LEAD-FREE / RoHS-COMPLIANT

BIAS TEE BT-0026

The BT-0026 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-0026 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-0026 suitable for biasing amplifiers, lasers, and modulators driven with high frequency data patterns.

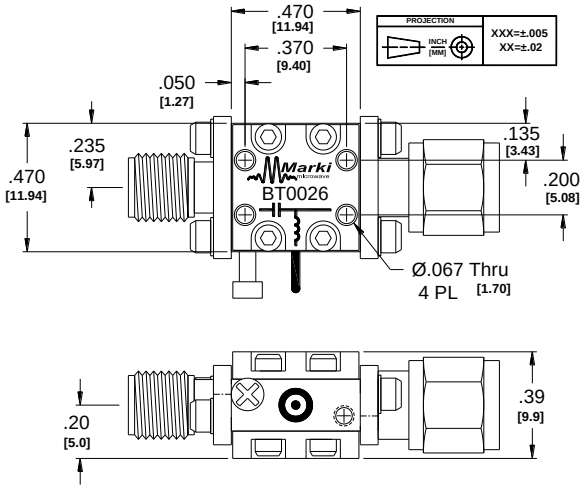
Features

- Broadband: 10 MHz to 26 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)	10 MHz-26 GHz		0.8	1.8
DC Port Isolation (dB)			30	
Return Loss (dB)			16	
RF Power (W)				1
DC Current (mA)				500
DC Voltage (V)				30
DC Resistance (Ω)			1	
Risetime/Falltime (ps)[1]			11	

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



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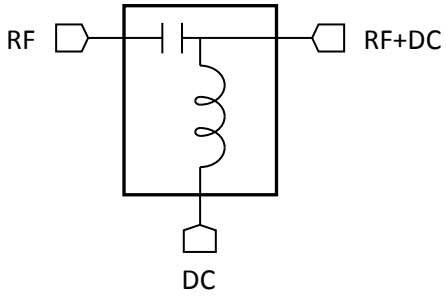
Schematic



Application Examples

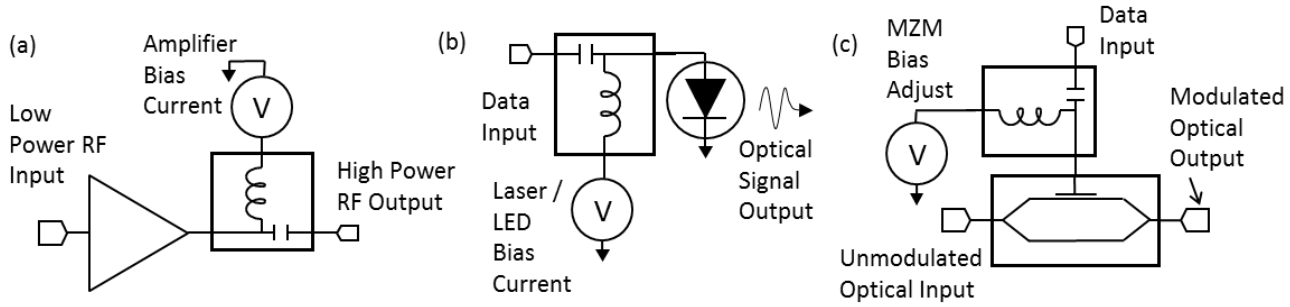


Fig. 1. Example Schematics of a) Broadband Microwave Amplifier Biasing, b) Laser/LED Biasing for Data Communication and c) Mach-Zender Modulator Biasing for Data Communication

Typical Performance

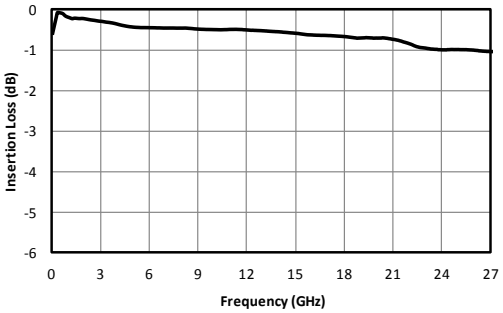


Fig. 2. RF insertion loss.

