

BAL-0026

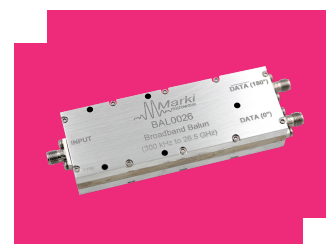
Broadband Isolation Balun (300KHz to 26.5GHz)

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](#)



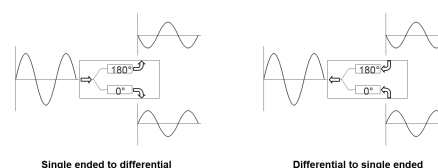
Features

- 300 kHz to 26.5 GHz Balun (Balanced to Unbalanced Balun Transformer)
- 1:2 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	Package	Packing Size	Green Status	Product Lifecycle	Export Classification
BAL-0026	Broadband Isolation Balun (300KHz to 26.5GHz)	-	-	RoHS	Released	EAR99

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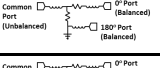
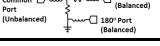
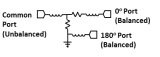
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Revision History

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

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Specifications

Package Information

Parameter	Details	Rating
Weight	-	127g
Dimensions	-	91.44x27.94 mm

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Electrical Specifications

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

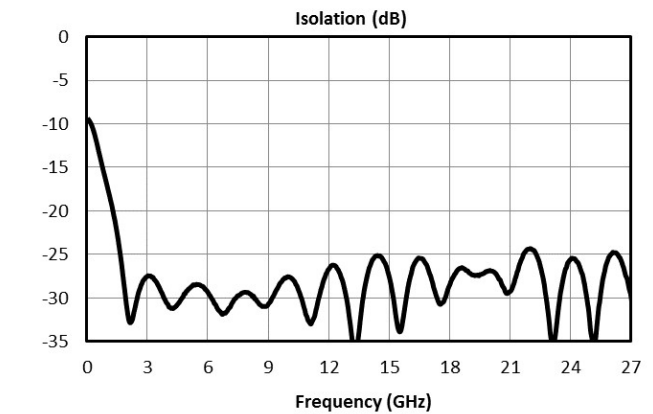
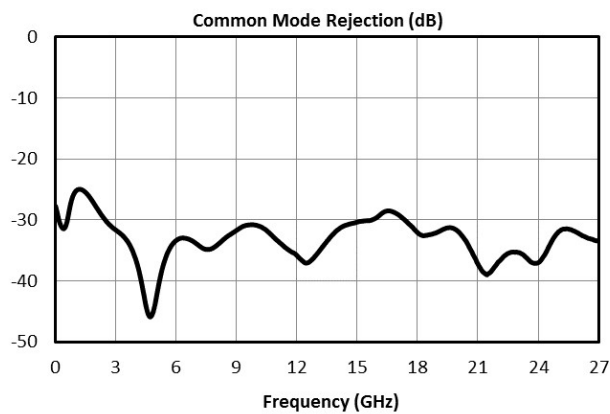
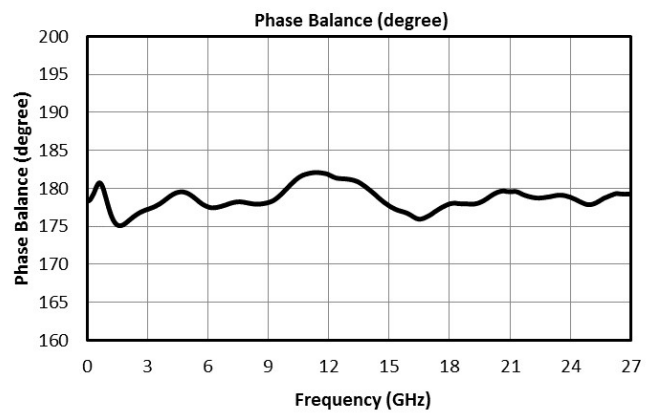
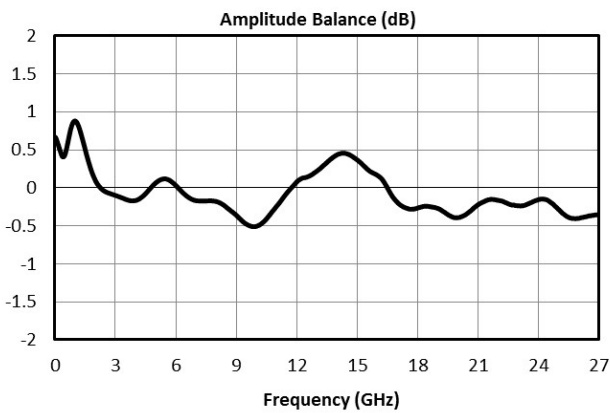
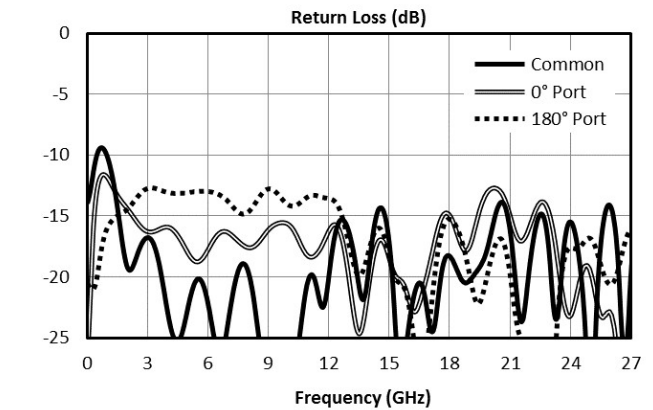
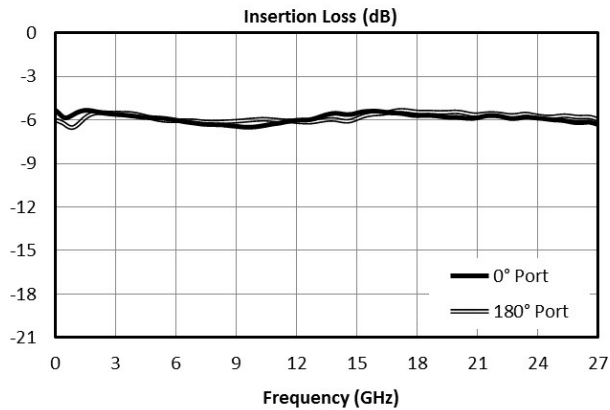
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Insertion Loss as a Mode Converter	-	0.0003	26.5	-	2.5	4.5	dB
Nominal Phase Shift	-	0.0003	26.5	-	180	-	°
Amplitude Balance	-	0.0003	26.5	-	0.5	1.2	dB
Phase Balance	-	0.0003	26.5	-	3	10	°
Common Mode Rejection	-	0.0003	26.5	22	30	-	dB
Isolation	-	1	26.5	-	24	-	dB
Group Delay	-	0.0003	26.5	-	520	-	ps
RMS Group Delay Ripple	-	0.0003	26.5	-	8.2	-	ps
Risetime/Falltime ¹	-	0.0003	26.5	-	7.5	-	ps
Total Input Power	-	0.0003	26.5	-	-	1	W
VSWR (Input)	-	0.0003	26.5	-	1.5	-	-
VSWR (Output)	-	0.0003	26.5	-	1.55	-	-
Weight	-	0.0003	26.5	-	125	-	g

