

BALH-0012SSG

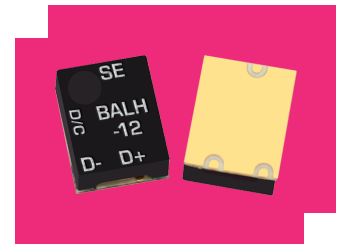
HIGH POWER SURFACE-MOUNT BALUN

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](#)



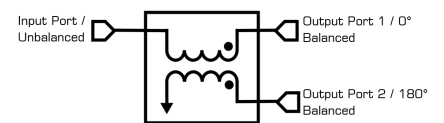
Features

- 10 MHz to 12 GHz 1:1 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	Packing Size	Green Status	Product Lifecycle	Export Classification
BALH-0012SSG	HIGH POWER SURFACE-MOUNT BALUN	SSG	-	RoHS	Released	EAR99
EVAL-BALH-0012	Evaluation Board, High Power Surface-Mount Balun	-	-	RoHS	Released	EAR99

Table Of Contents

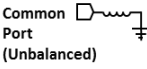
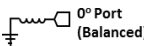
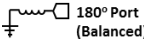
- **Device Overview**
 - General Description
 - Features
 - Applications
 - Functional Block Diagram
- **Port Configuration and Functions**
 - Port Functions
- **Revision History**
- **Specifications**
 - Absolute Maximum Ratings
 - Package Information
 - Electrical Specifications
 - Mixed Mode Scattering Parameters
 - Typical Performance Scattering Parameter
- **Mechanical Data**
 - Outline Drawing
- **Footprint Image**

