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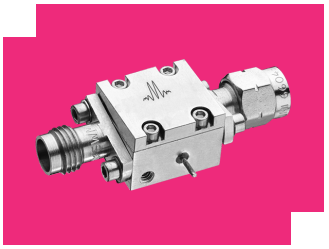
BT-0025
Bias Tee

DEVICE OVERVIEW

General Description

The BT-0025 is constructed using a custom-made, resonance-free conical inductor to achieve extremely broadband performance. By minimizing the overall inductor size and using proprietary packaging techniques, the BT-0025 is a superior option in terms of performance, reliability and ease-of-use when compared to cumbersome self-made bias tees employing off-the-shelf conical inductors. The extremely low cutoff and resonance free operation makes the BT-0025 suitable for biasing amplifiers, lasers, and modulators driven with high frequency data patterns.



Download s-parameters here

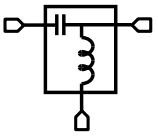
Features

- Broadband: 40 kHz to 25 GHz
- Low Insertion Loss
- Non-Resonant
- Compact Size

Applications

- Test and Measurement Equipment

Functional Block Diagram



Part Ordering Options

Part Number	Description	Connectors	Green Status	Product Lifecycle	Export Classification
BT-0025	Bias Tee	Standard	RoHS REACH REACH	Released	EAR99

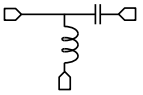
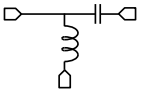
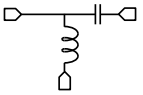
Table Of Contents

Revision History

Revision Code	Revision Date	Comment
A	2019-09-01	RoHS Compliant Assembly

Port Configuration and Functions

Port Functions

Port	Function	Connector Type	Description	Equivalent Circuit for Package
Common	RF+DC	SMAF	This port is DC blocked to the RF port and DC connected to the DC port through an internal RF choke.	
DC	DC	SMAF	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	SMAF	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
Weight	-	10g
Dimensions	-	11.94 x 11.94 mm

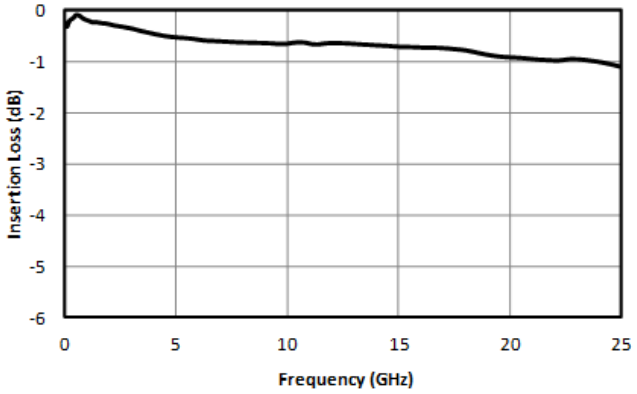
Electrical Specifications

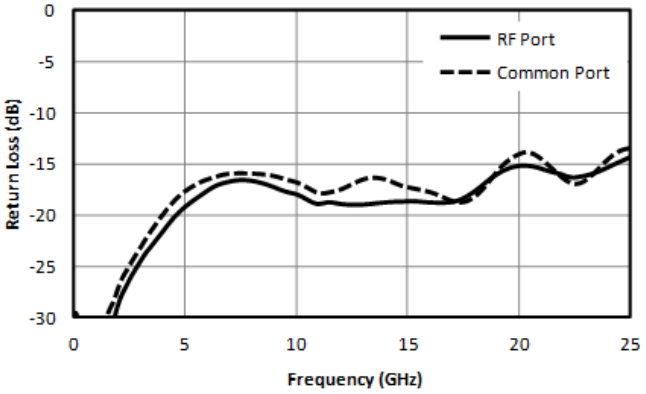
Specifications guaranteed from -55 to +100°C, measured in a 50Ω system.

