Sales: 408-778-9952 | General: 408-778-4200 | Fax: 408-778-4300
Sales & Customer Support: sales@markimicrowave.com
Tech Support: support@markimicrowave.com

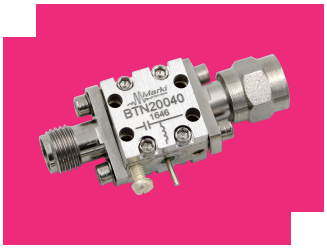
BTN2-0040

High Power Bias Tee

DEVICE OVERVIEW

General Description

The BTN2-0040 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 BTN2-0040 is a superior option in terms of performance, reliability and ease-of-use when compared to cumbersome user-designed bias tees employing off-the-shelf conical inductors. The extremely low cutoff and resonance free operation makes the BTN2-0040 suitable for biasing amplifiers, lasers, and modulators driven with high frequency data patterns.



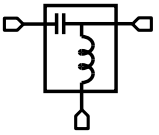
Features

- Broadband: 3 MHz to 40 GHz
- Low Insertion Loss
- High Power
- 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
BTN2-0040	High Power Bias Tee	Standard	REACH RoHS	Released	EAR99

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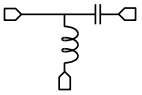
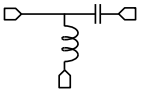
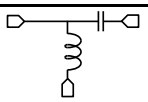
Revision History

Revision Code	Revision Date	Comment
C	2020-10-01	Added Performance plots vs Bias Current

Port Configuration and Functions

Port Functions

Port	Function	Connector Type	Description	DC Equivalent Circuit
Common	RF+DC	2.92M	This port is DC blocked to the RF port and DC connected to the DC port trough 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	2.92F	This port is internally DC blocked to the RF+DC and DC ports.	

Specifications

Absolute Maximum Ratings

Parameter	Maximum Rating	Unit
DC Current	2	A
DC Voltage	50	V
Maximum Storage Temperature	125	°C
Minimum Storage Temperature	-65	°C
RF Power Handling	10	W
Minimum Operating Temperature	-55	°C
Maximum Operating Temperature	100	°C

Package Information

Parameter	Details	Rating
Weight	-	10g
Dimensions	-	11.94 x 11.94 mm

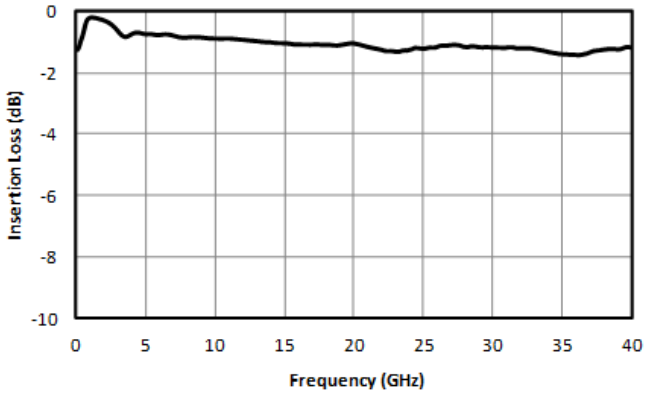
Electrical Specifications

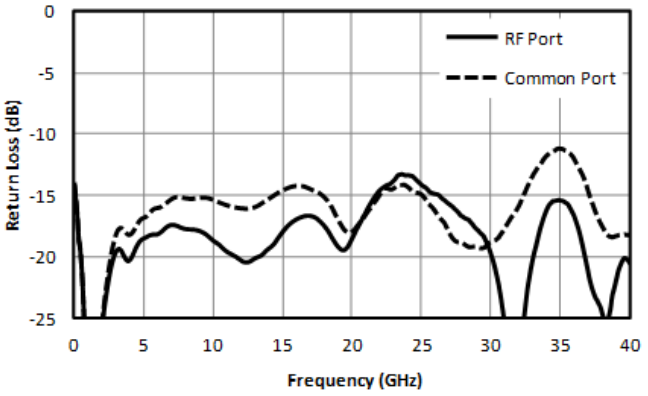
Specifications guaranteed at +25C, measured in a 50-Ohm system

