LEAD-FREE / RoHS-COMPLIANT

BIAS TEE

BT-0018

The BT-0018 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-0018 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-0018 suitable for biasing amplifiers, lasers, and modulators driven with high frequency data patterns.

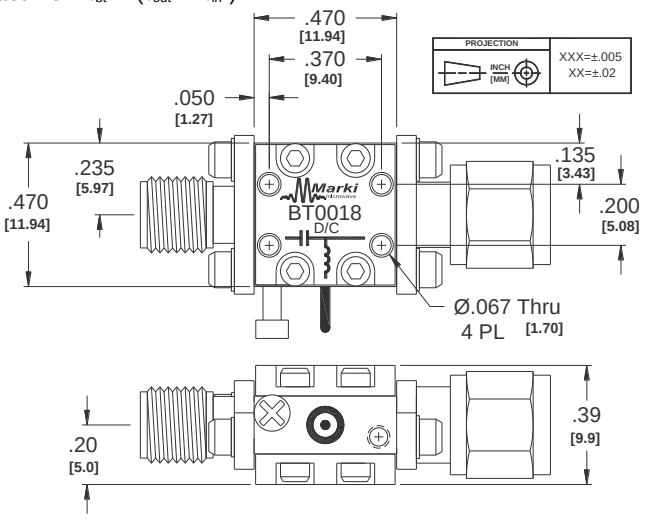
Features

- Broadband: 40 kHz to 18 GHz
- Low Insertion Loss
- Non-Resonant
- Compact Size

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

Parameter	Frequency Range	Min	Typ	Max
Insertion Loss (dB)	40 kHz-18 GHz		0.6	1.5
DC Port Isolation (dB)			35	
Return Loss (dB)			16	
RF Power (W)				1
DC Current (mA)				500
DC Voltage (V)				30
DC Resistance (Ω)			6	
Inductance (uH)			1000	
Capacitance (uF)			1.1	
Weight (g)			10	
Risetime/Falltime (ps)[1]			13	

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



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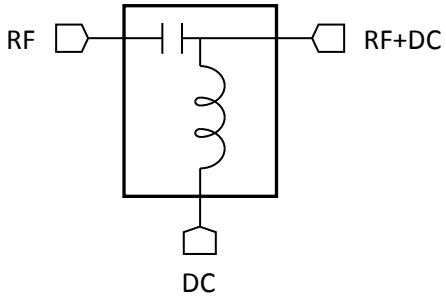
Schematic



Application Examples

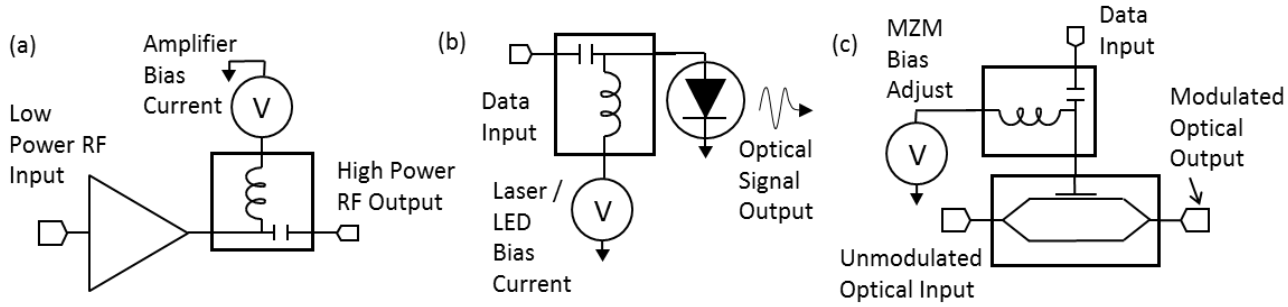


Fig. 1. Example Schematics of a) Broadband Microwave Amplifier Biasing, b) Laser/LED Biasing for Data Communication and c) Mach-Zender Modulator Biasing for Data Communication

Typical Performance

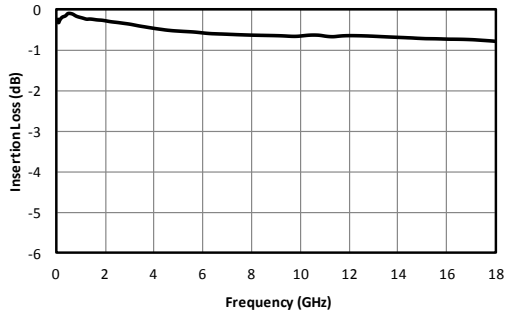


Fig. 2. RF insertion loss.

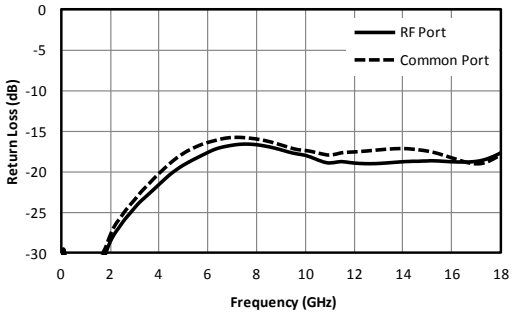


Fig. 3. Return loss.

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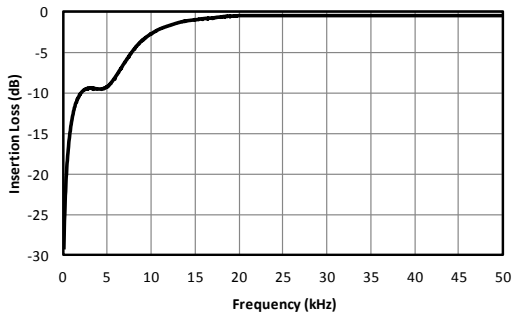

Fig. 4. Low frequency RF response.

