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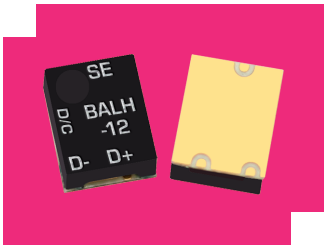
BALH-0012SSG

HIGH POWER SURFACE-MOUNT BALUN

DEVICE OVERVIEW

General Description

The BALH-0012SSG is a broadband surface mount balun, hand-tuned for optimal phase and amplitude balance over a 10 MHz to 12 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

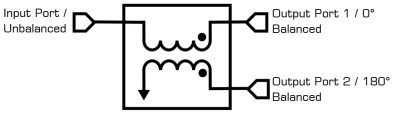
Features

- 1:1 Impedance Ratio
- 10 MHz to 12 GHz Balun (Balanced to Unbalanced Transformer)
- High 37 dBm 1-dB compression enables high power applications
- Tuned for Optimal Phase/Amplitude Balance

Applications

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

Functional Block Diagram



Part Ordering Options

Part Number	Description	Package	Green Status	Product Lifecycle	Export Classification
BALH-0012SSG	HIGH POWER SURFACE-MOUNT BALUN	SSG	REACH RoHS	Released	EAR99
EVAL-BALH-0012	Evaluation Board, High Power Surface-Mount Balun	EVAL	REACH RoHS	Released	EAR99

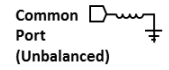
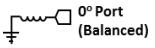
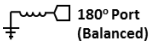
Table Of Contents

Revision History

Revision Code	Revision Date	Comment
-	2020-08-01	Draft

Port Configuration and Functions

Port Functions

Port	Function	Description	DC Equivalent Circuit
Common Port / In (Unbalanced)	RF Input	The common port is DC short to ground.	
Out 1 / 0° Port (Balanced)	0° Port	The 0° port is DC short to ground.	
Out 2 / 180° Port (Balanced)	180° Port	The 180° port is DC short to ground.	

Specifications

Absolute Maximum Ratings

Parameter	Maximum Rating	Unit
Maximum Operating Temperature	100	°C
Maximum Storage Temperature	125	°C
Minimum Operating Temperature	-55	°C
Minimum Storage Temperature	-65	°C
RF Power Handling	33	dBm

Package Information

Parameter	Details	Rating
Dimensions	-	4.83 x 6.10 mm
Moisture Sensitivity Level	-	MSL 1

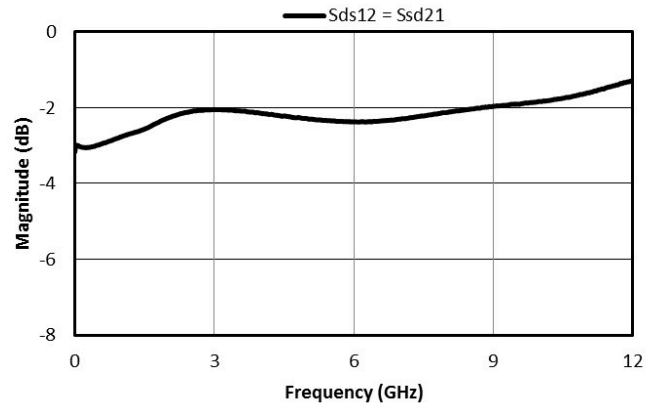
Electrical Specifications

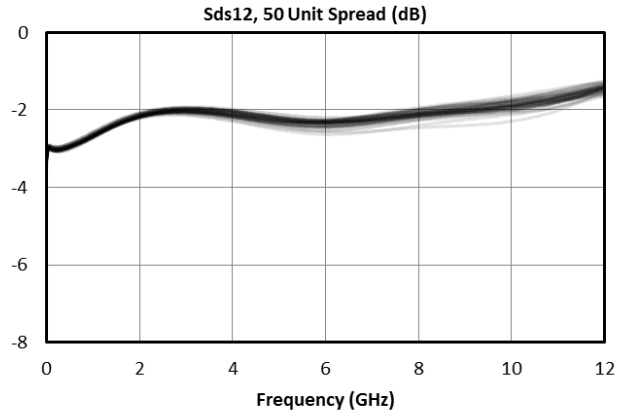
The electrical specifications apply at TA=+25°C in a 50Ω system. Min and Max limits are guaranteed at TA=+25°C.

