

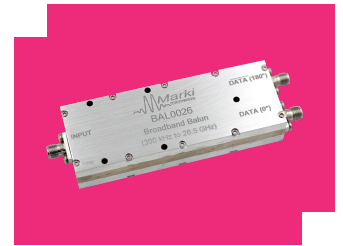
# BAL-0026

## Broadband Isolation Balun (300KHz to 26.5GHz)

### DEVICE OVERVIEW

#### General Description

The BAL-0026 is a broadband balun, featuring high isolation and is hand-tuned for optimal phase and amplitude balance over a 300 kHz to 26.5 GHz bandwidth. It serves as an excellent choice for analog to digital converters, balanced receivers, baseband digital modulations, and signal integrity enhancement.



[Download s-parameters here](#)

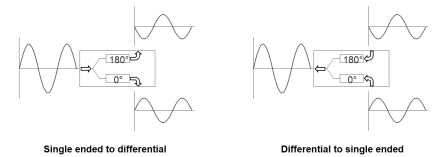
#### Features

- 2:1 Impedance Ratio
- 300 kHz to 26.5 GHz Balun (Balanced to Unbalanced Balun Transformer)
- 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-0026	Broadband Isolation Balun (300KHz to 26.5GHz)	<u>Standard</u>	REACH RoHS	Released	EAR99

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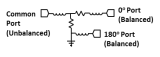
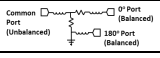
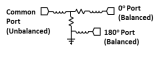
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**Revision History**

Revision Code	Revision Date	Comment
-	2014-01-01	Datasheet initial Release
A	2016-01-01	Typical Performance Plots Updated
B	2019-10-01	Mixed Mode Scattering Parameters added
C	2019-11-01	RoHS Compliant assembly
D	2020-07-01	Specs Table Update
E	2020-10-01	Specs Table Update

**Port Configuration and Functions**

**Port Functions**

Port	Function	Connector Type	Description	DC Equivalent Circuit
0° Port (Balanced)	0° Port	SMAF	The 0° port is DC connected to the common port through a resistor and to ground through a resistor.	
180° Port (Balanced)	180° Port	SMAF	The 180° port is DC shorted to ground.	
Common Port (Unbalanced)	RF Input	SMAF	The common port is DC connected to the 0° port through a resistor and to ground through a resistor.	