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

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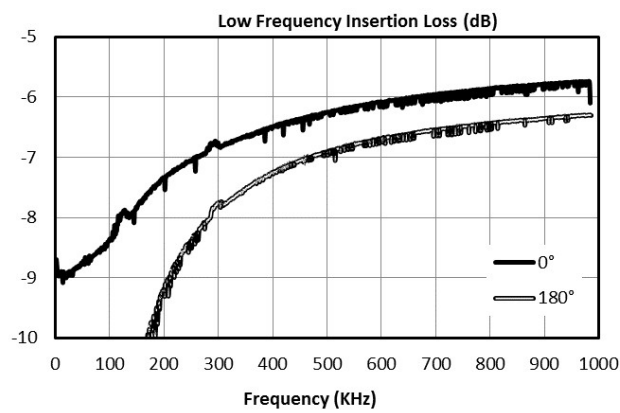
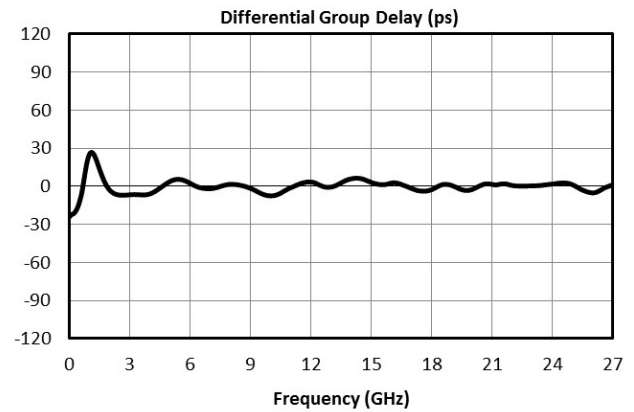
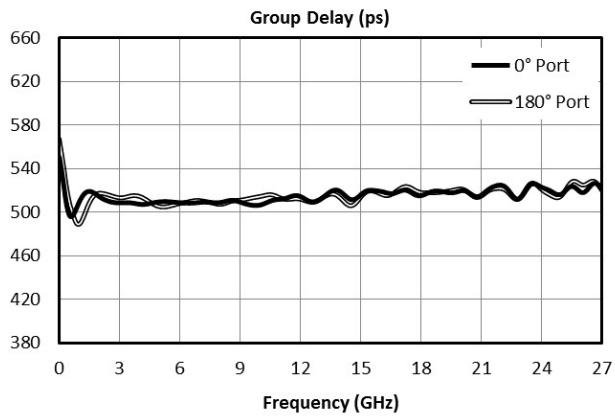
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Typical Performance