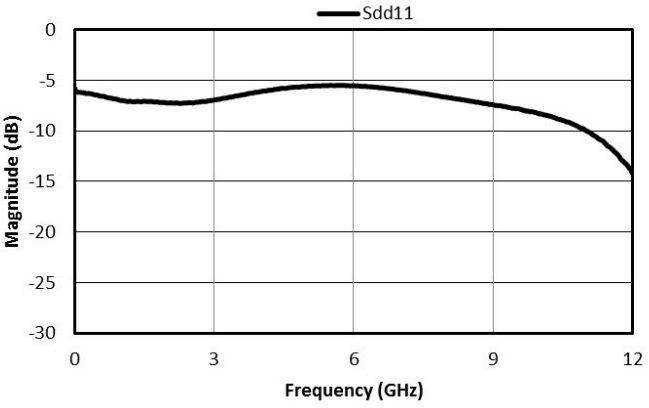
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Amplitude Balance	-	0.01	12	-	0.6	1.8	dB
Common Mode Rejection	-	0.01	12	16	25	-	dB
Input P1dB	-	0.01	12	-	37	-	dBm
Insertion Loss as a Mode Converter	-	0.01	12	-	2	3.5	dB
Isolation	-	0.01	12	-	6	-	dB
Nominal Phase Shift	-	0.01	12	-	180	-	°
Phase Balance	-	0.01	12	-	5	12	°
VSWR (Common)	-	0.01	12	-	1.7	-	
VSWR (Output)	-	0.01	12	-	1.35	-	
Impedance Ratio	-	-	-	-	1:1	-	

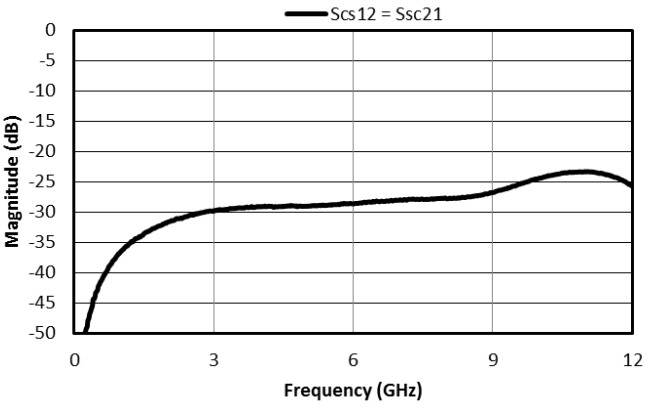
Mixed Mode Scattering Parameters

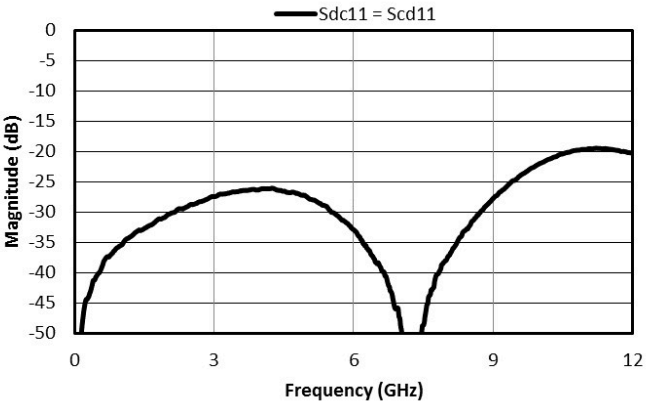
Mixed mode scattering parameters are used to characterize differential circuits. For baluns, this means that the 0° and 180° ports become a single differential port and the common port remains common port. The two-port s-parameters of the balun are then characterized based on differential (d), common mode (c), or single-ended (s) signals. For example: Sds12 is the differential output response given a single ended input.