**Specifications**

**Absolute Maximum Ratings**

Parameter	Maximum Rating	Unit
RF Power Handling	1	W

**Package Information**

Parameter	Details	Rating
Weight	-	127g
Dimensions	-	91.44 x 27.94 mm

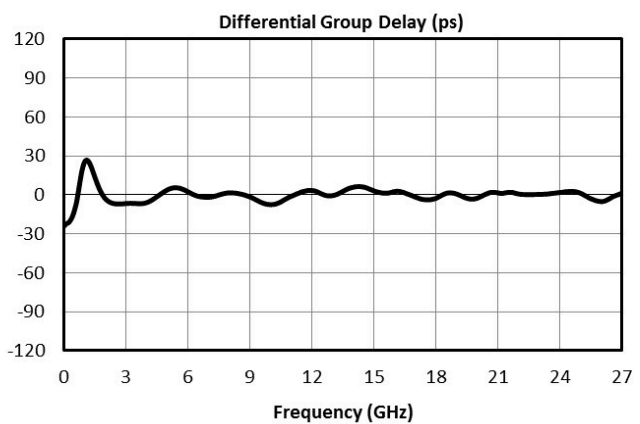
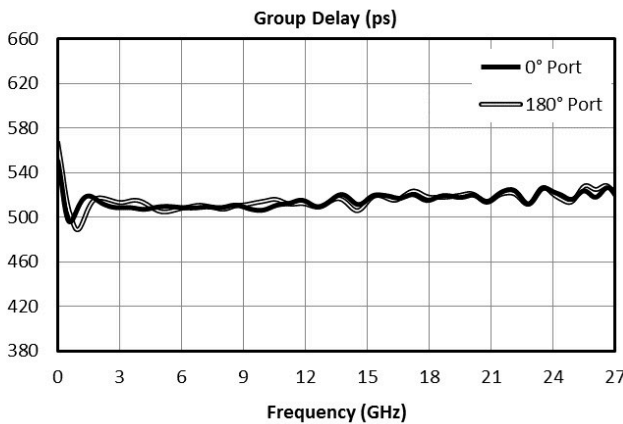
