

BTL-0012SMG-1

Miniature Surface-Mount Bias-Tee

DEVICE OVERVIEW

General Description

The BTL-0012SMG is a packaged bias tee featuring excellent insertion loss and superior isolations over a broad 500 kHz to 12 GHz bandwidth. Tight fabrication tolerances allow for low unit to unit variation enabling accurate simulations using the provided s3p file taken from measured production units. The bias tee is available in a compact package and is suitable for applications such as amplifier biasing, diode biasing and DC level shifting.



[Download s-parameters here](#)

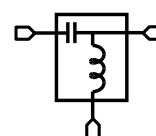
Features

- Frequency Range: 500 kHz to 12 GHz
- Frequency Range with External Coil: 5 kHz to 12 GHz
- 1 Watt RF Power Handling
- DC Current 500 mA
- Miniature Surface Mount Package
- Lead Free Assembly
- Reflow Solderable

Applications

- Test and Measurement Equipment

Functional Block Diagram



Part Ordering Options

Part Number	Description	Package	Packing Size	Green Status	Product Lifecycle	Export Classification
BTL-0012SMG-1	Miniature Surface-Mount Bias-Tee	SMG	-	RoHS REACH	Released	EAR99
<u>BTL-0012SMG-2</u>	Miniature Surface-Mount Bias-Tee	SMG	-	RoHS REACH	Released	EAR99
<u>EVAL-BTL-0012</u>	Evaluation Board, Miniature 0.0005 - 12 GHz Bias-Tee	-	-		-	-

Table Of Contents

- **Device Overview**
 - General Description
 - Features
 - Applications
 - Functional Block Diagram
- **Port Configuration and Functions**
 - Port Diagram
 - Port Functions
- **Revision History**
- **Specifications**
 - Absolute Maximum Ratings
 - Package Information
 - Electrical Specifications
 - Typical Performance Plots
 - Typical Performance vs Bias Current at Low Frequencies Plots
- **Mechanical Data**
 - Outline Drawing
- **Footprint Image**

Revision History

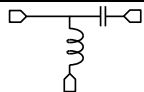
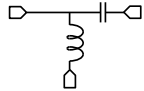
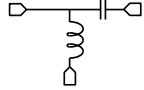
Revision Code	Revision Date	Comment
-	2021-01-01	Datasheet Initial Release

Port Configuration and Functions

Port Diagram



Port Functions

Port	Function	Description	Equivalent Circuit for Package
Common	RF+DC	This port is DC blocked to the RF port and DC connected to the DC port through an internal RF choke.	
DC	DC	This port is internally connected to an RF choke which is DC connected to the RF+DC port and DC blocked to the RF port.	
RF	RF	This port is internally DC blocked to the RF+DC and DC ports.	