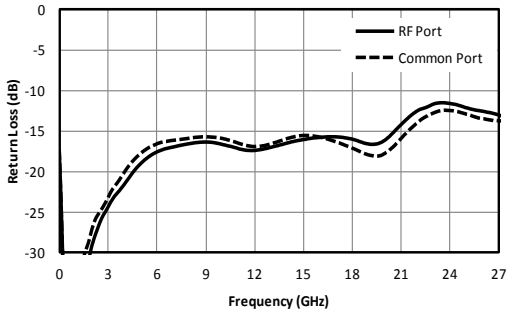


Fig. 3. Return loss.

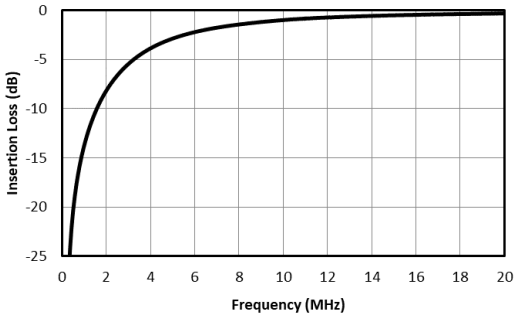


Fig. 4. Low frequency RF response.

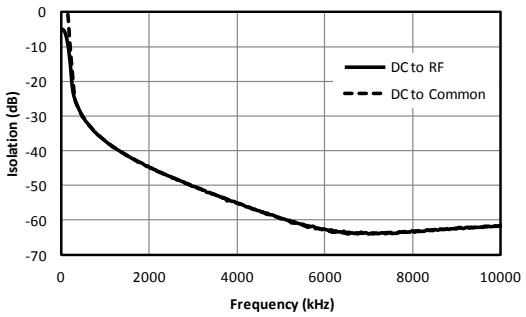


Fig. 5. Low end isolation.

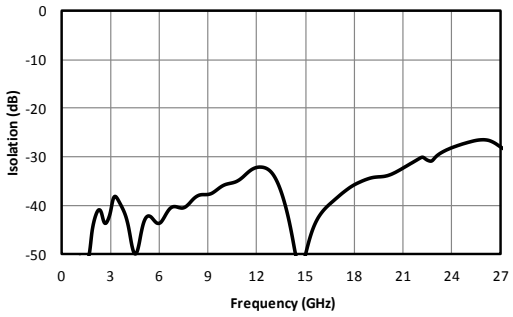


Fig. 6. DC-RF isolation.

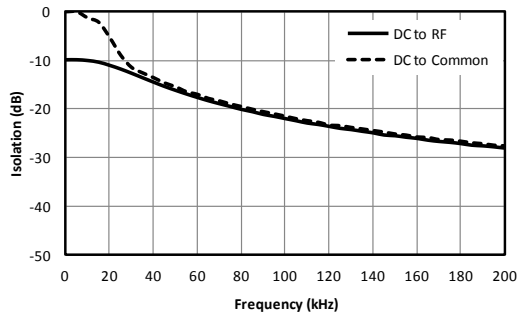


Fig. 7. Near DC isolation

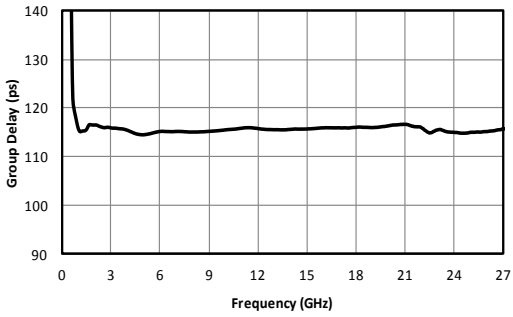


Fig. 8. Group delay.

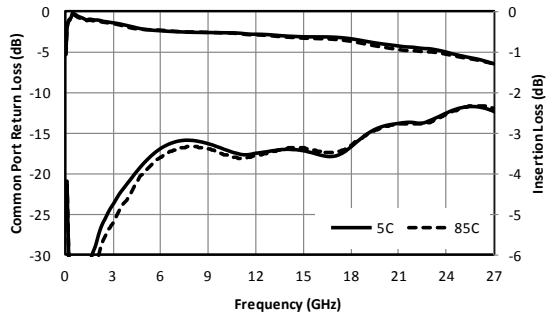


Fig. 9. Performance over temperature

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Typical Performance vs Bias Current at Low frequencies

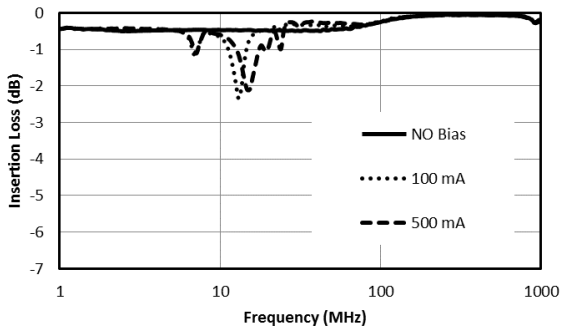

Fig. 10. Insertion Loss vs Bias Current.

