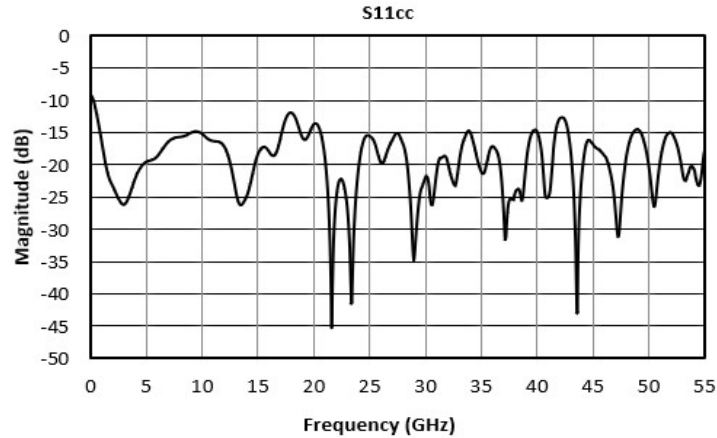
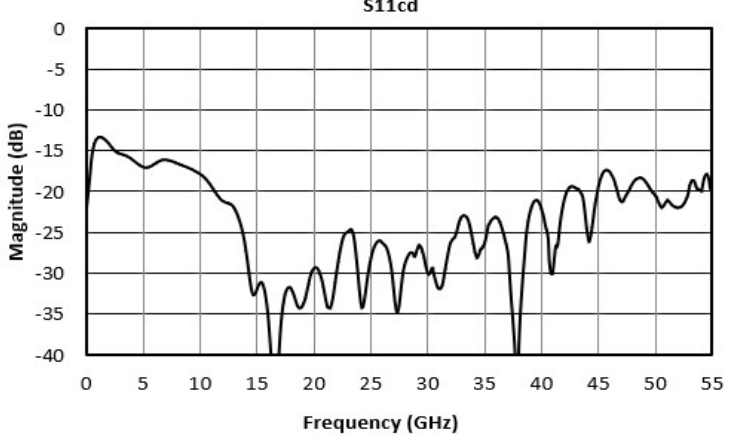
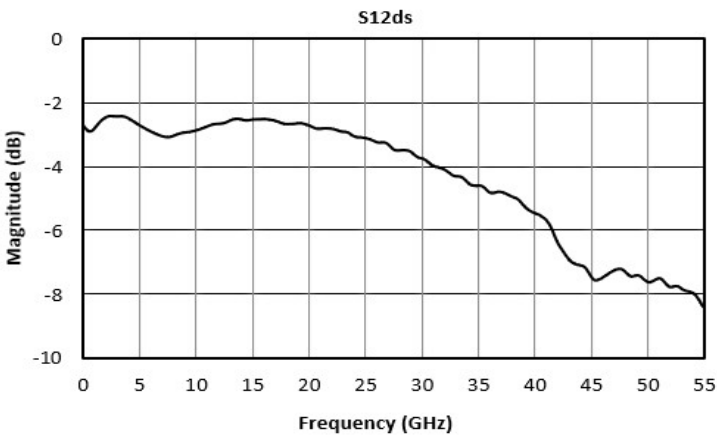
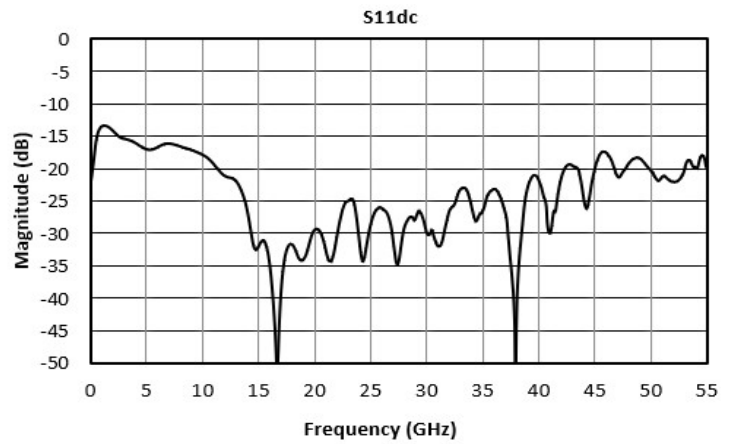
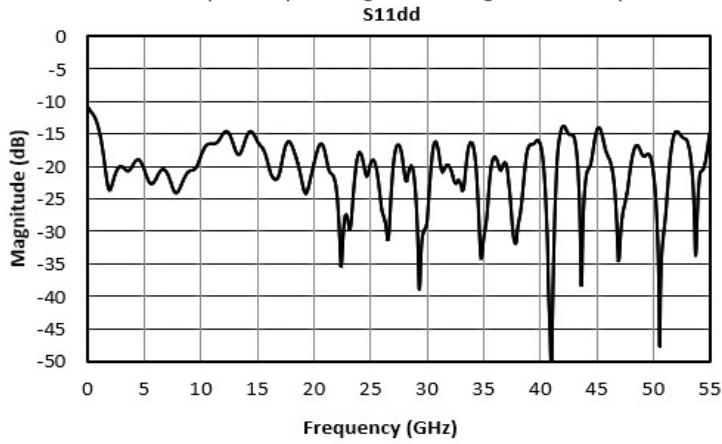