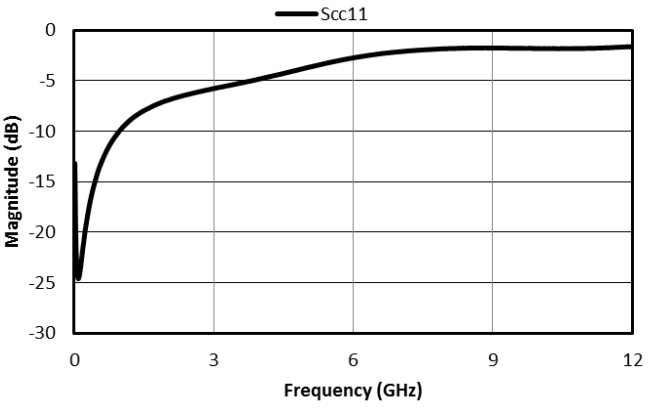


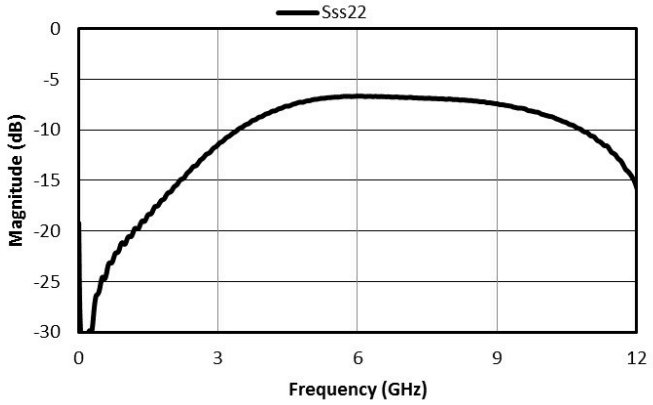








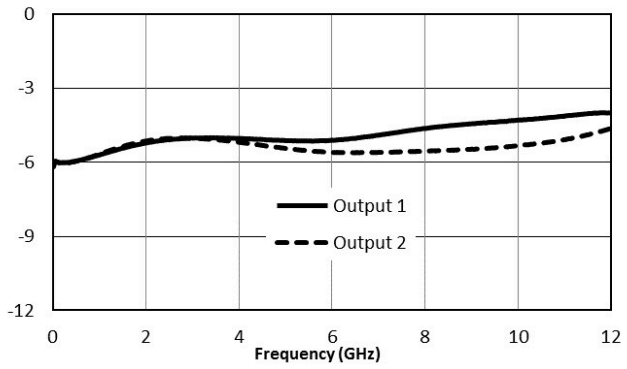




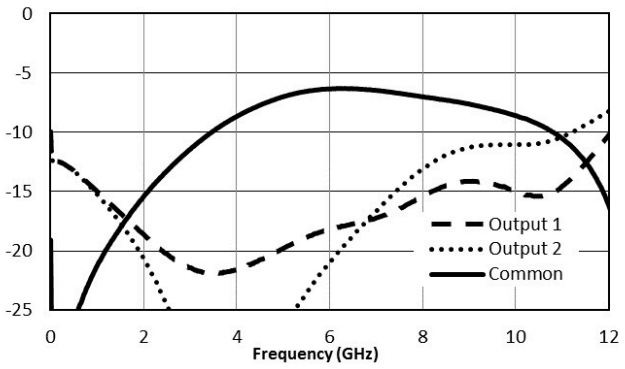
Typical Performance Scattering Parameter

Three port scattering parameters measured as three single-ended 50Ω ports showing relationship between any two ports.