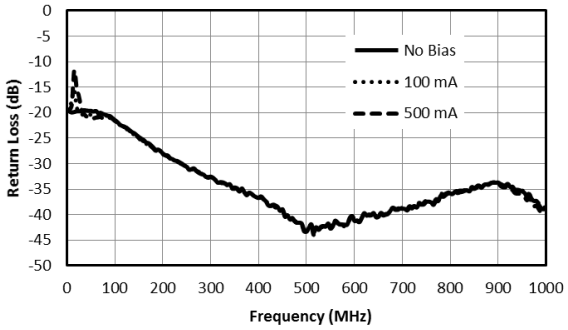

Fig. 11. Common Return Loss vs Bias Current.

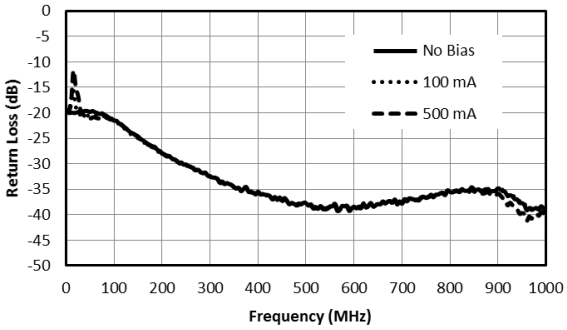

Fig. 12. RF Return Loss vs Bias Current.

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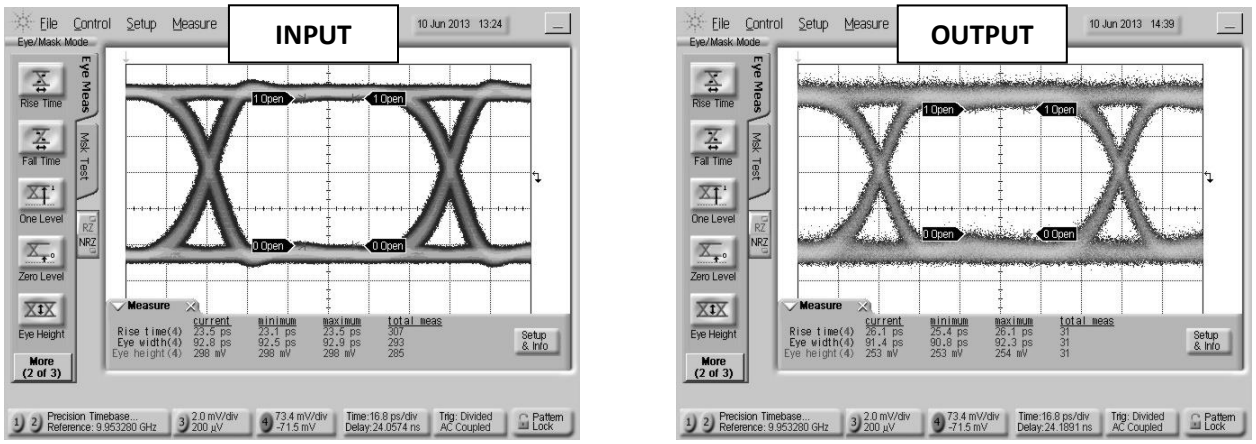

Fig. 13. Oscilloscope measurements of the BT-0026 with a 10Gb/s PRBS pattern. Eye diagrams are taken with a 2^{31}-1 PRBS input demonstrating minimal eye distortion/closure afforded by the extremely low frequency operation of the bias tee.

Model Number	Description
BT-0026	10 MHz to 26 GHz Bias Tee with SMA connectors[1]

[1]Consult factory for other connector options.

Revision History

Revision code	Revision Date	Comment
C	June 2021	Update Low frequency RF response