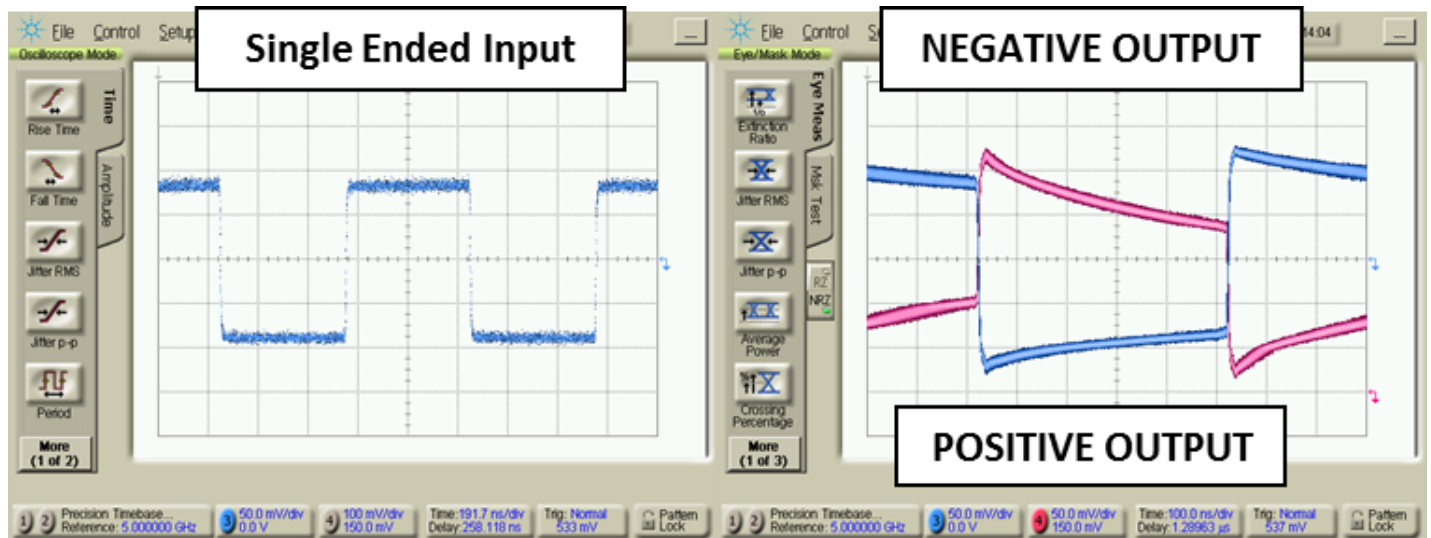


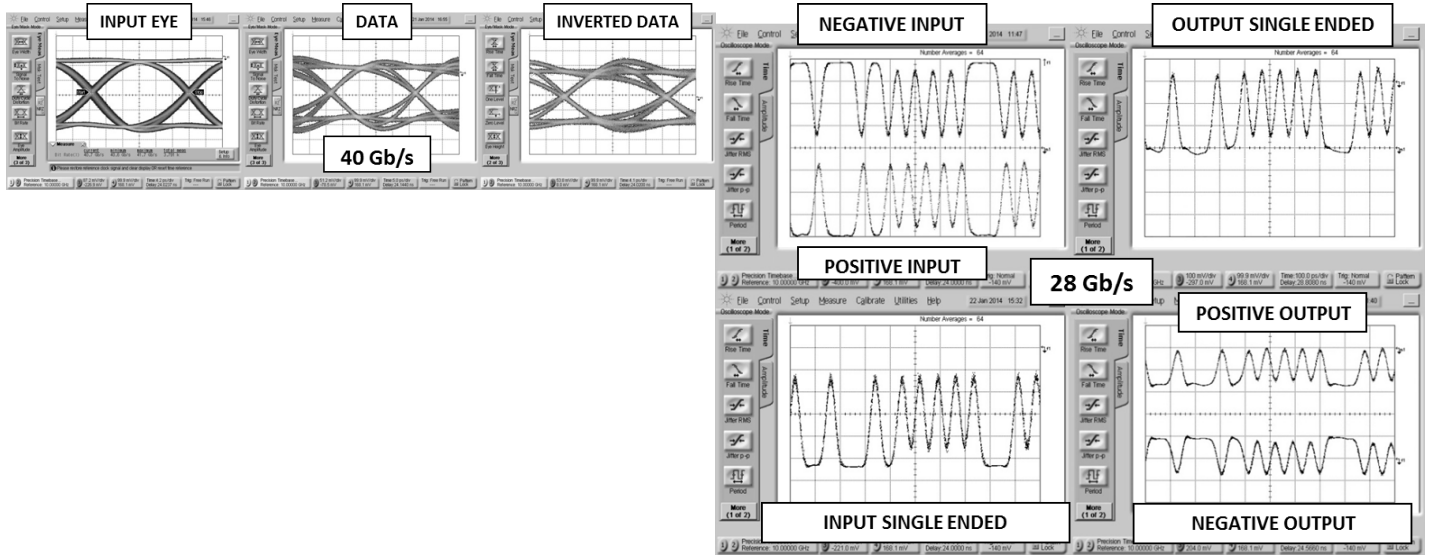