Revision History

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

Port Configuration and Functions

Port Functions

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

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

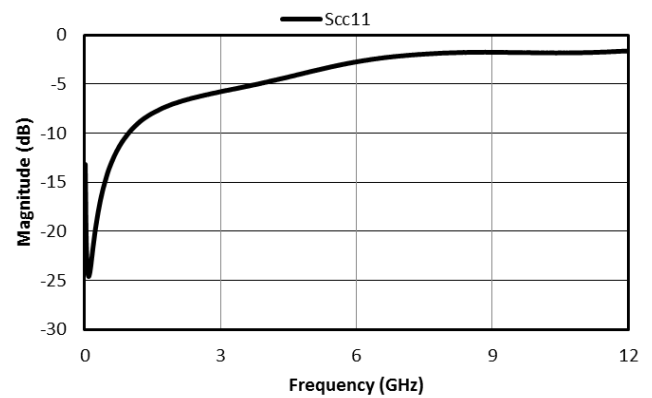
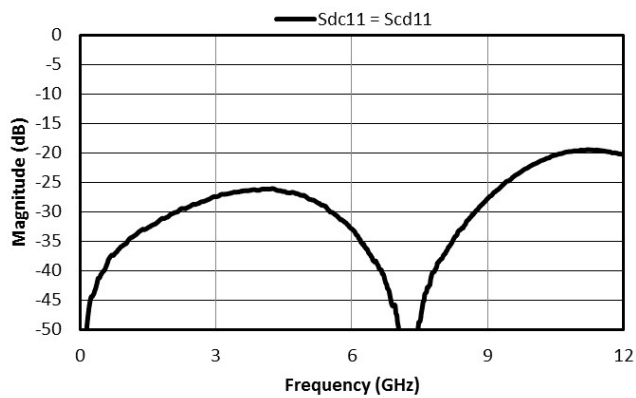
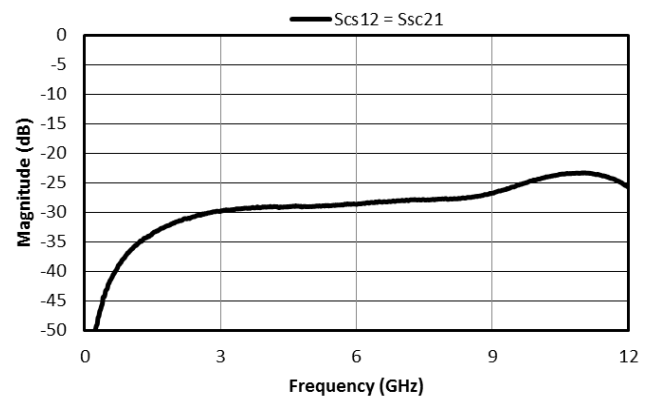
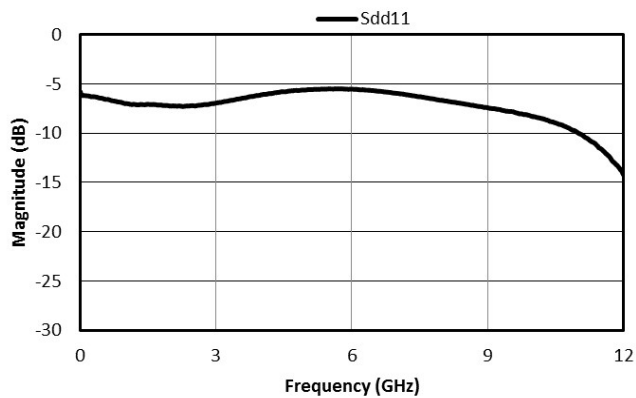
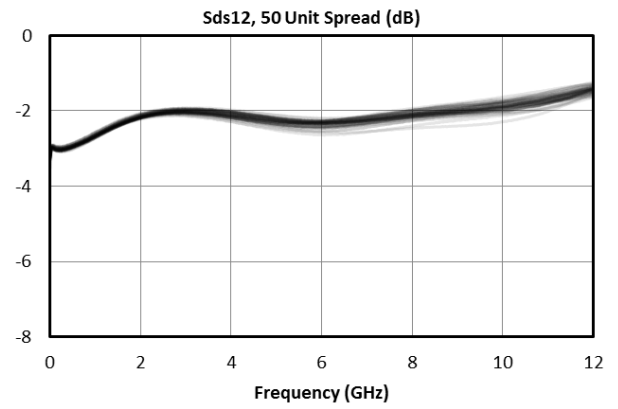
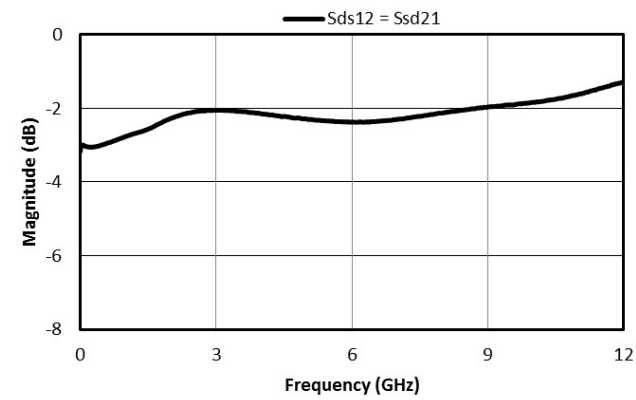
Electrical Specifications

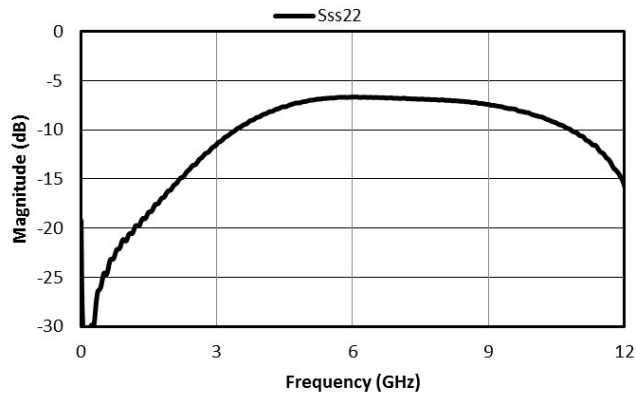
Specifications guaranteed from -55 to +100°C, measured in a 50Ω system.

Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Insertion Loss as a Mode Converter	-	0.01	12	-	2	3.5	dB
Nominal Phase Shift	-	0.01	12	-	180	-	°
Amplitude Balance	-	0.01	12	-	0.6	1.8	dB
Phase Balance	-	0.01	12	-	5	12	°
Common Mode Rejection	-	0.01	12	16	25	-	dB
Isolation	-	0.01	12	-	5.5	-	dB
Input 1dB Compression	-	0.01	12	-	37	-	dBm
VSWR (Common)	-	0.01	12	-	1.7	-	-
VSWR (Output)	-	0.01	12	-	1.35	-	-

Mixed Mode Scattering Parameters

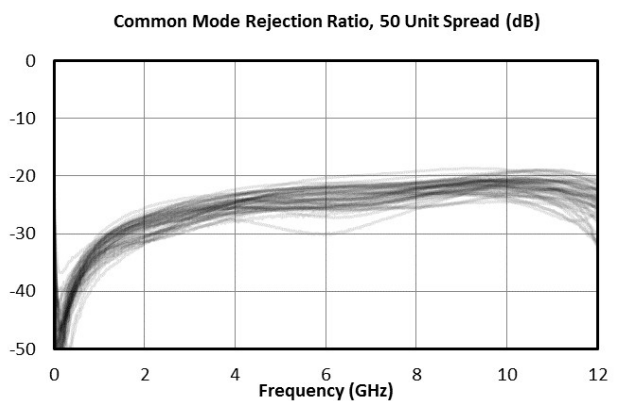
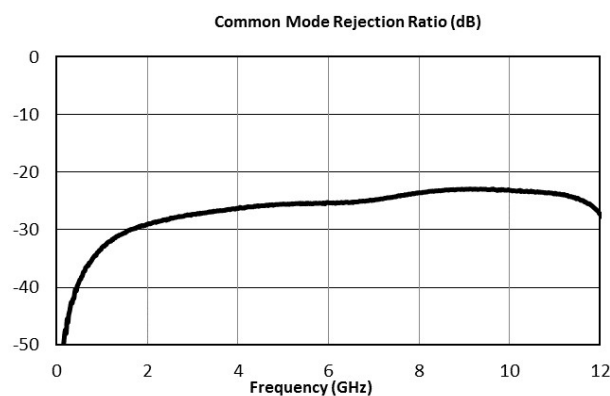
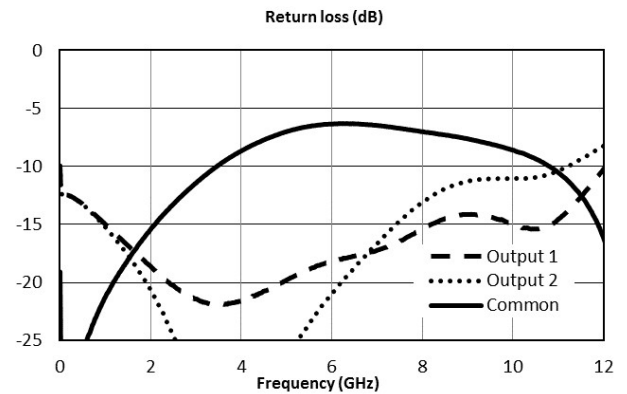
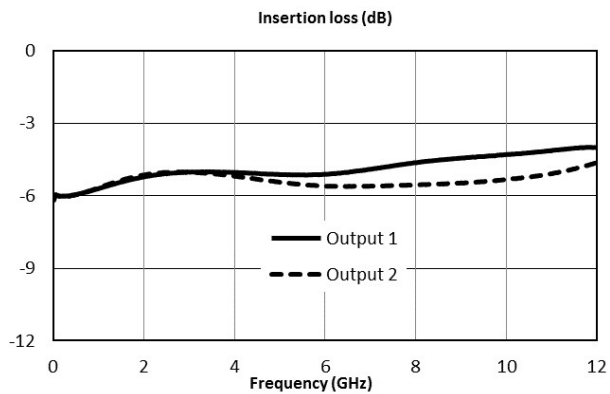
Mixed mode scattering parameters are used to characterize differential circuits. For baluns, this means that the 0° and 180° ports become a single differential port and the common port remains common port. The two-port s-parameters of the balun are then characterized based on differential (d), common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