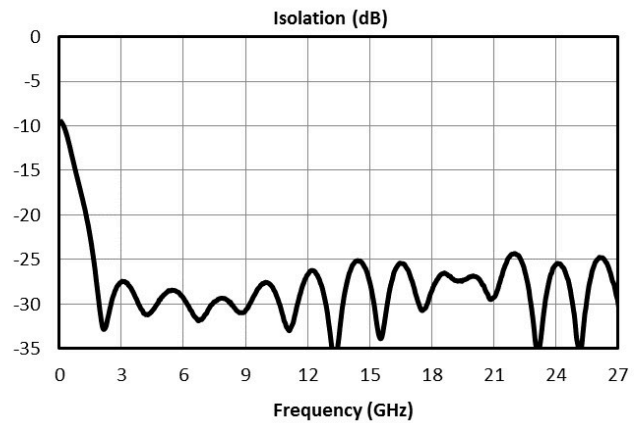
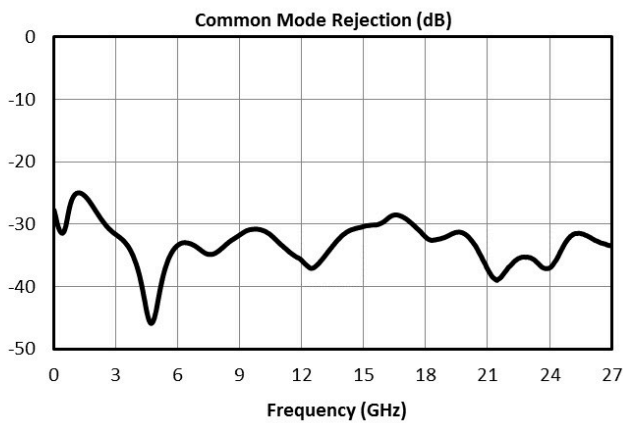
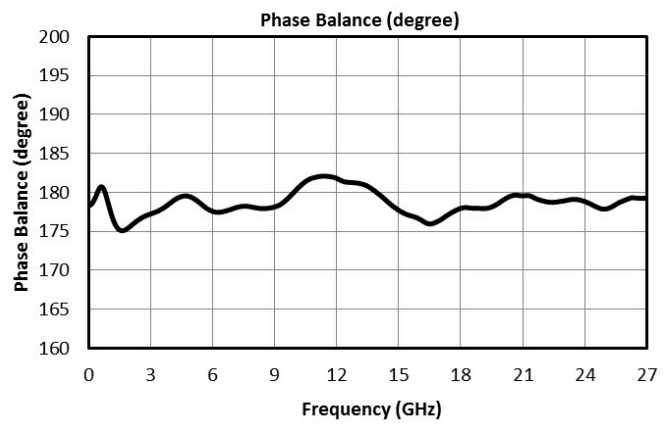
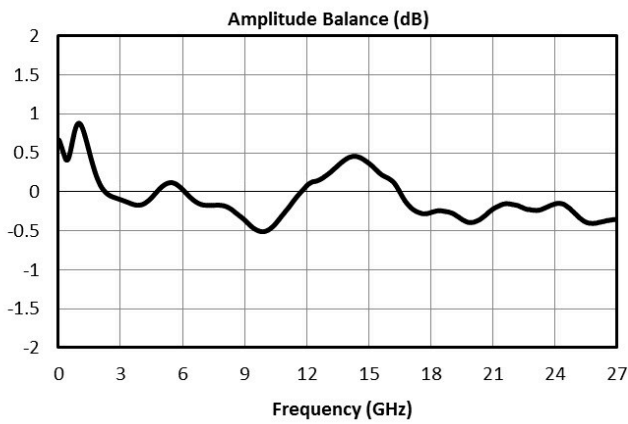
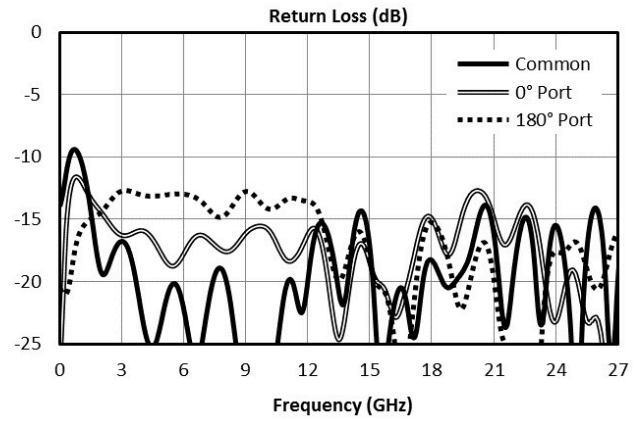
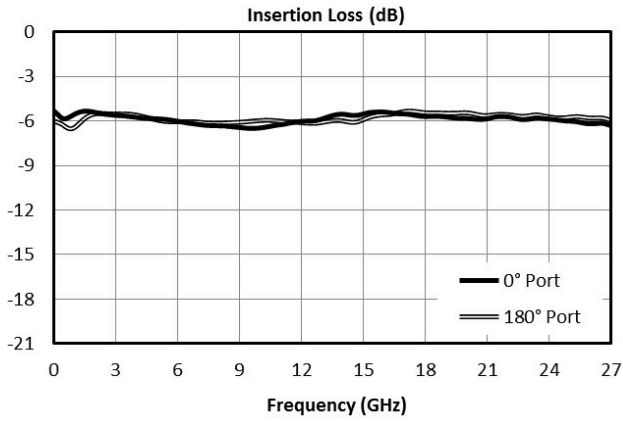
**Electrical Specifications**

