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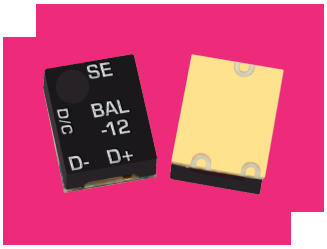
BAL-0012SSG

Surface-Mount Broadband Balun

DEVICE OVERVIEW

General Description

The BAL-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

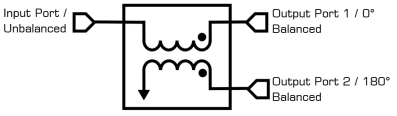
Features

- 2:1 Impedance Ratio
- 10 MHz to 12 GHz Balun (Balanced to Unbalanced Transformer)
- Transforms 50 Ω Input to 100 Ω Differential (50 Ohm Single) Output
- 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
BAL-0012SSG	Surface-Mount Broadband Balun	SSG	REACH RoHS	Released	EAR99
EVAL-BAL-0012	Evaluation Board, 0.01 - 12 GHz Broadband Balun	EVAL	REACH RoHS	Released	EAR99

Table Of Contents

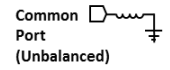
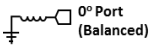
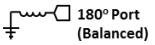
- **Device Overview**
  - General Description
  - Features
  - Applications
  - Functional Block Diagram
- **Port Configuration and Functions**
  - Port Functions
- **Revision History**
- **Specifications**
  - Absolute Maximum Ratings
  - Package Information
  - Electrical Specifications
  - Typical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

Revision History

Revision Code	Revision Date	Comment
-	2020-06-01	Initial Datasheet Release

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	30	dBm
RF Power Handling	1	W

Package Information

Parameter	Details	Rating
ESD	250 to < 500 Volts	HBM Class 1A
Dimensions	-	4.83 x 6.10 mm
Moisture Sensitivity Level	-	MSL 1

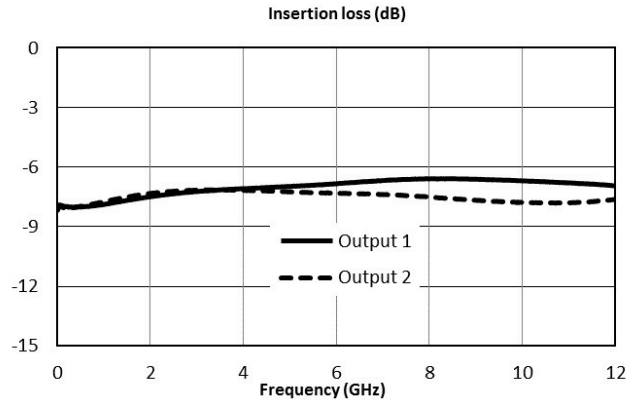
Electrical Specifications

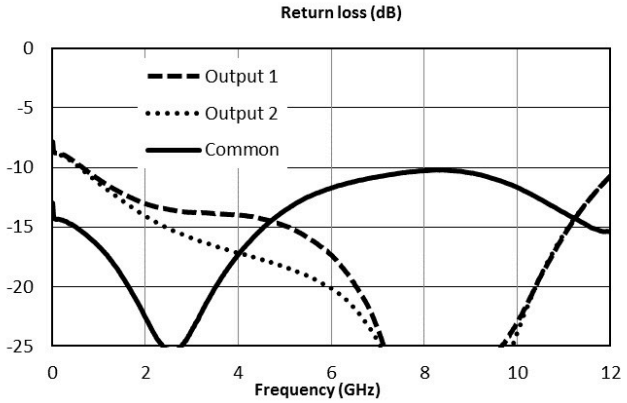
The electrical specifications apply at TA=+25°C in a 50Ω system. Min and Max limits are guaranteed at TA=+25°C.