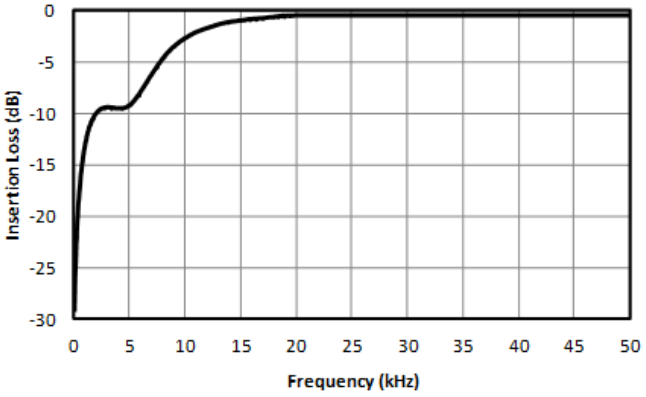
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Capacitance	-	0.00004	25	-	1.1	-	µF
DC Port Isolation	-	0.00004	25	-	35	-	dB
DC Resistance	-	0.00004	25	-	6	-	Ω
Inductance	-	0.00004	25	-	1000	-	µH
Insertion Loss	-	0.00004	25	-	0.8	1.8	dB
Return Loss	-	0.00004	25	-	16	-	dB
Risetime/Falltime [1]	-	0.00004	25	-	11	-	ps

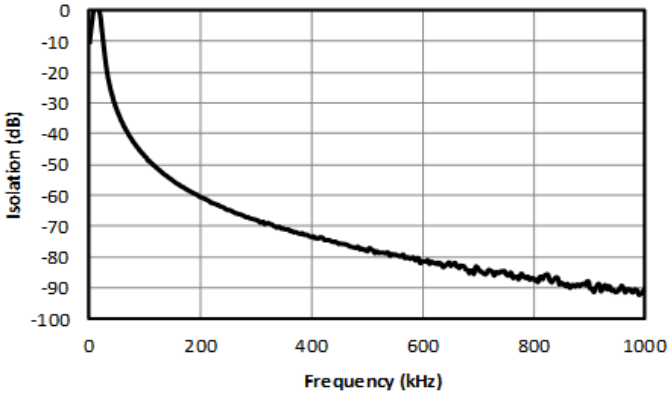
[1] Specified as 90%/10%. Calculated from $\square_{bt}^2 = (\square_{out}^2 - \square_{in}^2)$