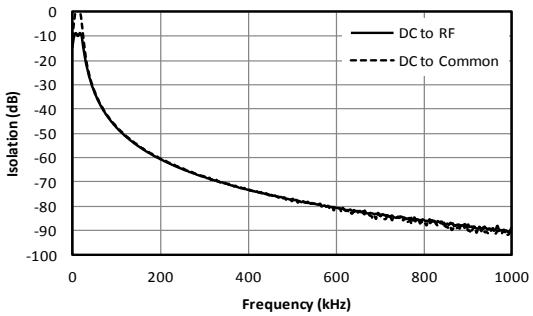

Fig. 5. Low frequency isolation.

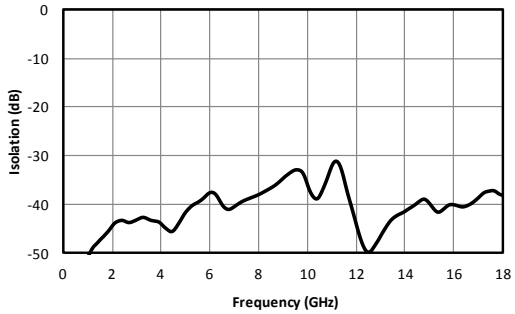

Fig. 6. DC-RF isolation.

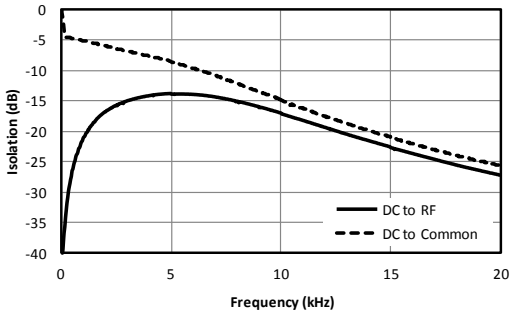

Fig. 7. Near DC isolation

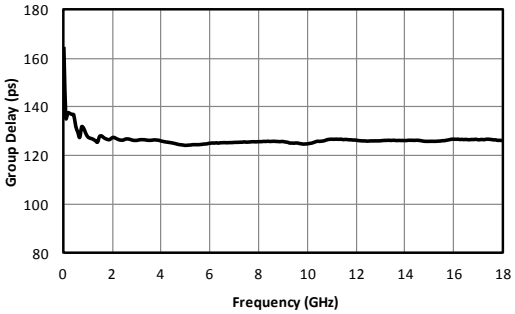

Fig. 8. Group delay.

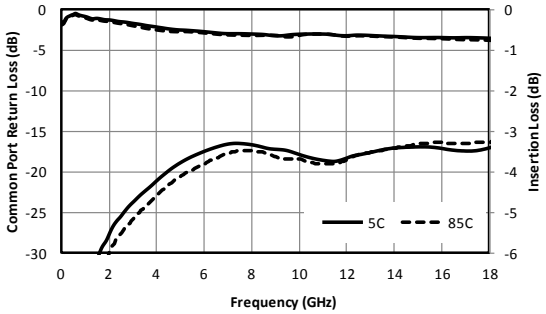

Fig. 9. Performance over temperature

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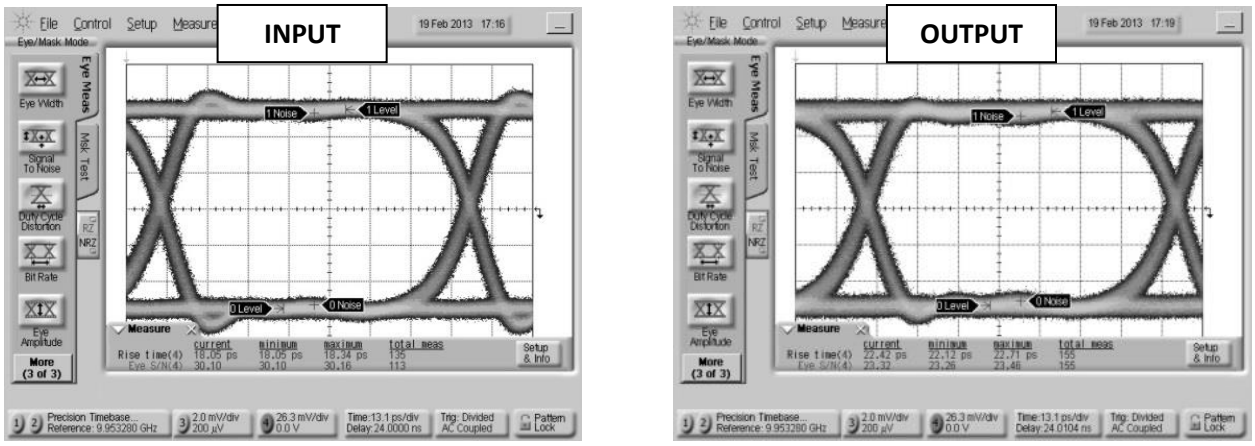

Fig. 7. Oscilloscope measurements of the BT-0018 with a 10Gb/s PRBS pattern. Eye diagrams are taken with a 2^{31}-1 PRBS input demonstrating minimal eye distortion/closure afforded by the extremely low frequency operation of the bias tee.

Model Number	Description
BT-0018	40 kHz to 18 GHz Bias Tee with SMA connectors[1], LEAD-FREE/RoHS COMPLIANT

[1]Consult factory for other connector options.

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Revision History

Revision code	Revision Date	Comment
A	September 2019	RoHS Compliant Assembly

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