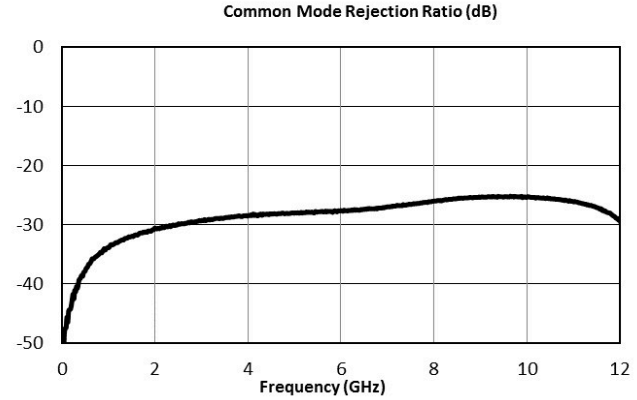
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Amplitude Balance	-	0.01	12	-	0.6	1.8	dB
Common Mode Rejection	-	0.01	12	18	26	-	dB
Insertion Loss as a Mode Converter	-	0.01	12	-	5	6.5	dB
Isolation	-	0.01	12	-	8	-	dB
Nominal Phase Shift	-	0.01	12	-	180	-	°
Phase Balance	-	0.01	12	-	5	12	°
VSWR	-	0.01	12	-	1.6	-	-
Impedance Ratio	-	-	-	-	2:1	-	

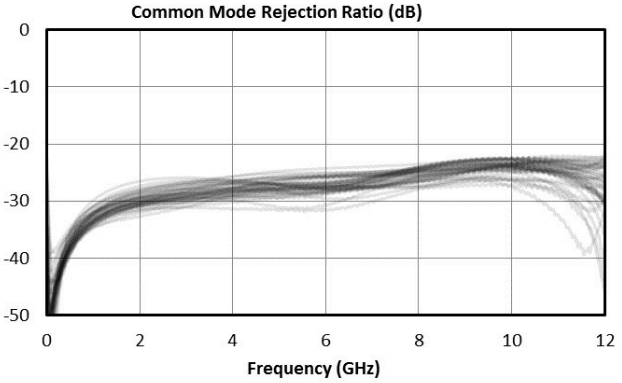
Typical Performance Scattering Parameter

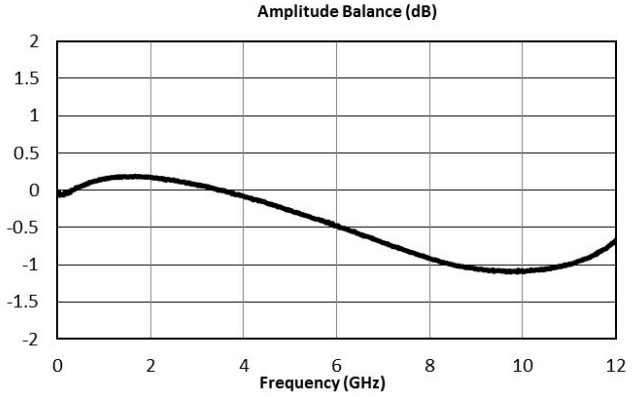
Three port scattering parameters measured as three single-ended 50Ω ports showing relationship between any two ports.

