

# BTL-0012SMG-2

## 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](#)

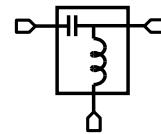
#### Features

- 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	Green Status	Product Lifecycle	Export Classification
<a href="#">BTL-0012SMG-1</a>	Miniature Surface-Mount Bias-Tee	SMG	RoHS REACH	Released	EAR99
<a href="#">BTL-0012SMG-2</a>	Miniature Surface-Mount Bias-Tee	SMG	RoHS REACH	Released	EAR99
<a href="#">EVAL-BTL-0012</a>	Evaluation Board, Miniature 0.0005 - 12 GHz Bias-Tee	EVAL	REACH RoHS	Released	EAR99

## Table Of Contents

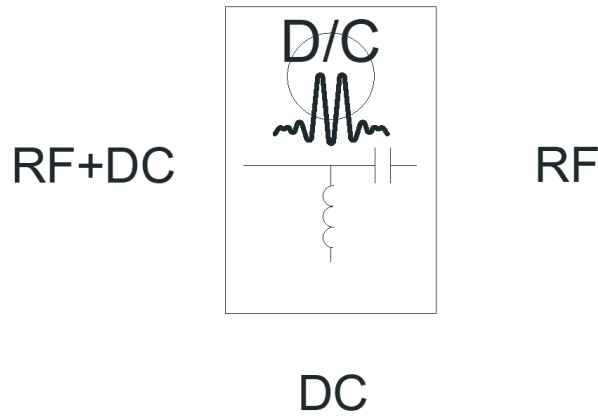
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## Revision History

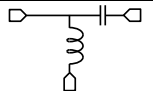
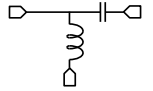
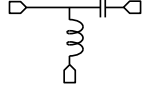
Revision Code	Revision Date	Comment
-	2021-01-01	Datasheet Initial Release
A	2025-06-26	ESD rating

## Port Configuration and Functions

### Port Diagram



### Port Functions

Port	Function	Description	DC Equivalent Circuit
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
Maximum Storage Temperature	125	°C
Minimum Storage Temperature	-65	°C
RF Power Handling	1	W
Minimum Operating Temperature	-55	°C
Maximum Operating Temperature	100	°C

**Package Information**

Parameter	Details	Rating
ESD	250 to < 500 Volts	HBM Class 1A
Dimensions	-	3.81 x 5.59 mm
Moisture Sensitivity Level	-	MSL 1

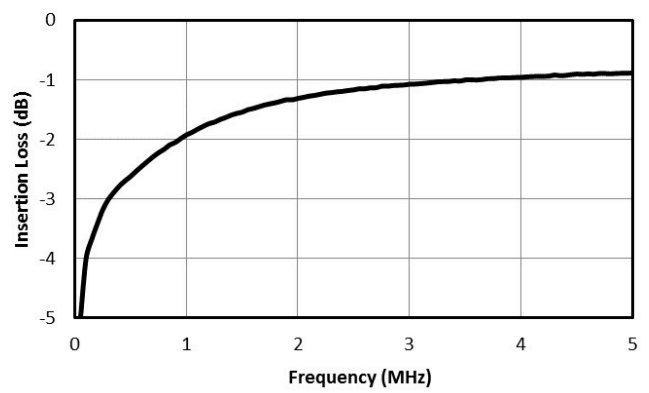
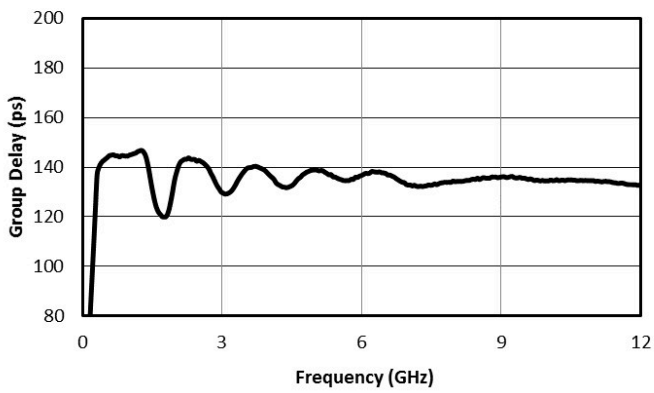
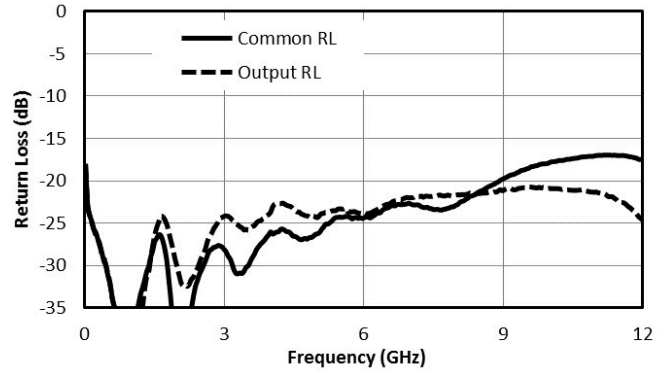
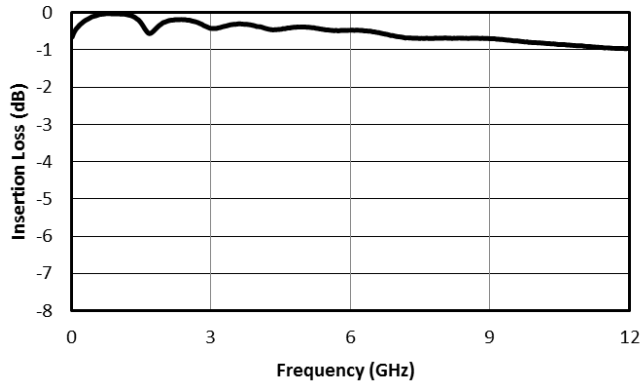
**Electrical Specifications**