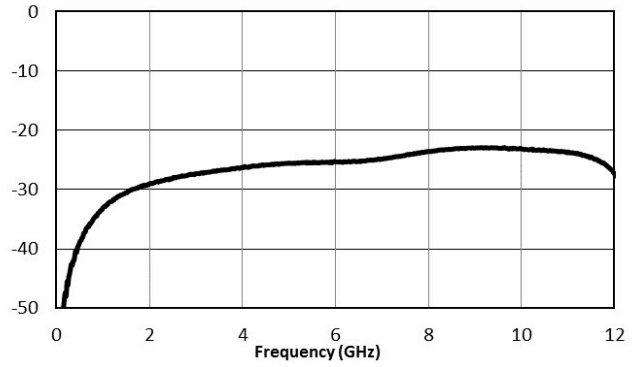
Insertion loss (dB)



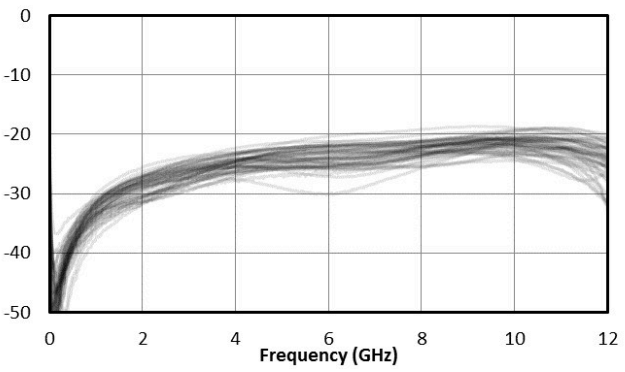
Return loss (dB)



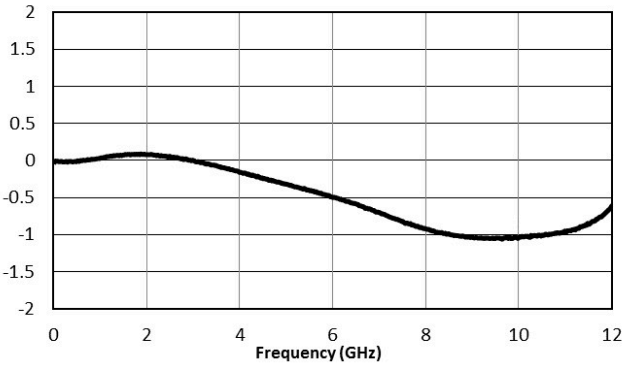
Common Mode Rejection Ratio (dB)



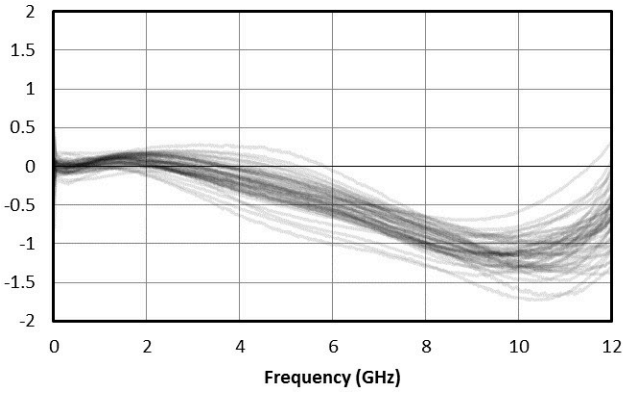
Common Mode Rejection Ratio, 50 Unit Spread (dB)