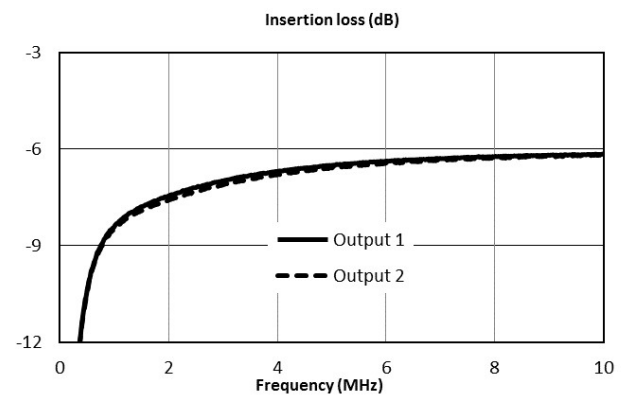
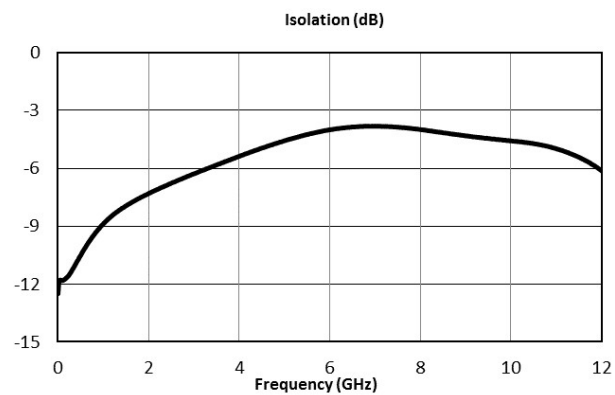
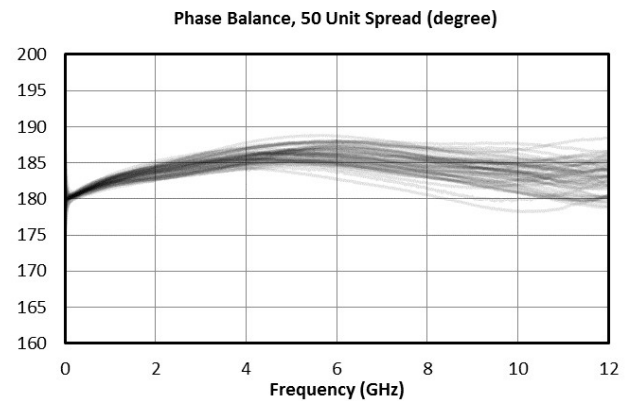
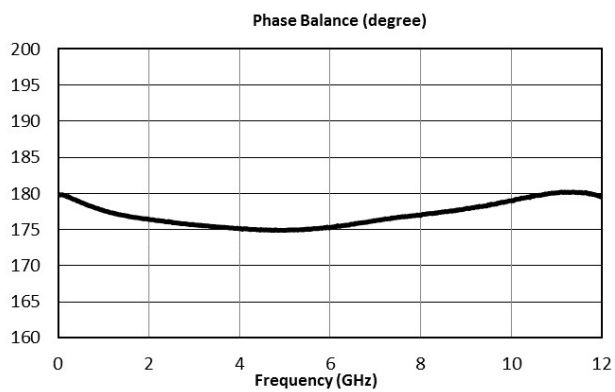
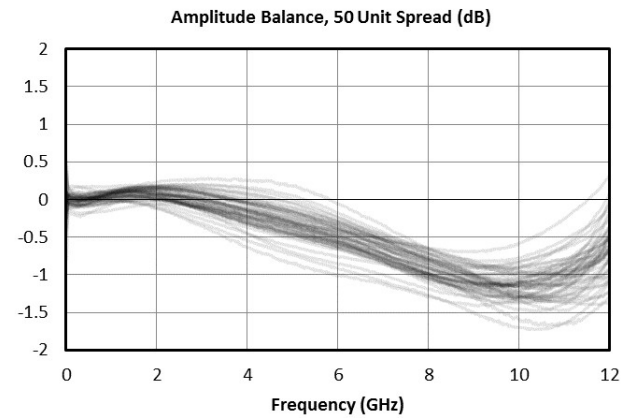
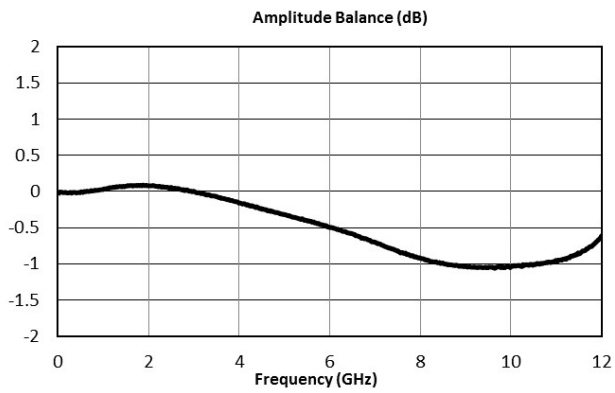