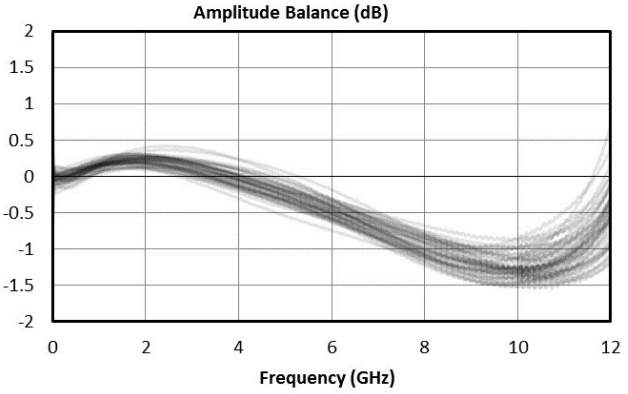


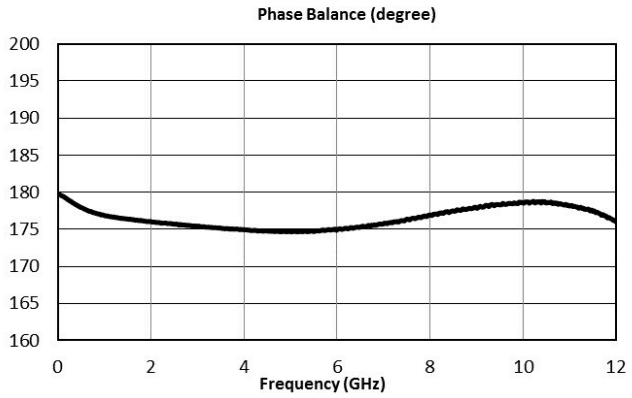


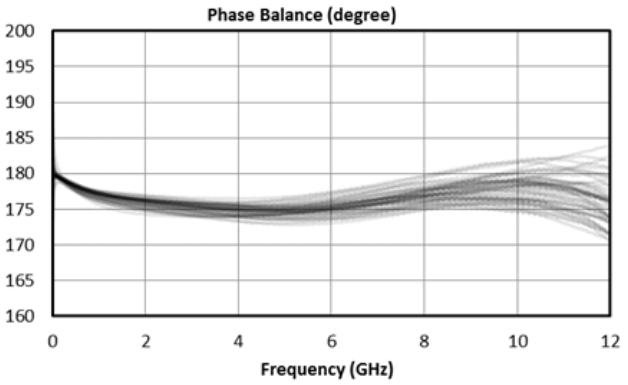


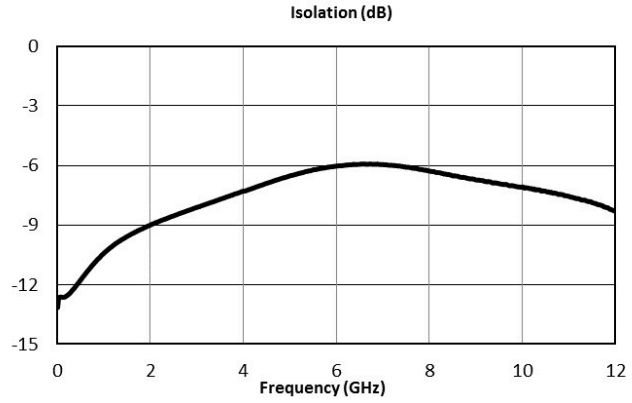


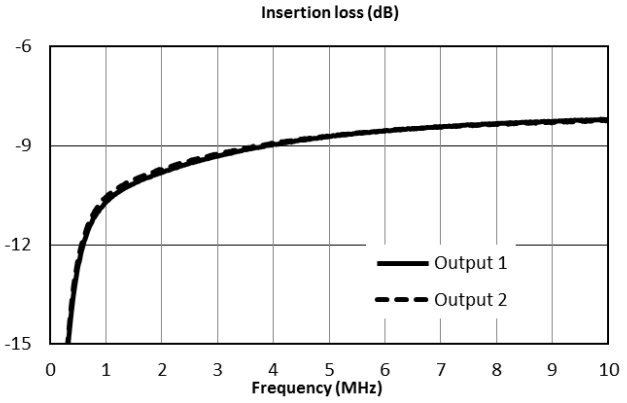




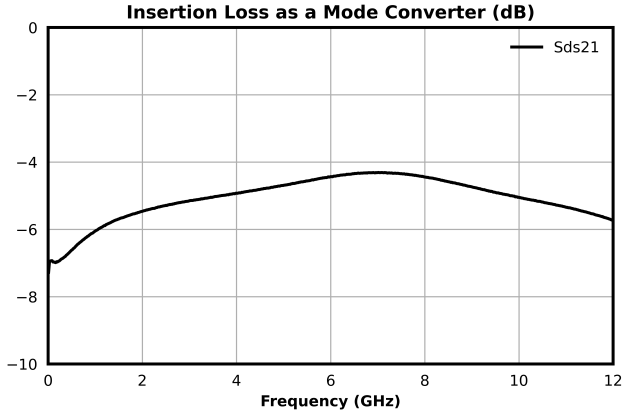


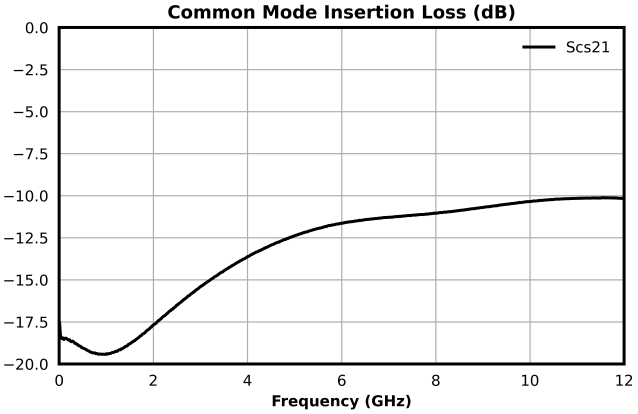