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	26.5	-	0.5	1.2	dB
Common Mode Rejection	-	0.0003	26.5	22	30	-	dB
Group Delay	-	0.0003	26.5	-	520	-	ps
Insertion Loss as a Mode Converter	-	0.0003	26.5	-	2.5	4.5	dB
Isolation	-	1	26.5	-	24	-	dB
Nominal Phase Shift	-	0.0003	26.5	-	180	-	°
Phase Balance	-	0.0003	26.5	-	3	10	°
Risetime/Falltime <sup>1</sup>	-	0.0003	26.5	-	7.5	-	ps
RMS Group Delay Ripple	-	0.0003	26.5	-	8.2	-	ps
VSWR (Input)	-	0.0003	26.5	-	1.5	-	
VSWR (Output)	-	0.0003	26.5	-	1.55	-	
Impedance Ratio	-	-	-	-	2:1	-	

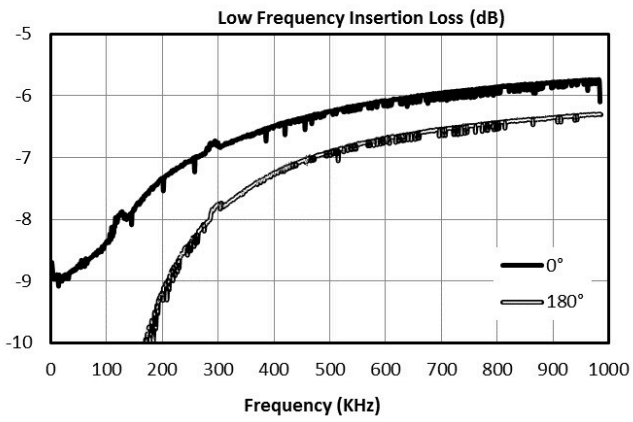
<sup>[1]</sup> Specified as 90%/10%. Calculated from  $\tau_{balun2} = (\tau_{out2} - \tau_{in2})$