Specifications

Absolute Maximum Ratings

Parameter	Maximum Rating	Unit
DC Current	0.5	A
DC Voltage	30	V
RF Power	1	W

Package Information

Parameter	Details	Rating
Dimensions	-	3.81 x 5.59 mm

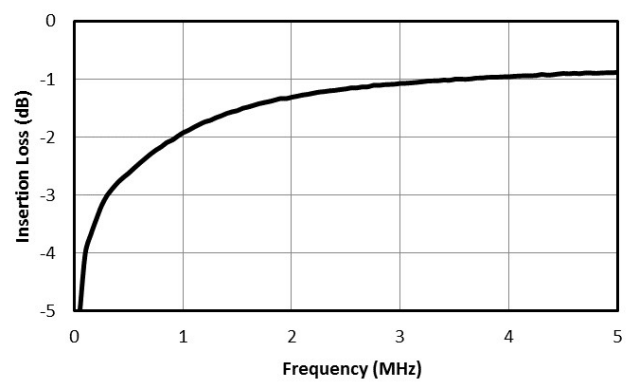
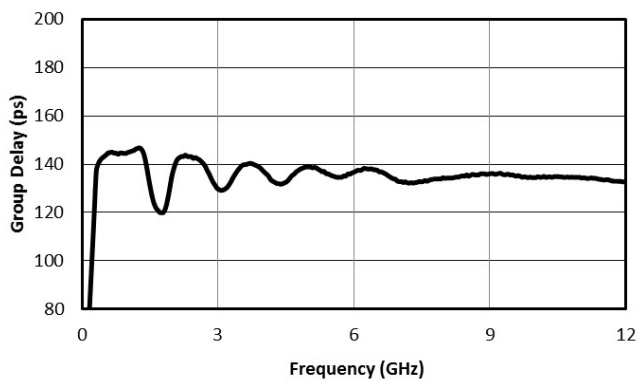
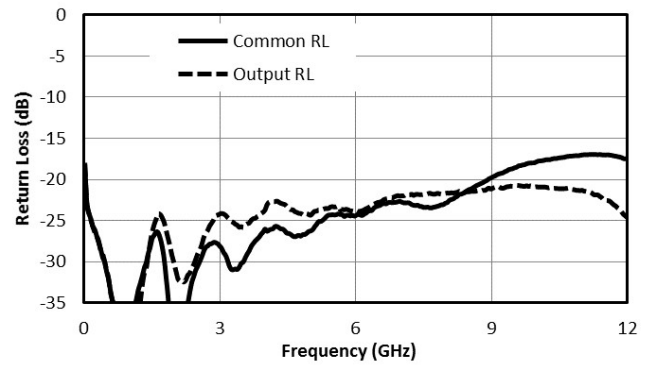
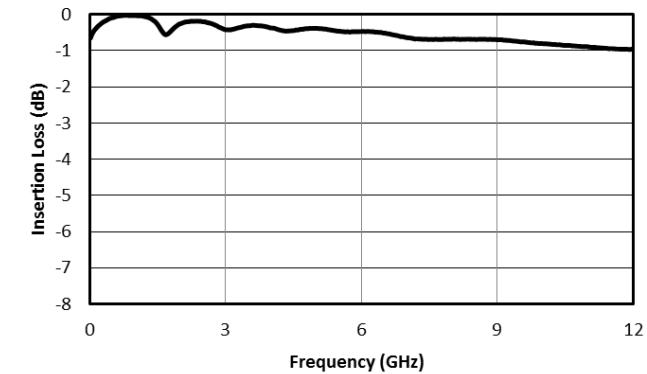
Electrical Specifications

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

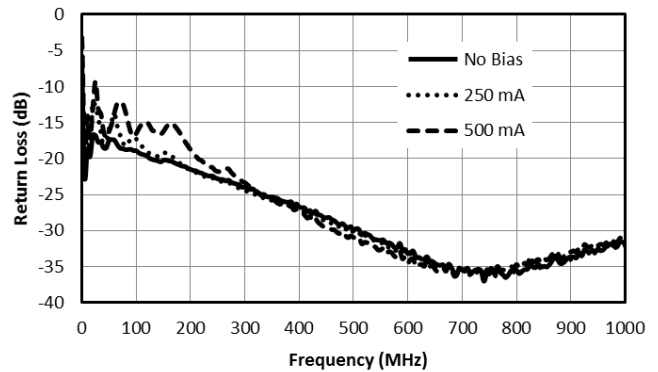
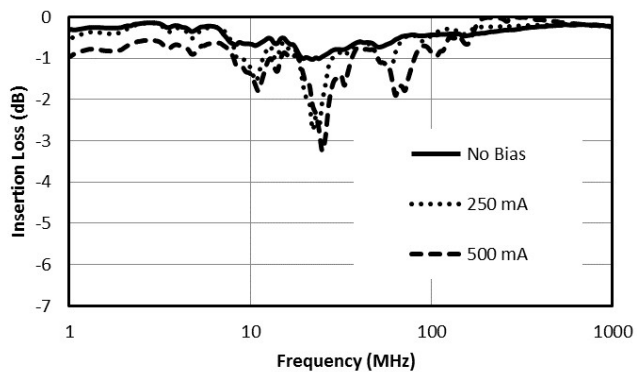
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Capacitance	-	0.0005	12	-	1	-	μF
DC Port Isolation	-	0.0005	12	-	35	-	dB
DC Resistance	-	0.0005	12	-	1.5	-	Ω
Inductance	-	0.0005	12	-	17	-	μH
Insertion Loss	-	0.0005	0.005	-	1	6	dB
Insertion Loss	-	0.005	12	-	0.5	1.5	dB