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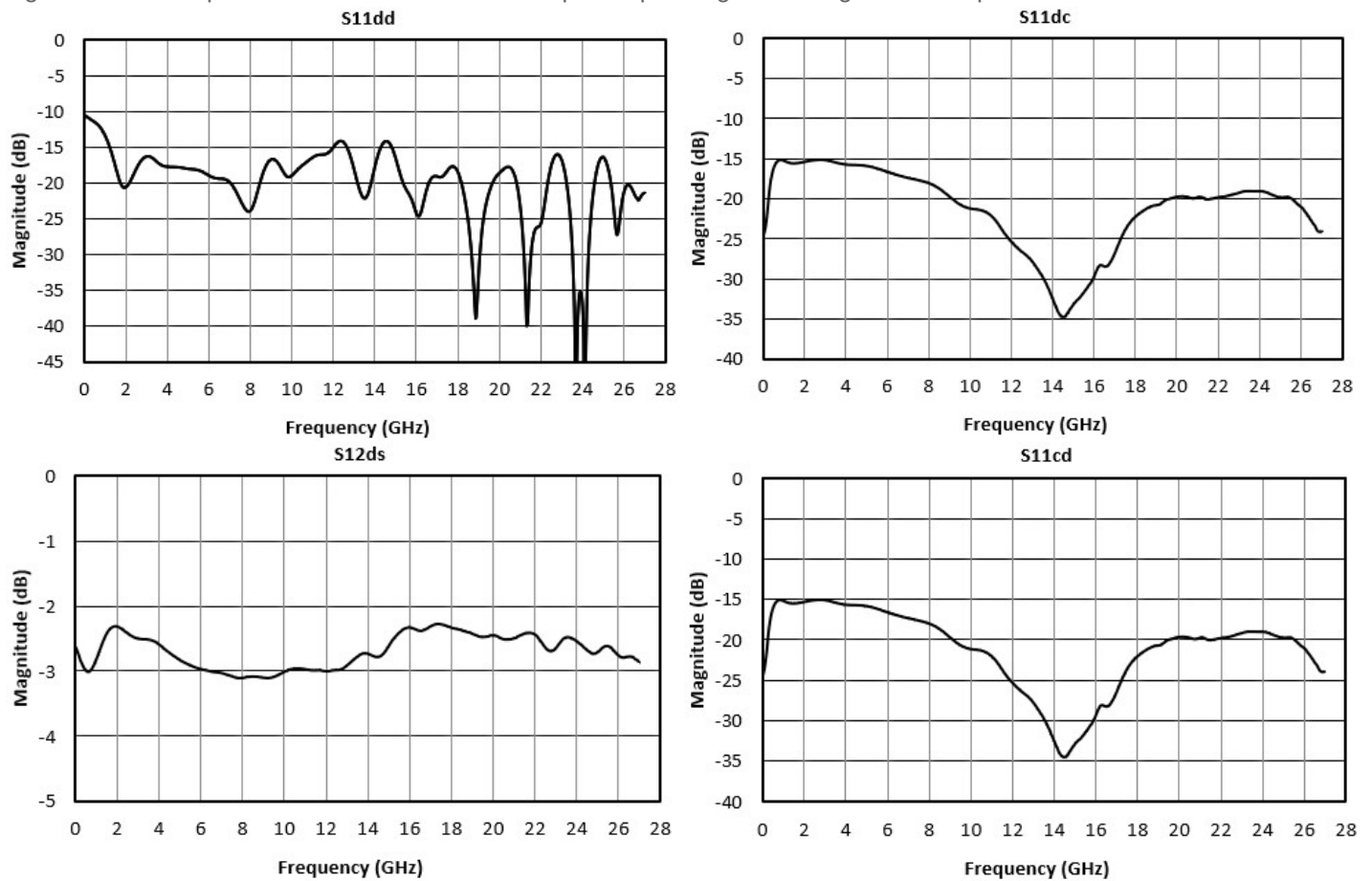
Time Domain Performance Plots