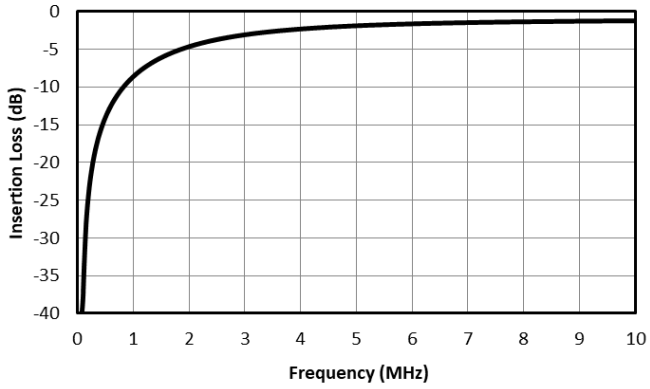
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Capacitance	-	-	-	-	100	-	nF
DC Port Isolation	-	0.003	1	-	50	-	dB
DC Port Isolation	-	1	40	-	30	-	dB
DC Resistance	-	-	-	-	0.3	-	Ω
Inductance	-	-	-	-	4.7	-	µH
Insertion Loss	-	0.003	0.1	-	2	-	dB
Insertion Loss	-	0.01	40	-	1.5	2.2	dB
Return Loss	-	0.003	40	-	13	-	dB
Risetime/Falltime [1]	-	-	-	-	10	-	ps

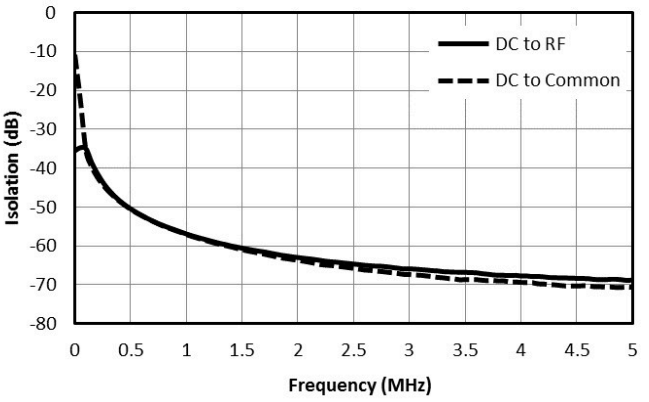
[1] $\square_{bt}^2 = (\square_{out}^2 - \square_{in}^2)$