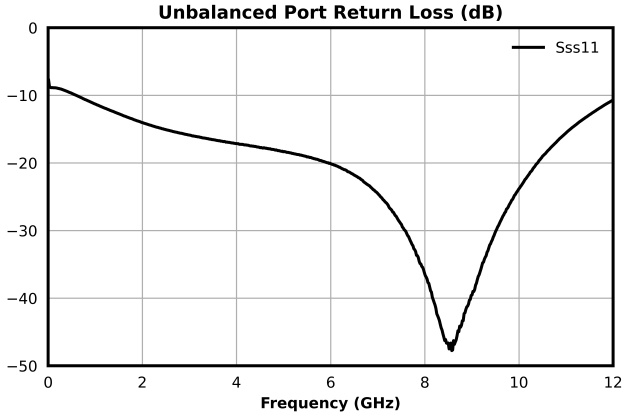


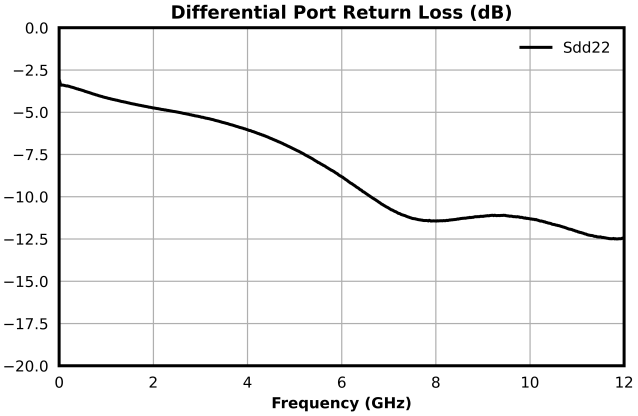


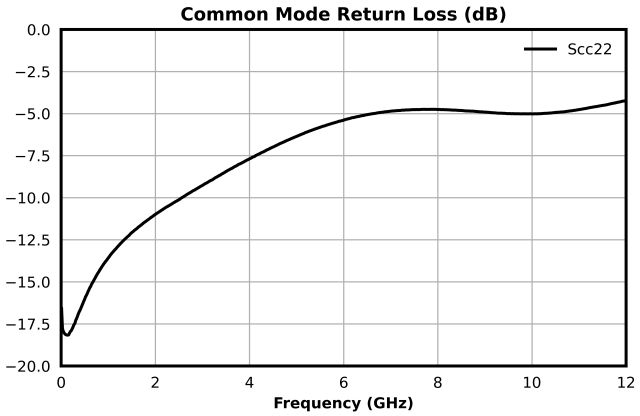
Typical Mixed Mode Performance Plots







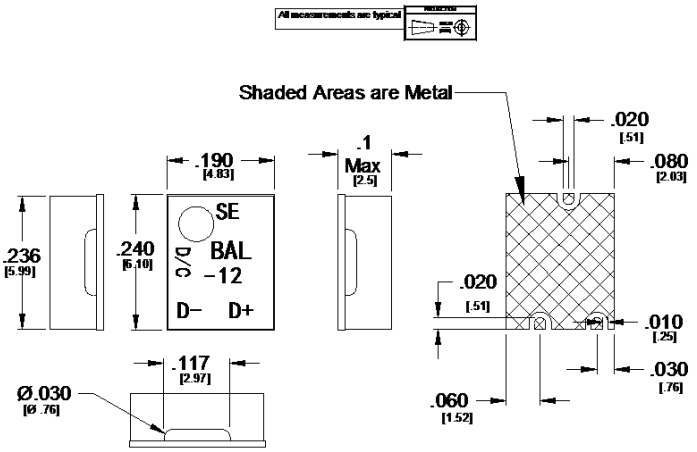




Mechanical Data

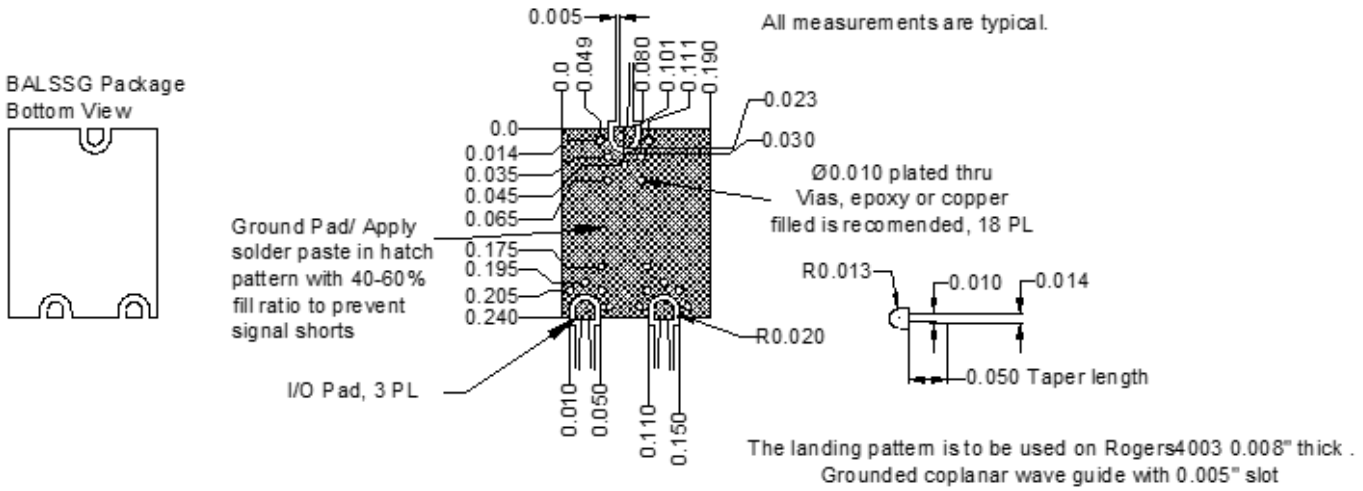
Outline Drawing

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