Typical Performance Scattering Parameter

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

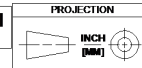




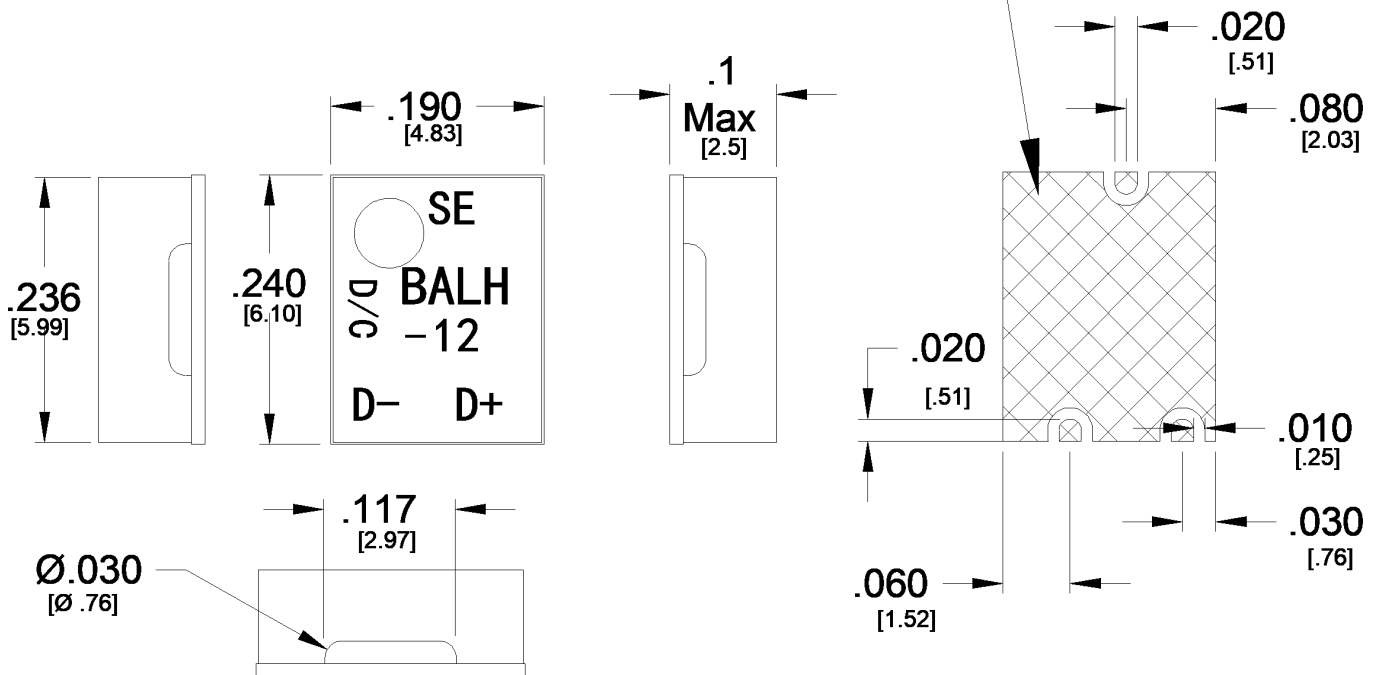
Mechanical Data

Outline Drawing

All measurements are typical