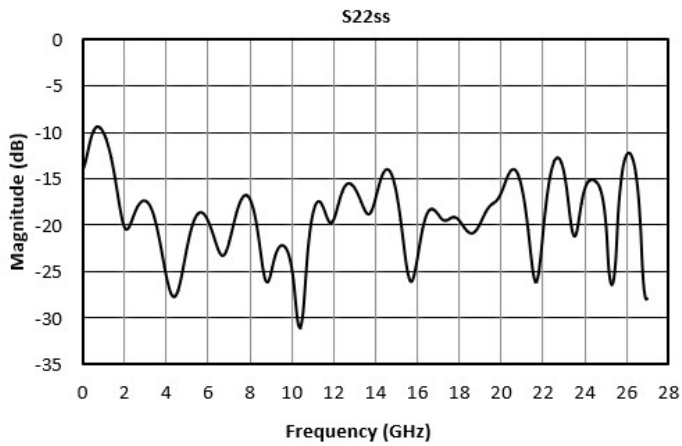
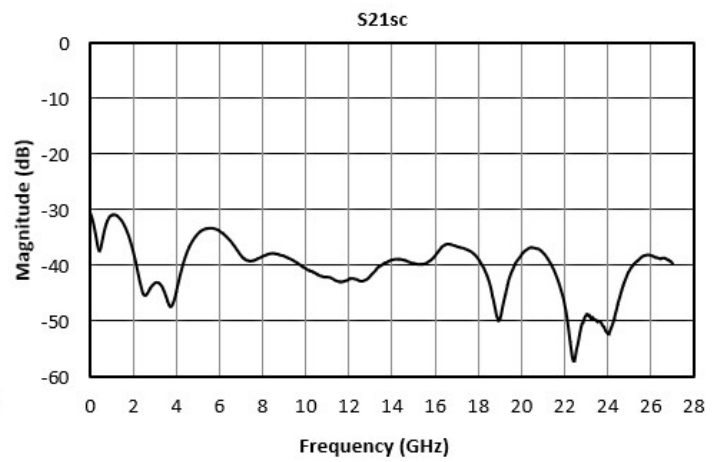
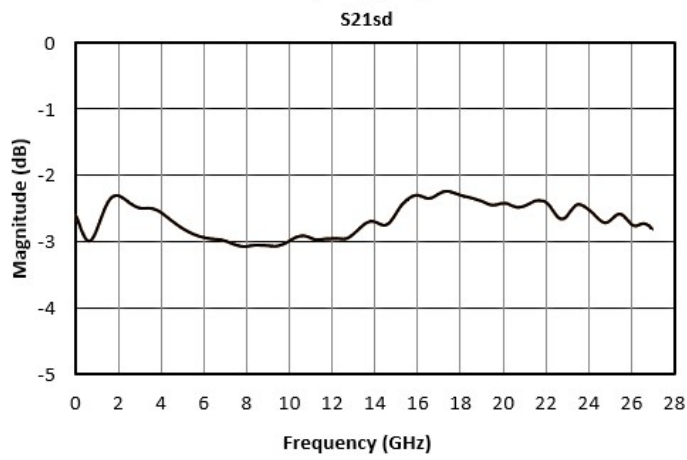
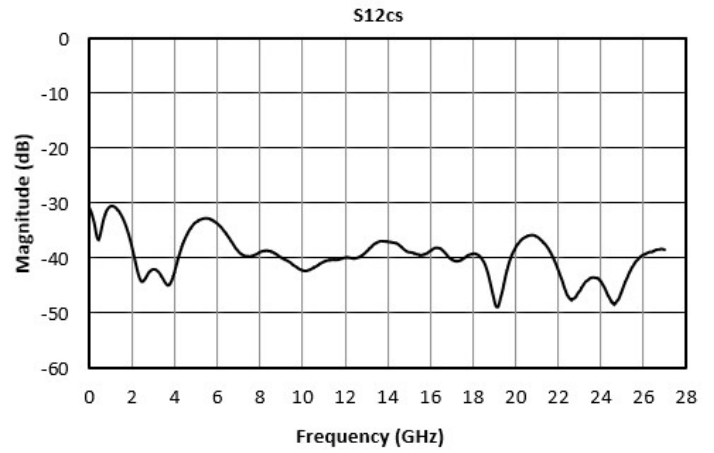
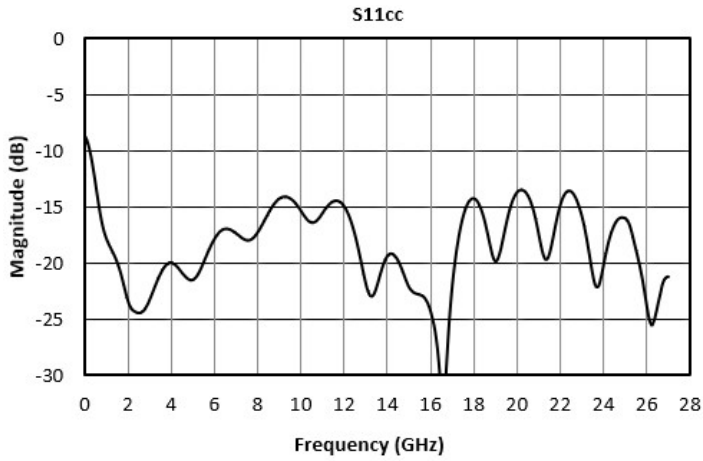
Mixed Mode Scattering Parameters