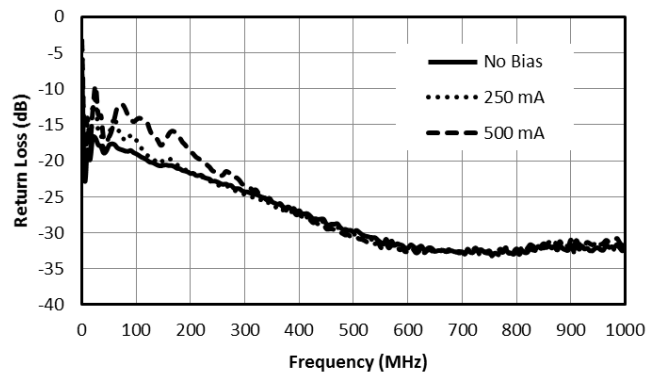
Typical Performance Plots

Insertion Loss data was taken with de-embedding of connectors and traces. Return loss and group delay data include fixture effects.



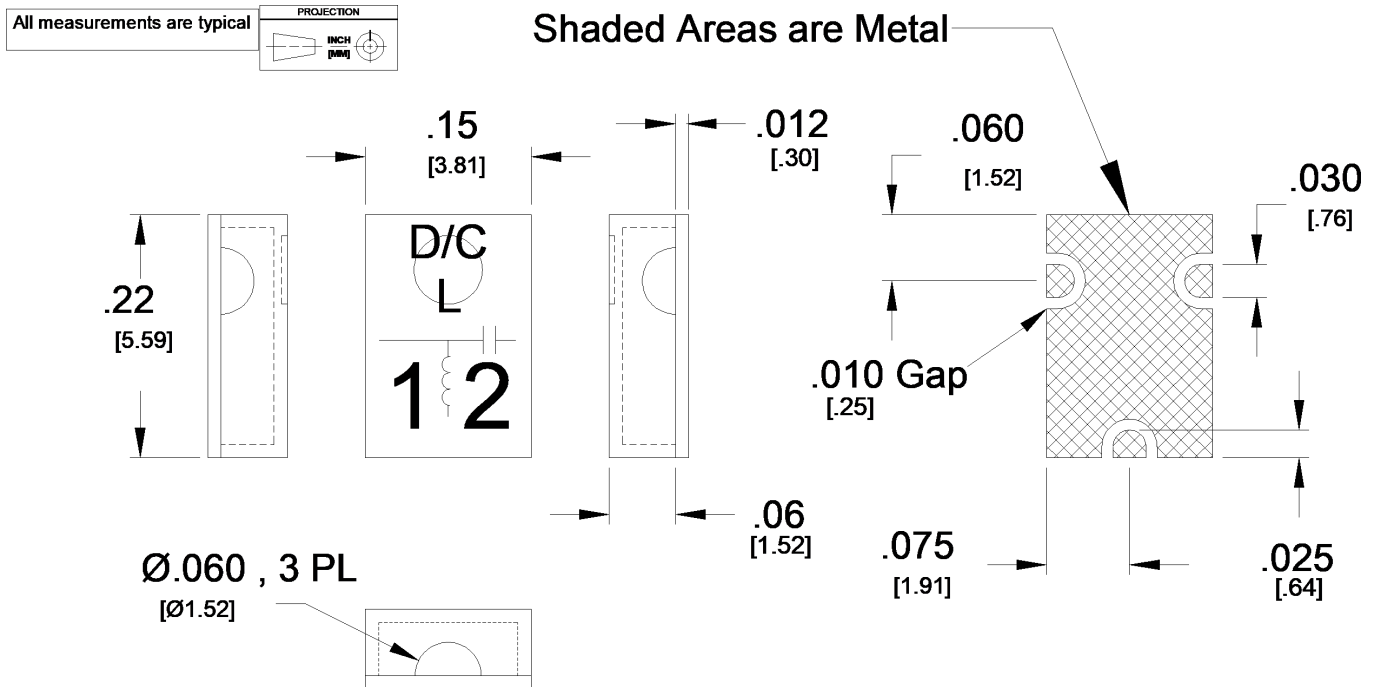
Typical Performance vs Bias Current at Low Frequencies Plots