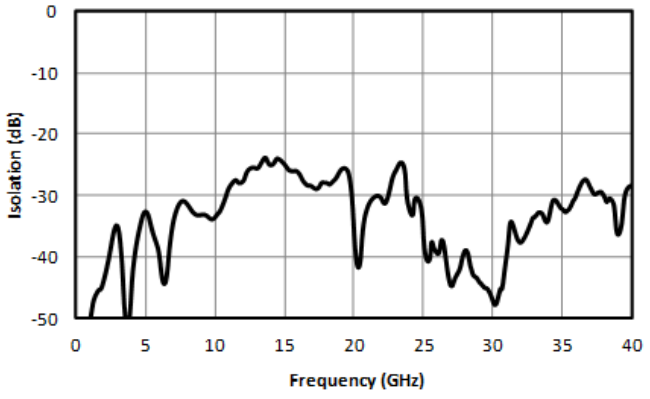
Typical Performance

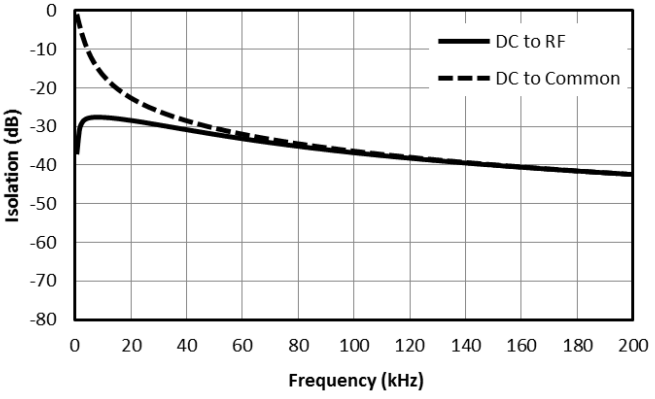


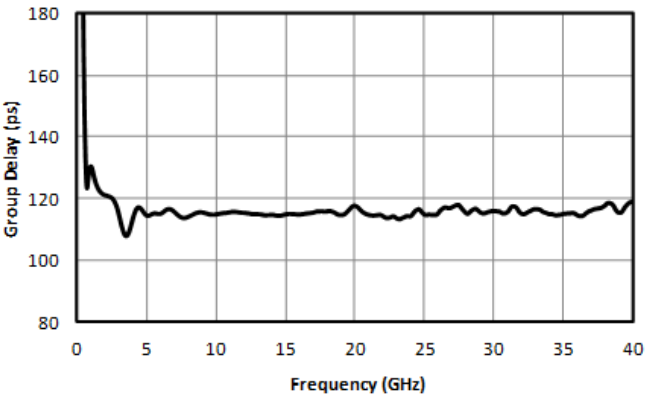


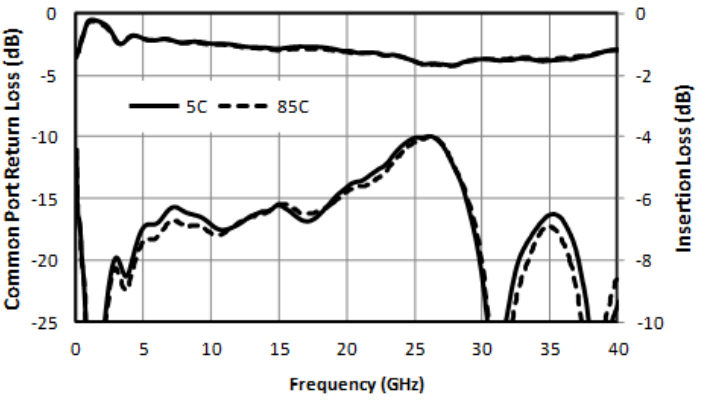




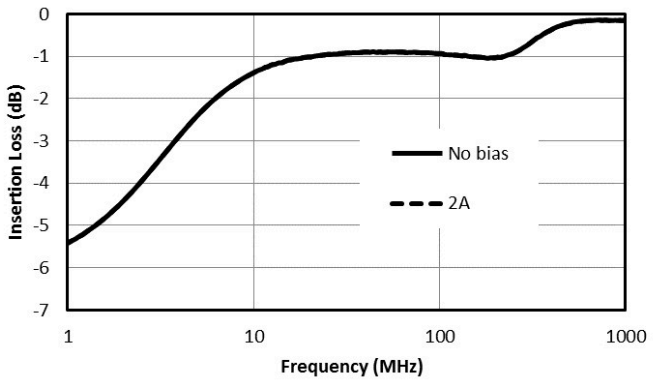


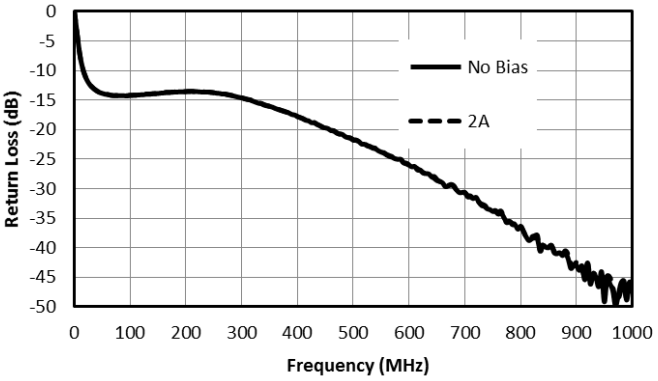


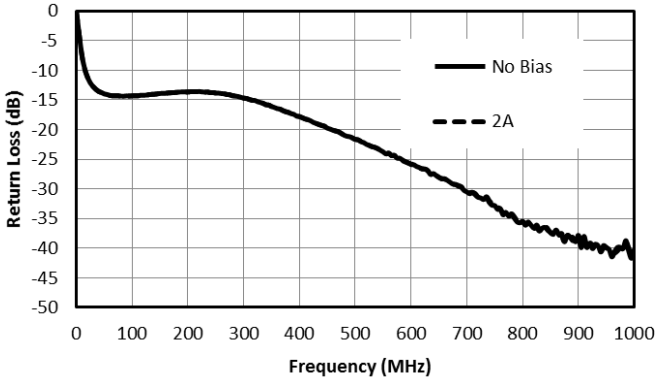