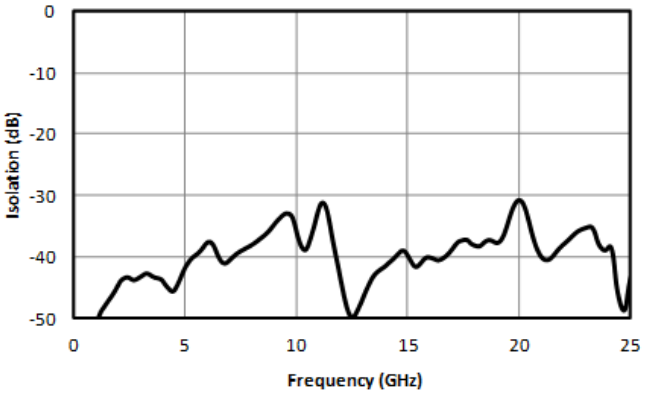
Typical Performance Plots

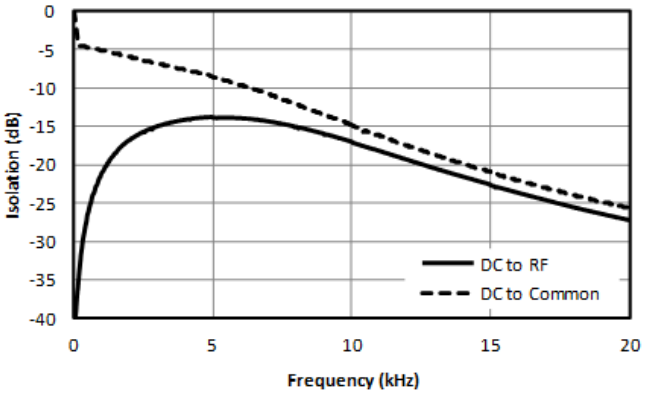


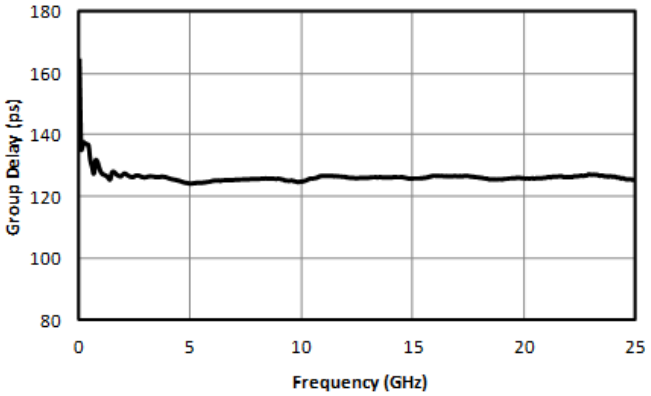


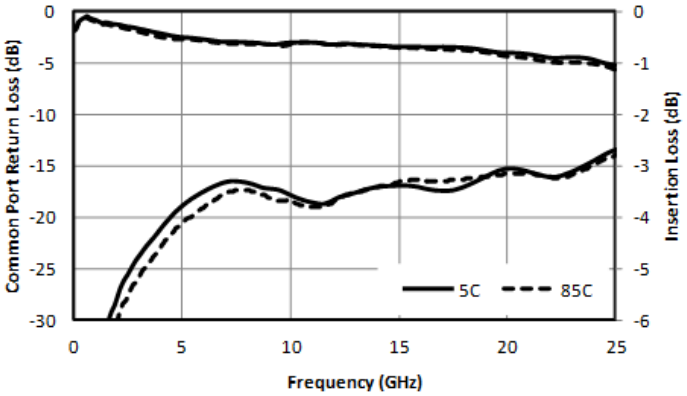






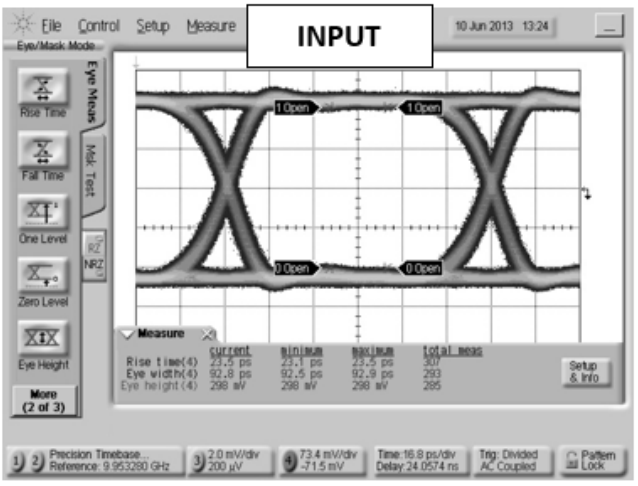


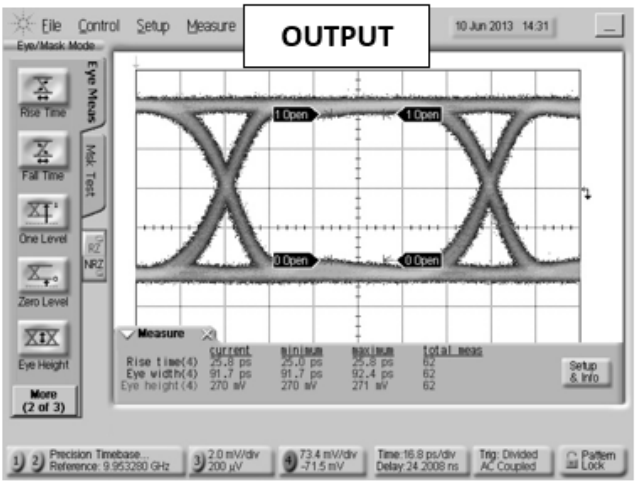




Time Domain Performance Plots

Oscilloscope measurements of the BT-0025 with a 10Gb/s PRBS pattern. Eye diagrams are taken with a 2^{31}-1 PRBS input demonstrating minimal eye distortion/closure afforded by the extremely low frequency operation of the bias tee.