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: S_{12ds} is the differential output response given a single ended input.



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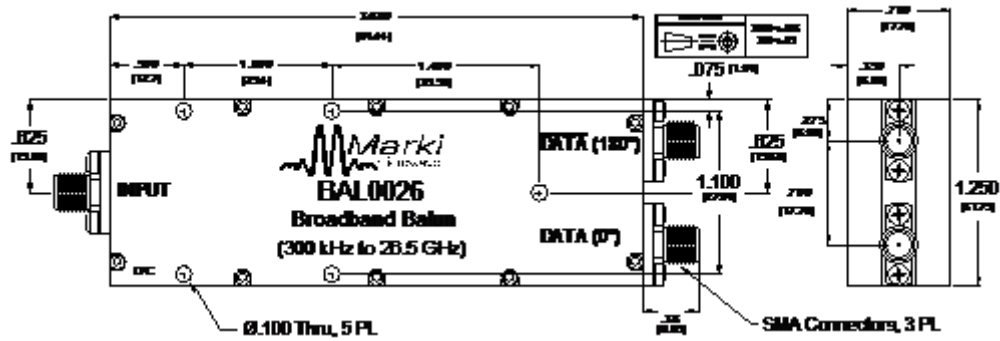


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Mechanical Data

Outline Drawing



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