Typical Performance vs Bias Current at Low frequencies

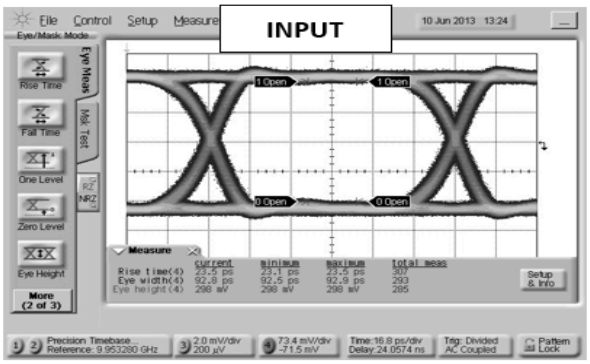


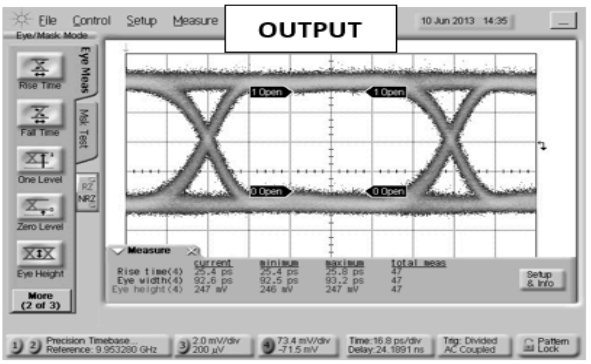




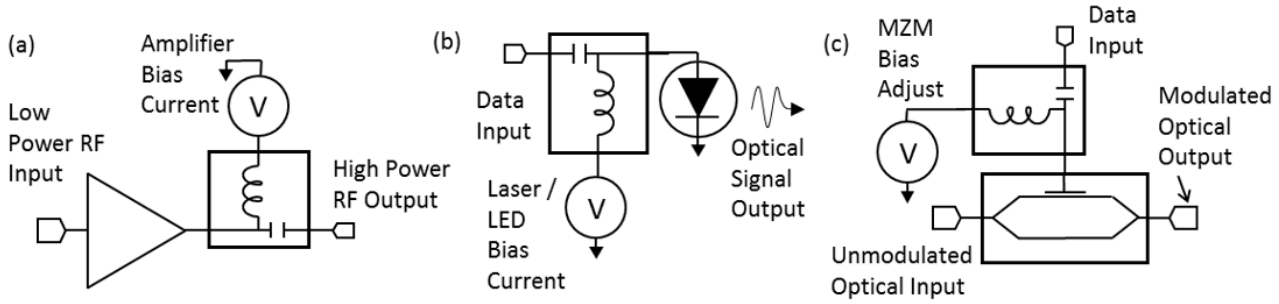
Time Domain Plots

Oscilloscope measurements of the BTN2-0040 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