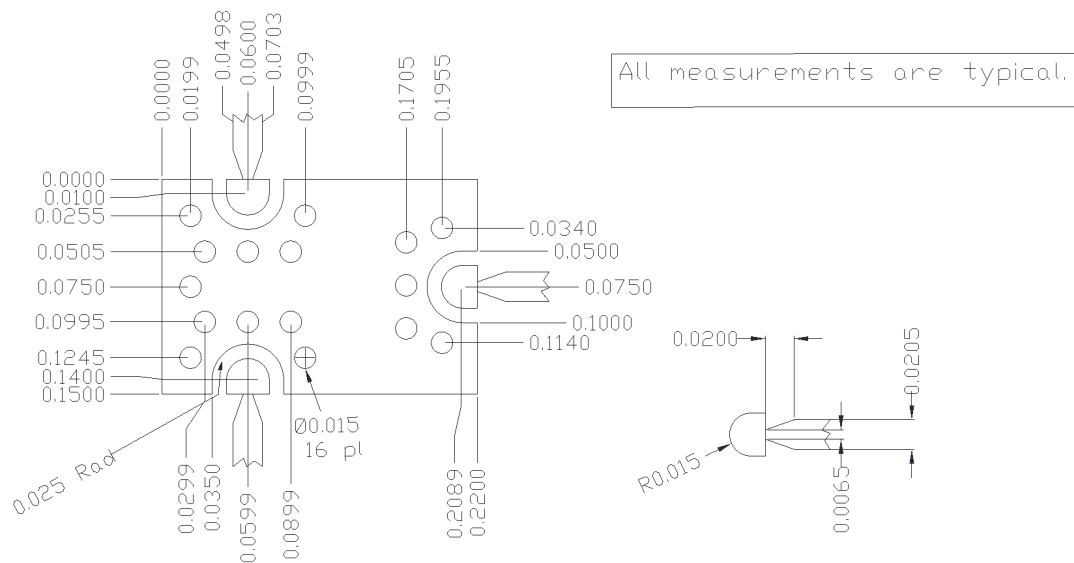


Mechanical Data

Outline Drawing



Footprint Image



DISCLAIMER

MARKI MICROWAVE, INC., ("MARKI") PROVIDES TECHNICAL SPECIFICATIONS AND DATA (INCLUDING DATASHEETS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, AND OTHER INFORMATION AND RESOURCES "AS IS" AND WITH ALL FAULTS. MARKI DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT.

These resources are intended for developers skilled in the art designing with Marki products. You are solely responsible for (1) selecting the appropriate products for your application, (2) designing, validating, and testing your application, and (3) ensuring your application meets applicable standards and other requirements. Marki makes no guarantee regarding the suitability of its products for any particular purpose, nor does Marki assume any liability whatsoever arising out of your use or application of any Marki product.

Marki grants you permission to use these resources only for development of an application that uses Marki products. Other reproduction or use of these resources is strictly prohibited. No license is granted to any other Marki intellectual property or to any third-party intellectual property. Marki reserves the right to make changes to the product(s) or information contained herein without notice.

MARKI MICROWAVE and T3 MIXER are trademarks or registered trademarks of Marki Microwave, Inc. All other trademarks used are the property of their respective owners.

© 2021, Marki Microwave, Inc