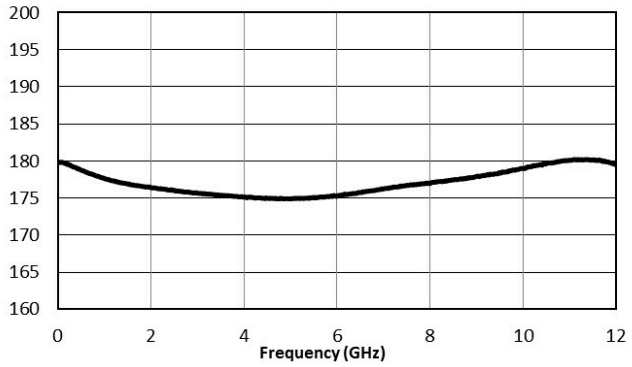
Amplitude Balance (dB)



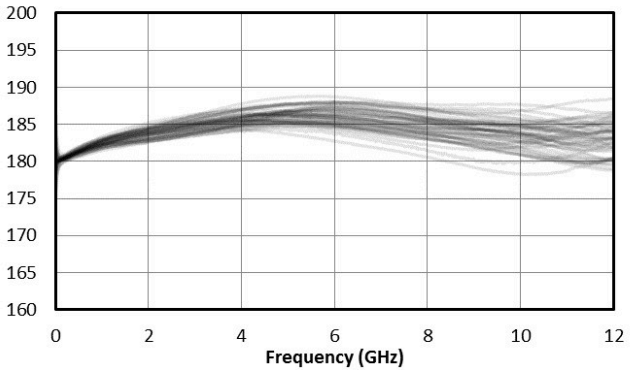
Amplitude Balance, 50 Unit Spread (dB)



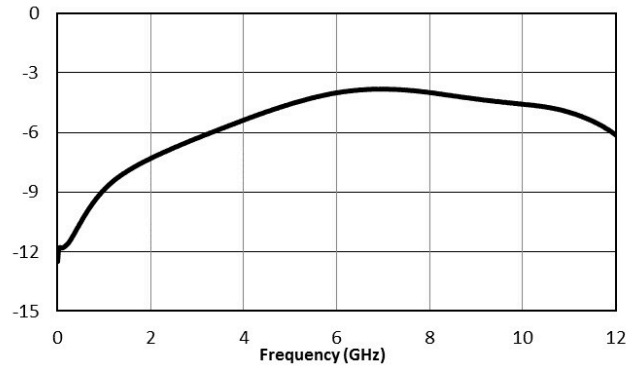
Phase Balance (degree)



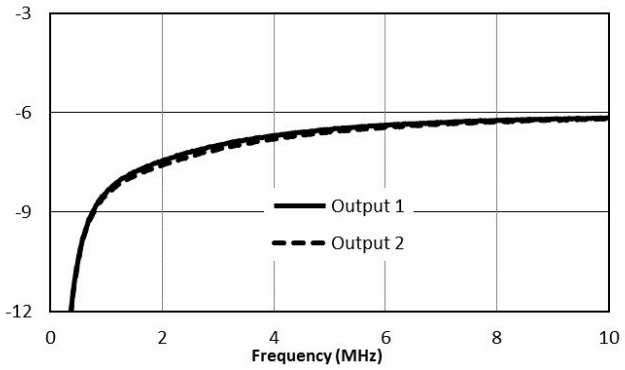
Phase Balance, 50 Unit Spread (degree)



Isolation (dB)