**Typical Performance**

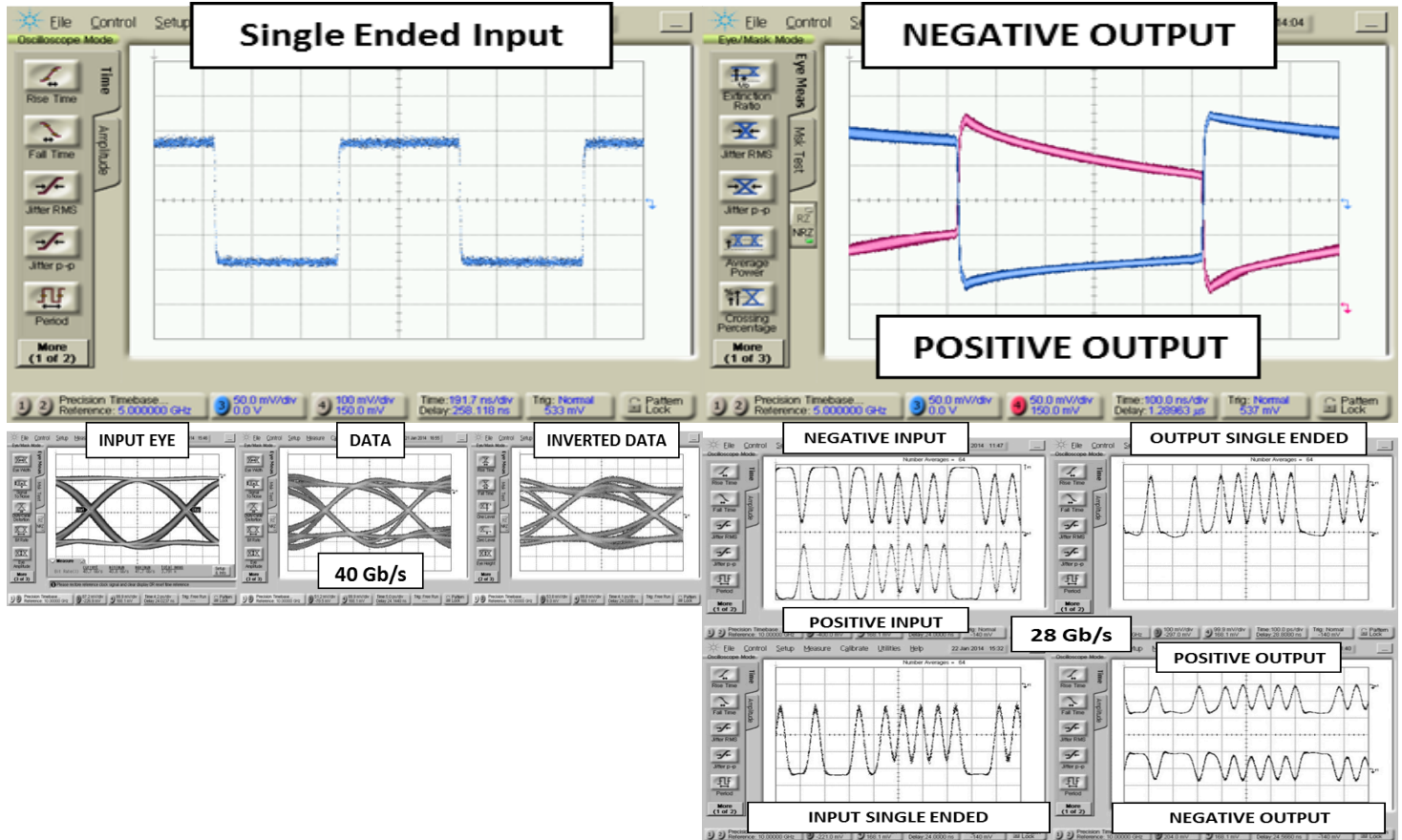


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Broadband Isolation Balun (300KHz to 26.5GHz)