**Time Domain Plot**



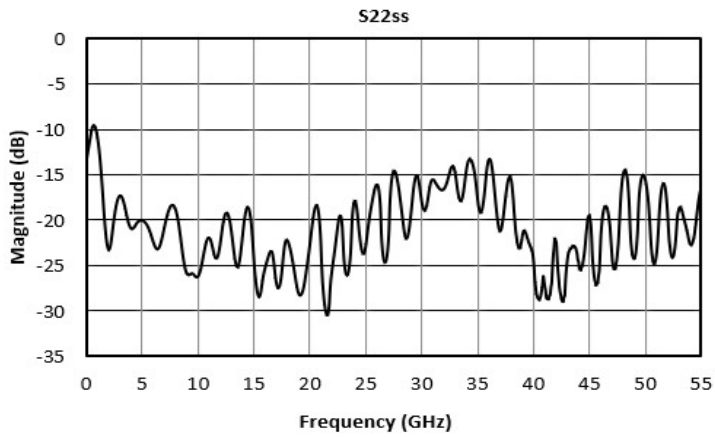
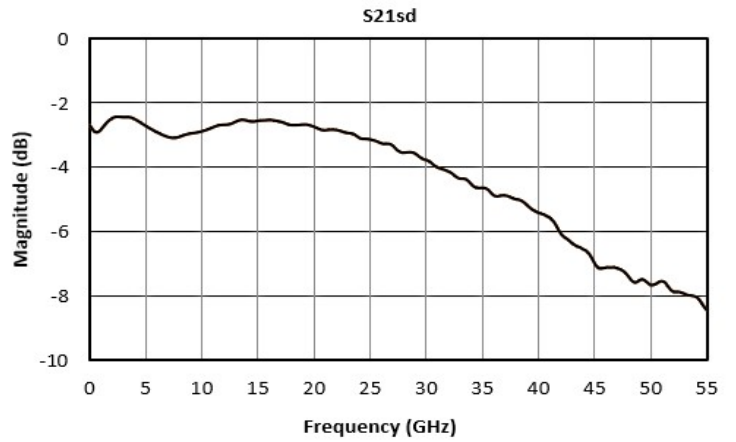
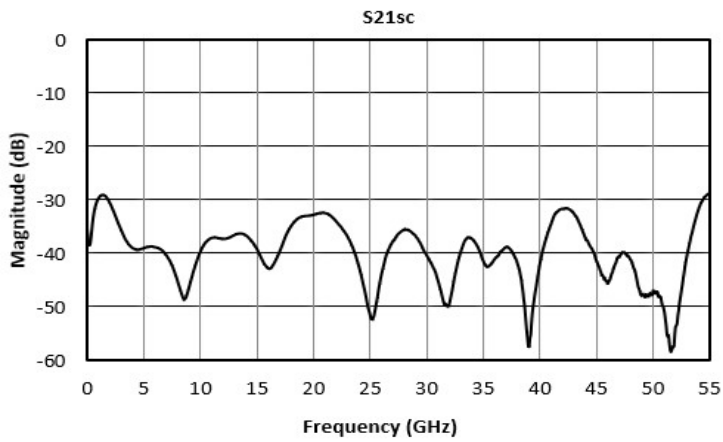
**Mixed Mode Scattering Parameters**

Mixed mode scattering parameters are used to characterize differential circuits. For baluns, this means that the 0° and 180° ports become a single 100Ω differential port and the common port remains the same 50Ω common port. The two-port s-parameters of the balun are then characterized based on differential (d), common mode (c), or single-ended (s) signals. For example: S12ds is the differential output response given a single ended input.



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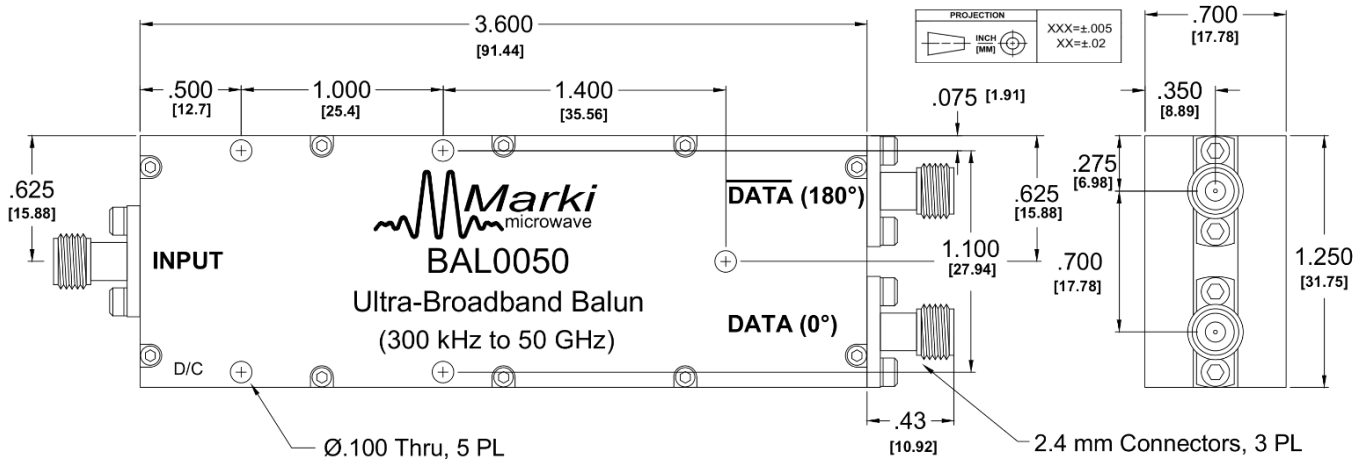
### Broadband Isolation Balun (300KHz to 50 GHz)



**Mechanical Data**

**Outline Drawing**

Download : [Outline 2D Drawing](#) | [Outline 3D Drawing](#) | [Outline 3D STP](#)



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