Specifications guaranteed at +25C, measured in a 50-Ohm system

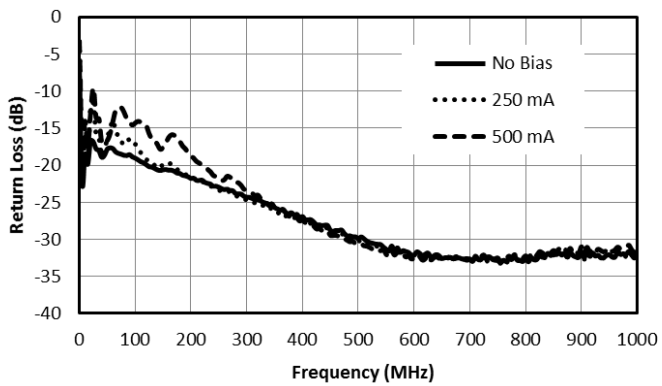
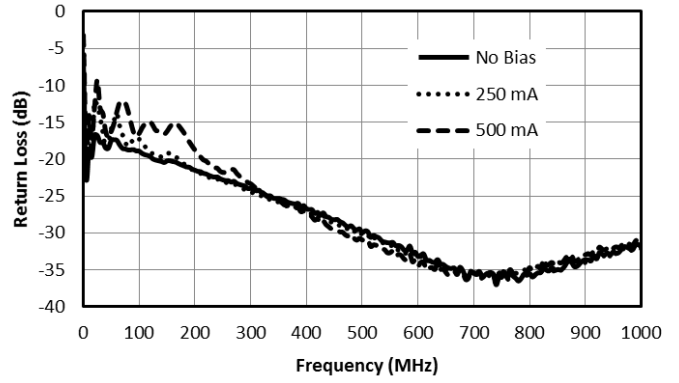
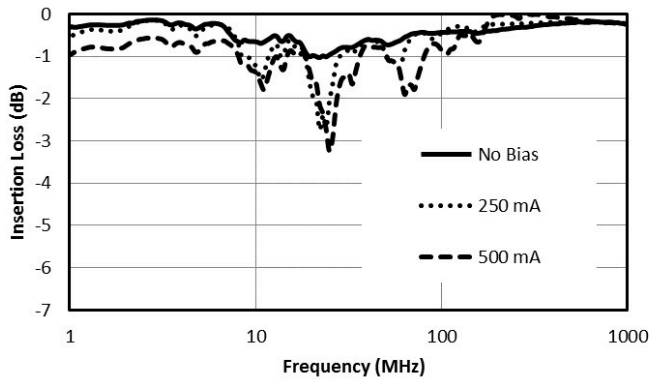
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Capacitance	-	0.0005	12	-	1	-	μF
DC Port Isolation	-	0.0005	12	-	35	-	dB
DC Resistance	-	0.0005	12	-	1.5	-	Ω
Inductance	-	0.0005	12	-	17	-	μH
Insertion Loss	-	0.0005	0.005	-	1	6	dB
Insertion Loss	-	0.005	12	-	0.5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