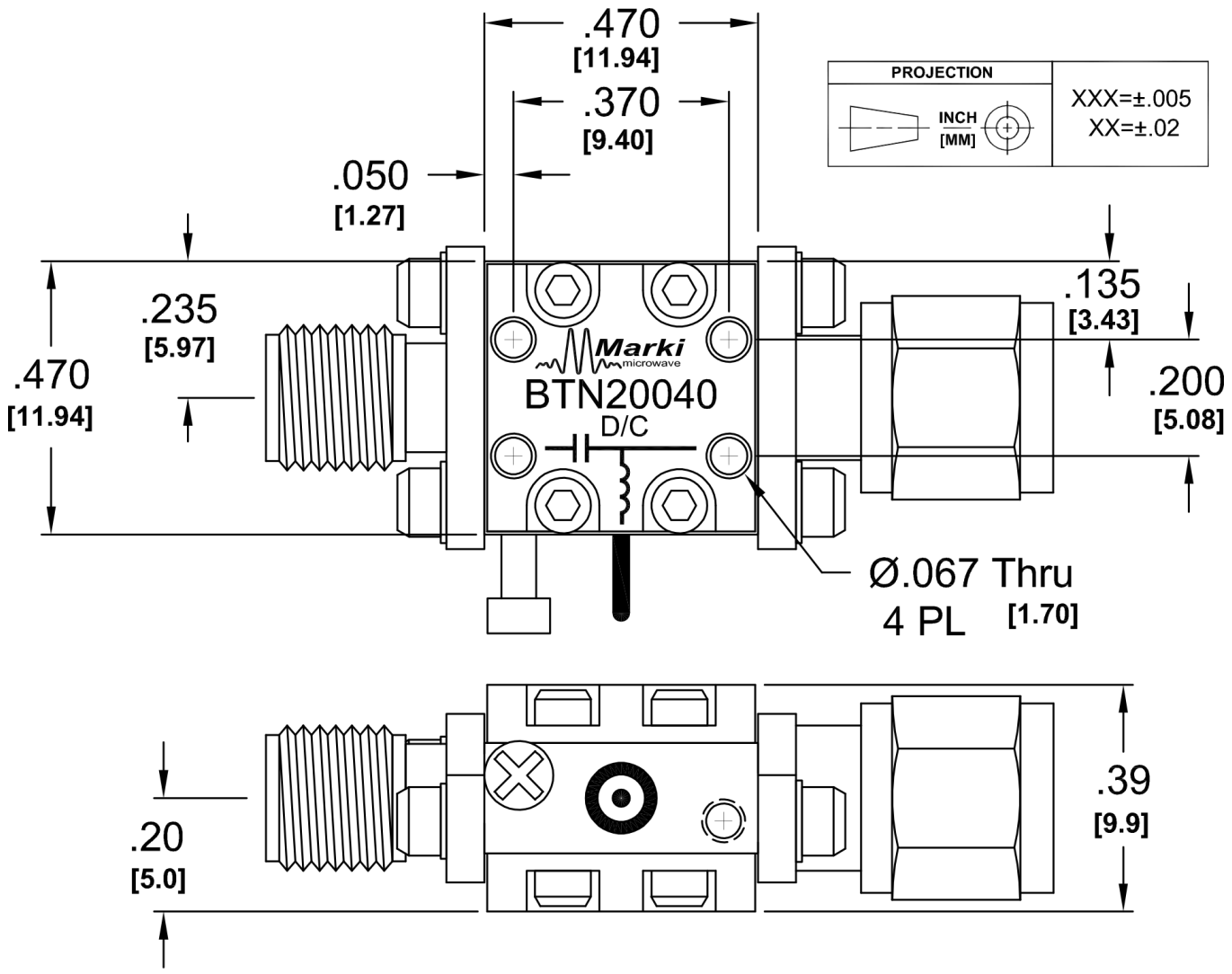


Example Schematics of a) Broadband Microwave Amplifier Biasing, b) Laser/LED Biasing for Data Communication and c) Mach-Zender Modulator Biasing for Data Communication

Mechanical Data

Outline Drawing

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



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