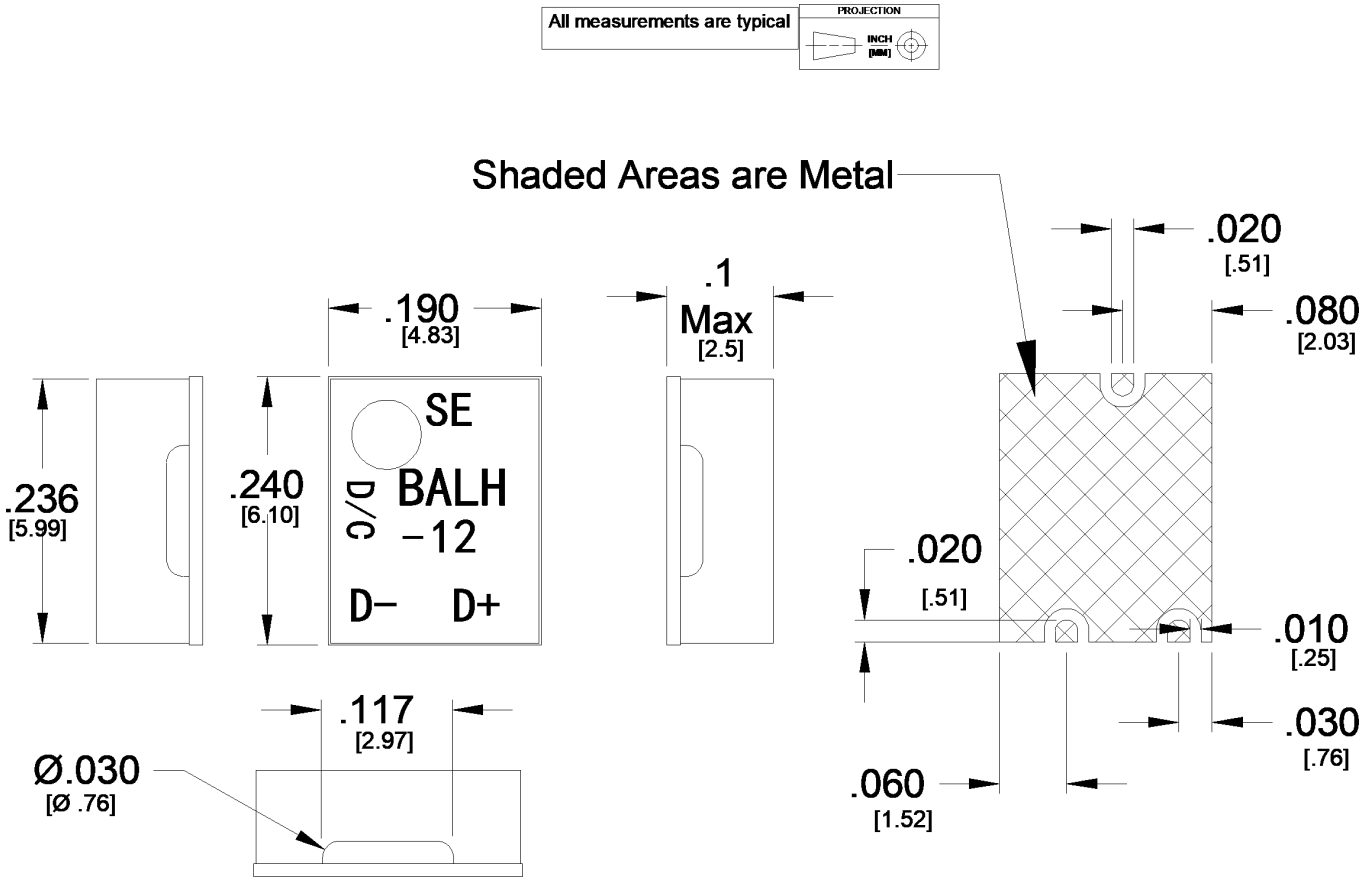
Insertion loss (dB)