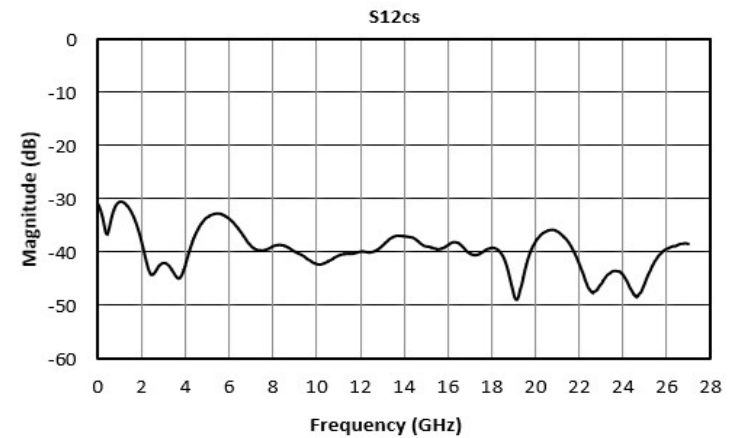
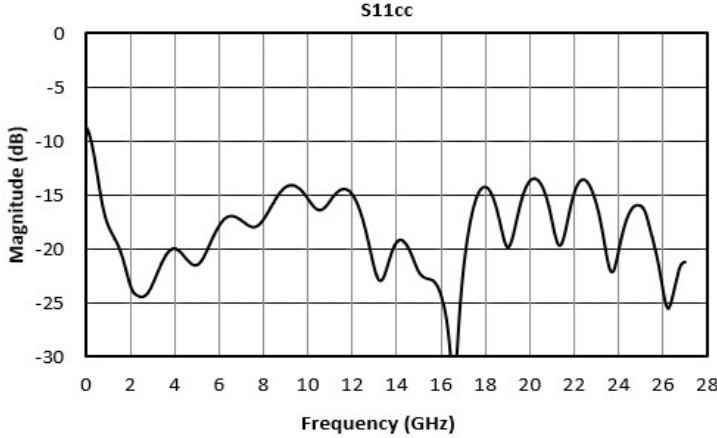
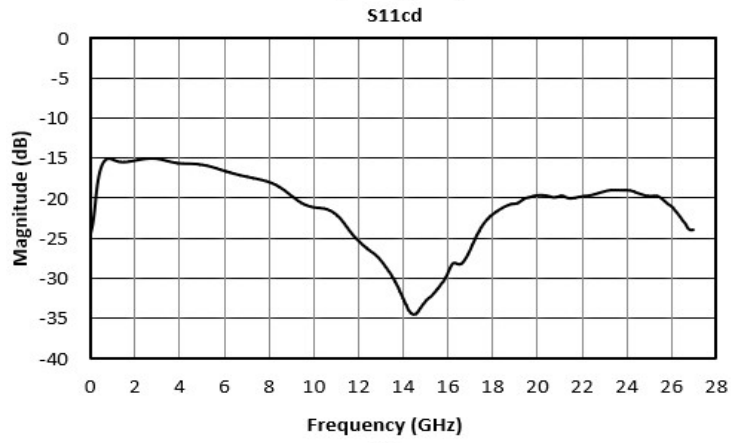
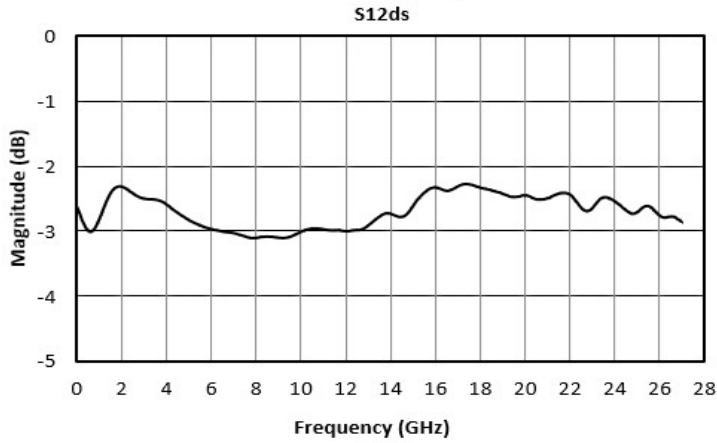
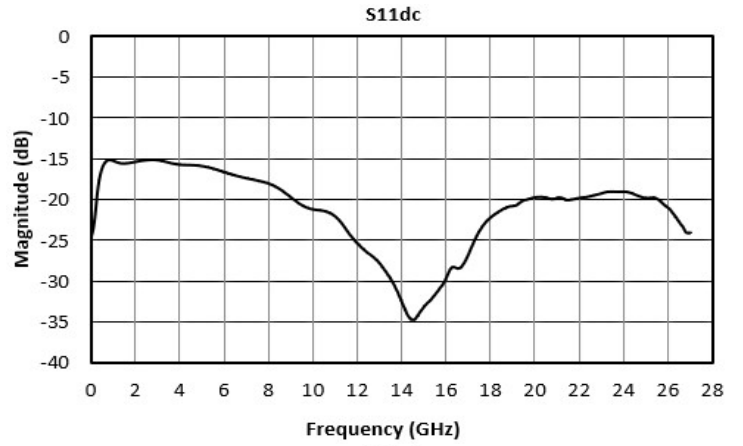
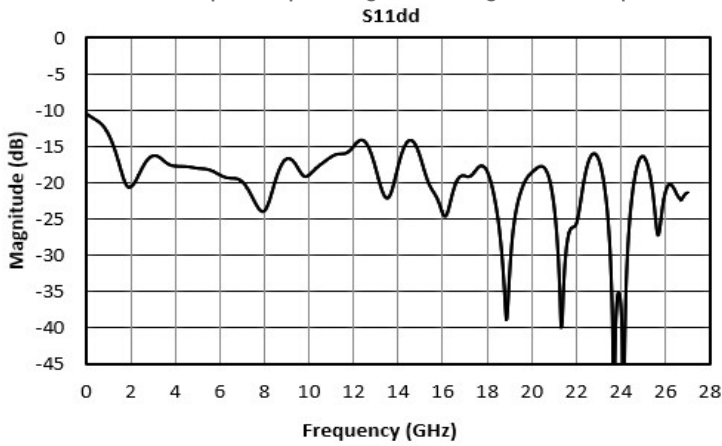