Footprint Image

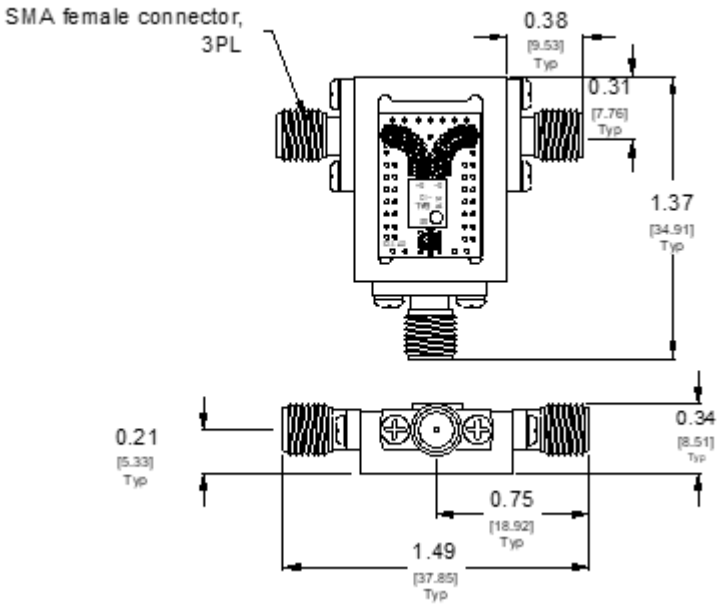
Download : Footprint Drawing



Evaluation Board - Performance Data

Parameter	Test Conditions	Frequency Range (GHz)	Min	Typ	Max	Unit
Impedance Ratio	-	-	-	2	-	

Evaluation Board - Outline Drawing



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