Mechanical Data

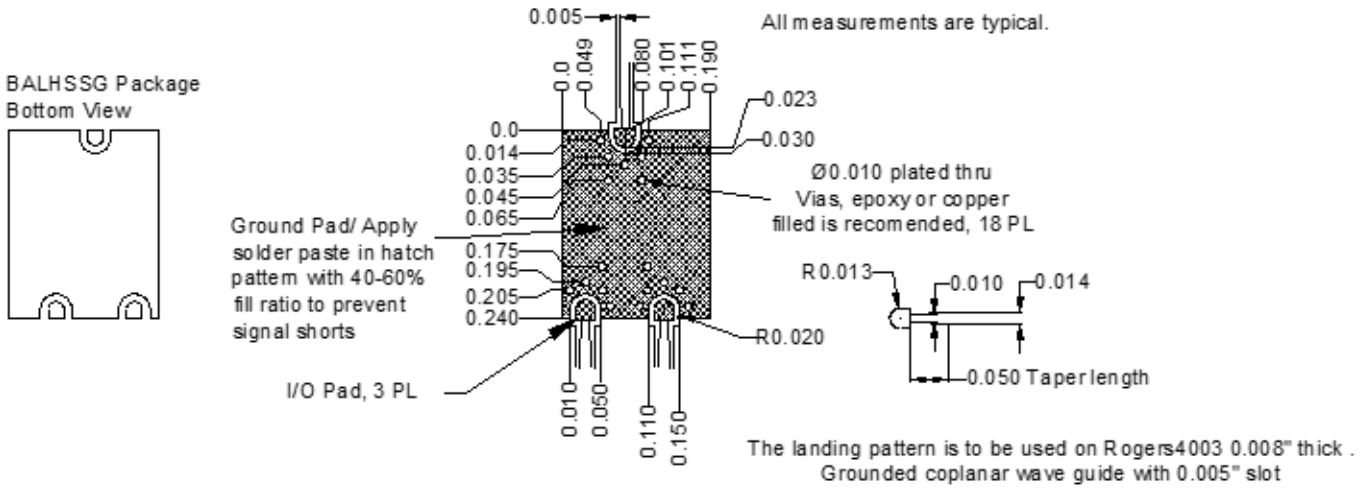
Outline Drawing

Download : Outline 2D Drawing | Outline 3D Drawing | Outline 3D STP



Footprint Image

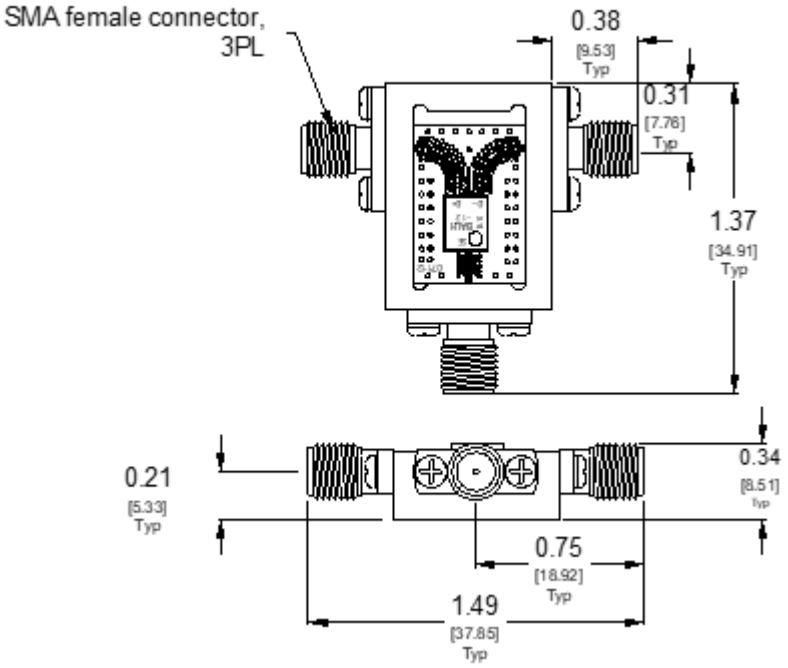
Download : Footprint Drawing



Evaluation Board - Performance Data

Parameter	Test Conditions	Frequency Range (GHz)	Min	Typ	Max	Unit
Impedance Ratio	-	-	-	1	-	

Evaluation Board - Outline Drawing



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