**Time Domain Performance Plots**



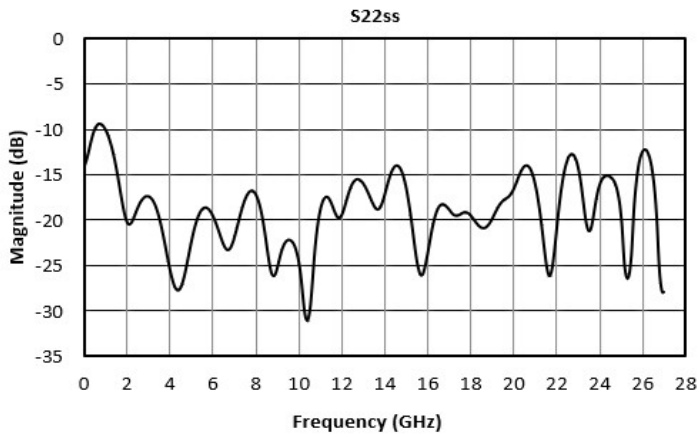
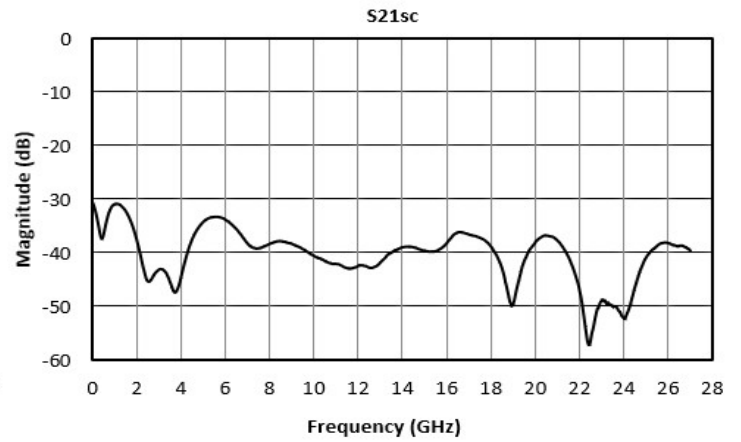
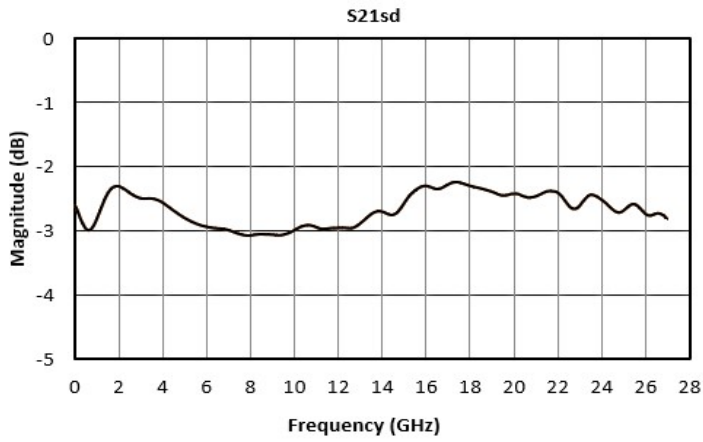
**Mixed Mode Scattering Parameters**

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.



## BAL-0026

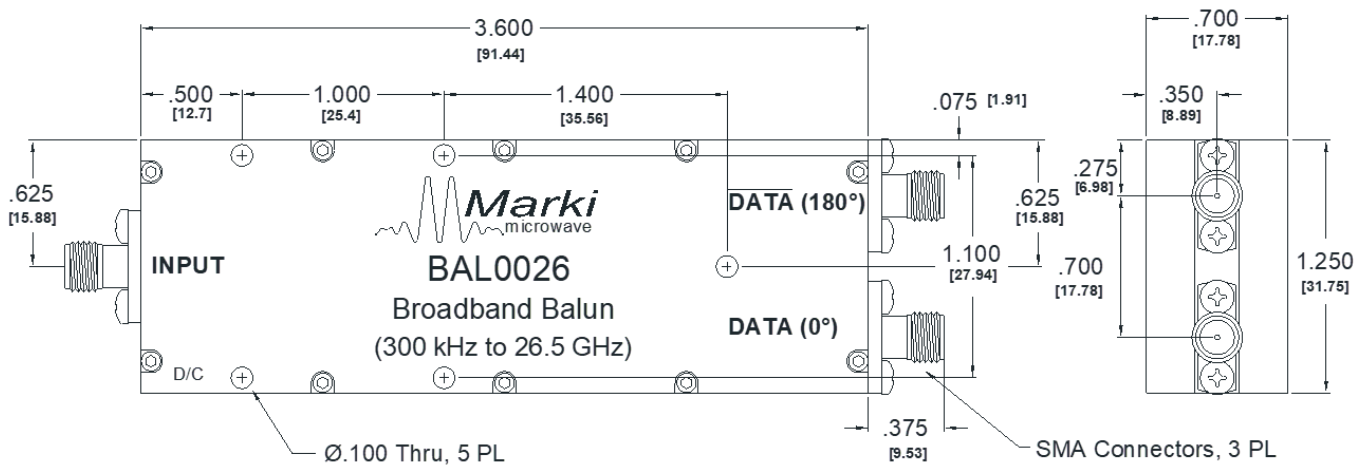
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**Mechanical Data**

**Outline Drawing**

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



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