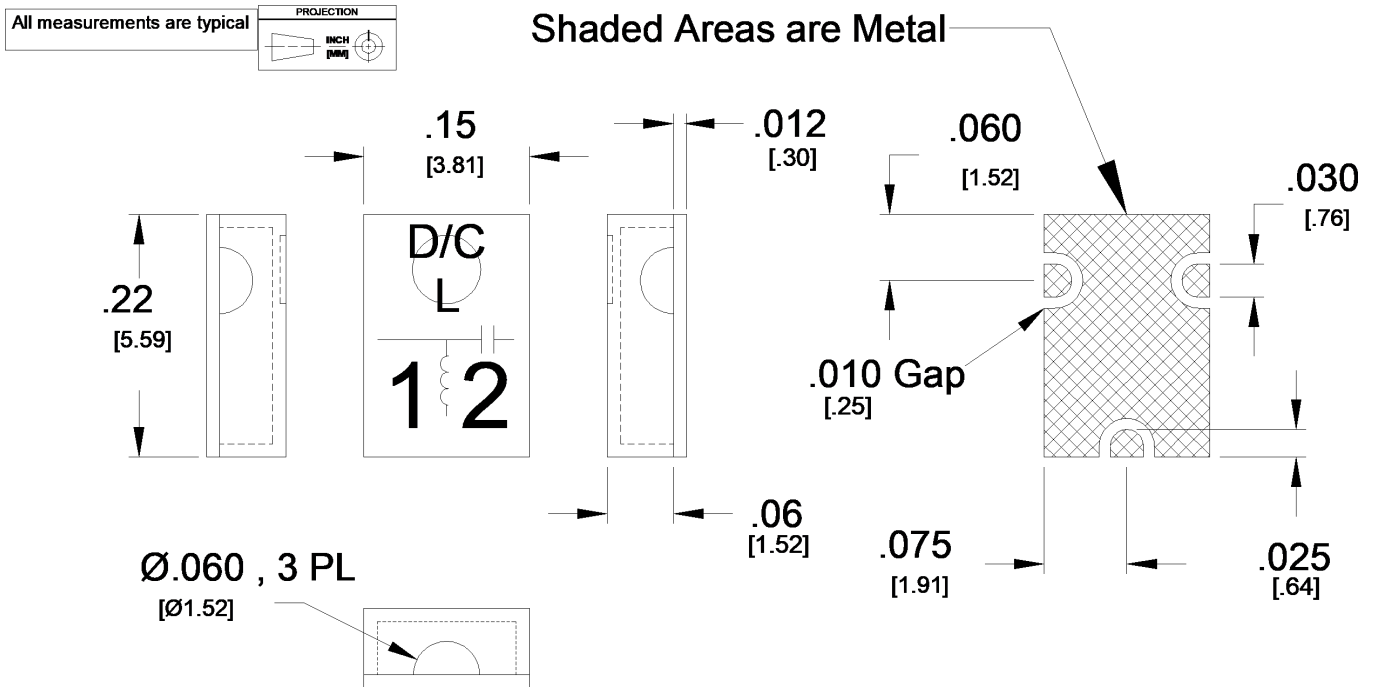
**Typical Performance vs Bias Current at Low Frequencies Plots**



**Mechanical Data**

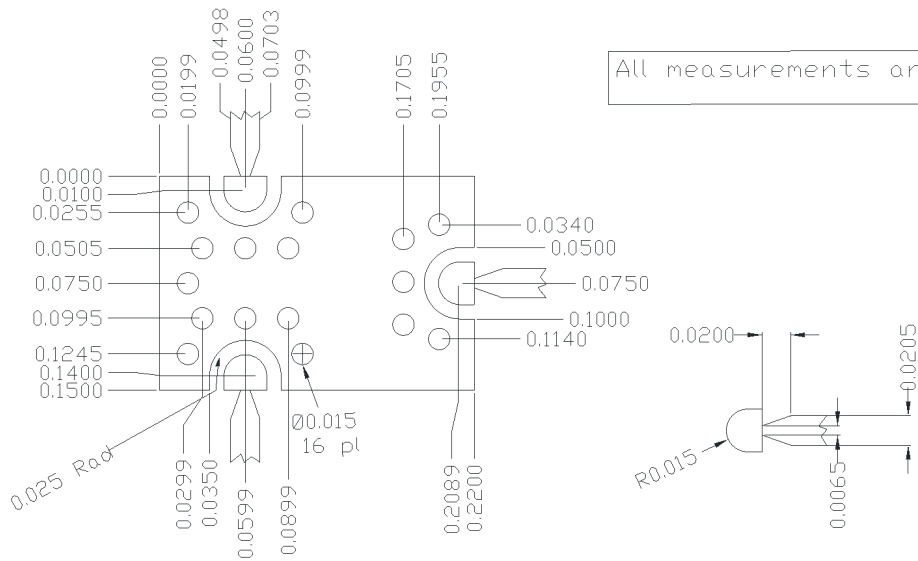
**Outline Drawing**

Download : [Outline 2D Drawing](#) | [Outline 3D Drawing](#) | [Outline 3D STP](#)



**Footprint Image**

Download : [Footprint Drawing](#)



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