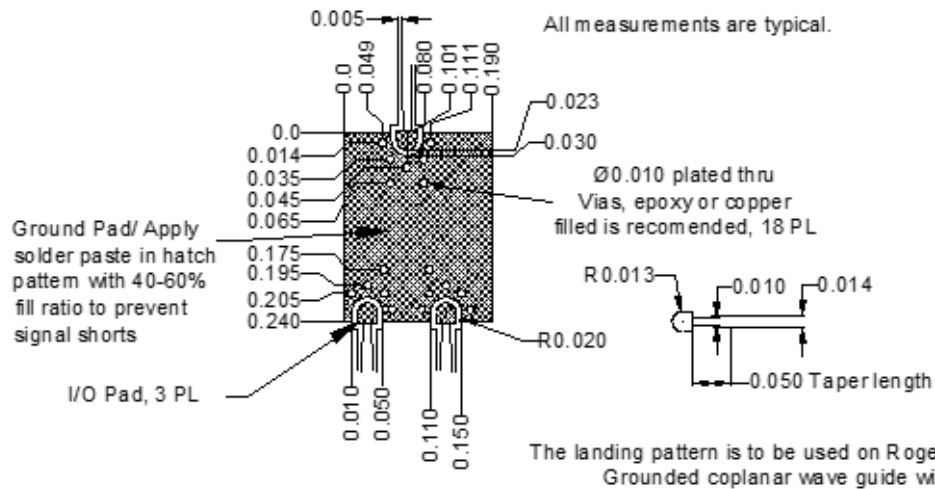
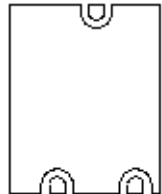


Shaded Areas are Metal



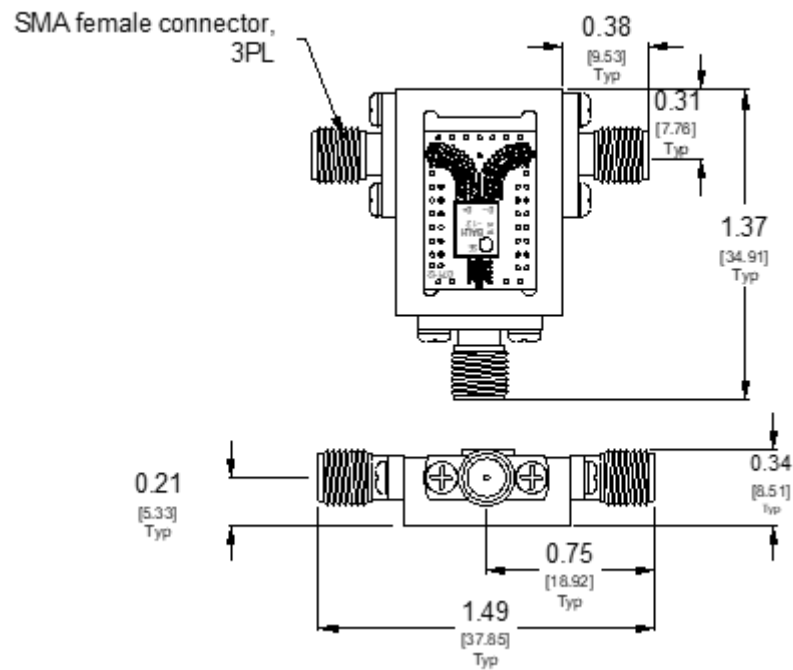
Footprint Image

BALHSSG Package
Bottom View



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