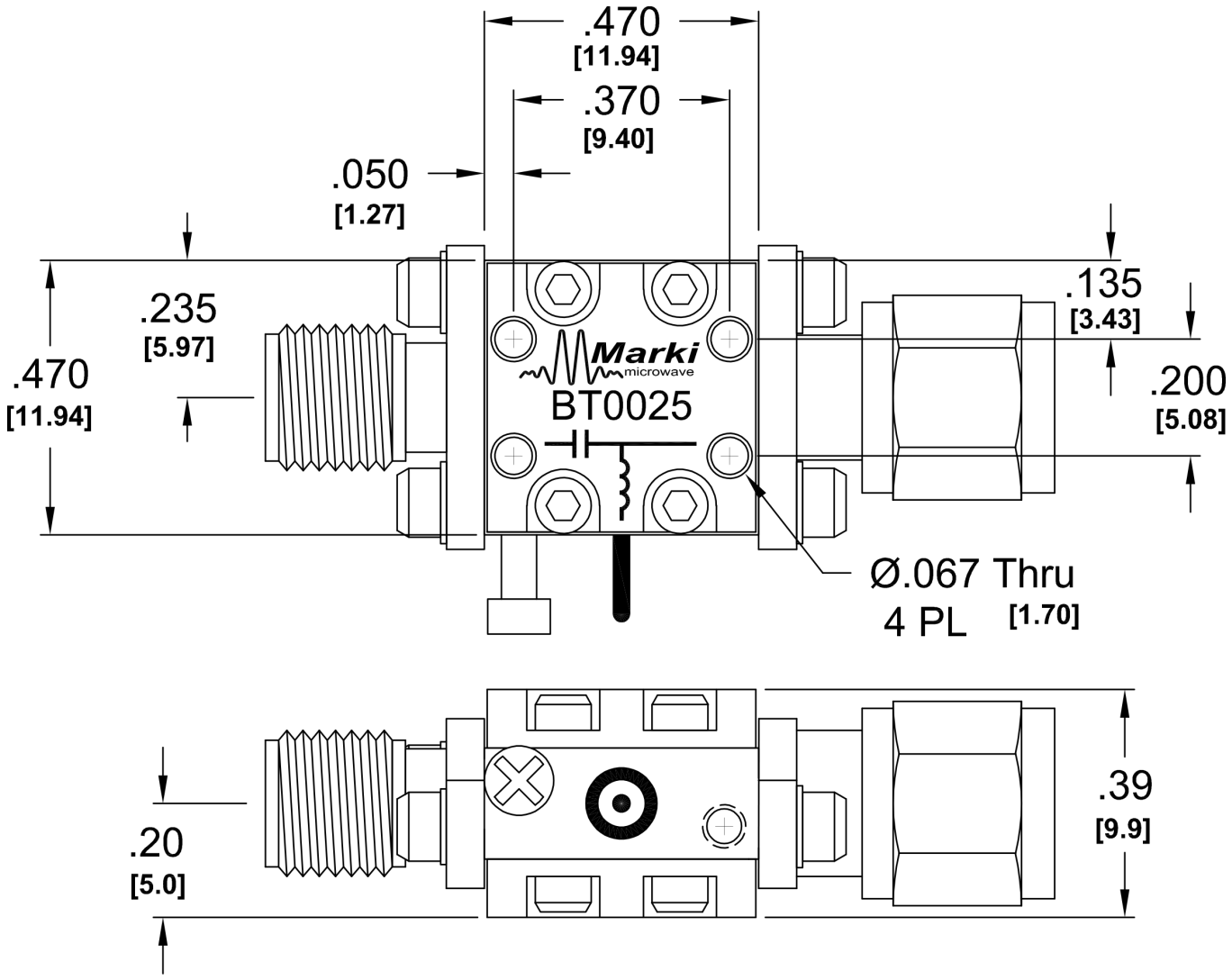
Application Information


Bt 0025 Example Schematics of a Broadband Microwave Amplifier Biasing, B LASER Led Biasing for Data Communication and C Mach Zender Modulator Biasing for Data Communication

Example Schematics of a) Broadband Microwave Amplifier Biasing, b) Laser/LED Biasing for Data Communication and c) Mach-Zender Modulator Biasing for Data Communication

Mechanical Data

Outline Drawing



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