

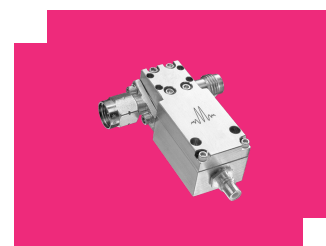
## BT1-0026

### High Power Bias Tee

## DEVICE OVERVIEW

### General Description

The BT1-0026 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 BT1-0026 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 BT1-0026 suitable for biasing amplifiers, lasers, and modulators driven with high frequency data patterns.



[Download s-parameters here](#)

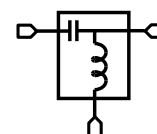
### Features

- Broadband: 200 kHz to 26.5 GHz
- Low Insertion Loss
- High Power
- Non-Resonant
- Compact Size

### Applications

- Test and Measurement Equipment

### Functional Block Diagram



### Part Ordering Options

| Part Number | Description         | Package | Packing Size | Green Status | Product Lifecycle | Export Classification |
|-------------|---------------------|---------|--------------|--------------|-------------------|-----------------------|
| BT1-0026    | High Power Bias Tee | -       | -            | RoHS         | Released          | EAR99                 |

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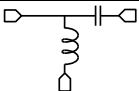
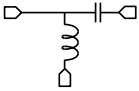
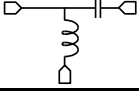
|                                           |                                                        |
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## Revision History

| Revision Code | Revision Date | Comment                                    |
|---------------|---------------|--------------------------------------------|
| -             | 2012-09-01    | Datasheet Initial Release                  |
| A             | 2019-02-01    | Corrected Low Frequency plots              |
| B             | 2020-04-01    | Performance vs Bias current plots          |
| C             | 2020-06-01    | Updated Outline Drawing                    |
| D             | 2021-03-01    | Updated Spec Table and Low Frequency Plots |

## Port Configuration and Functions

### Port Functions

| Port   | Function | Description                                                                                                             | Equivalent Circuit for Package                                                      |
|--------|----------|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 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 | 1              | A    |
| DC Voltage | 50             | V    |
| RF Power   | 10             | W    |

### Package Information

| Parameter  | Details | Rating           |
|------------|---------|------------------|
| Weight     | -       | 23.5g            |
| Dimensions | -       | 15.24 x 36.07 mm |

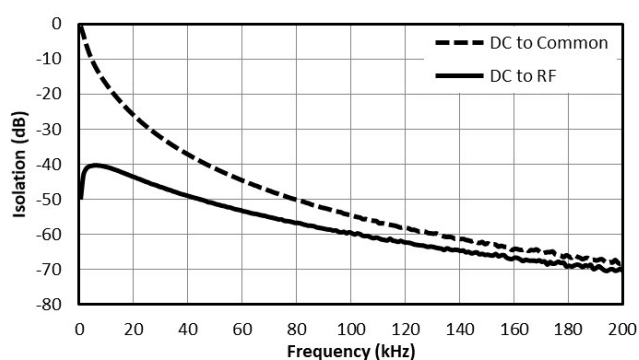
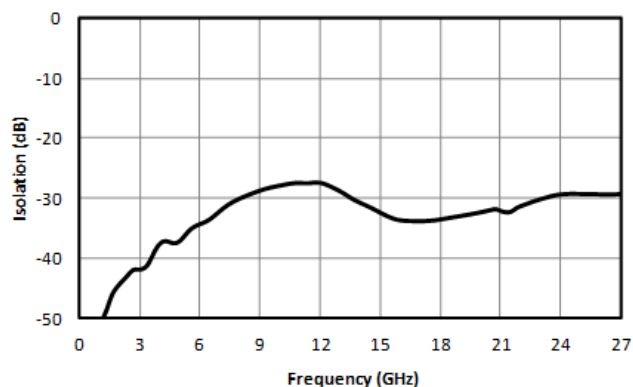
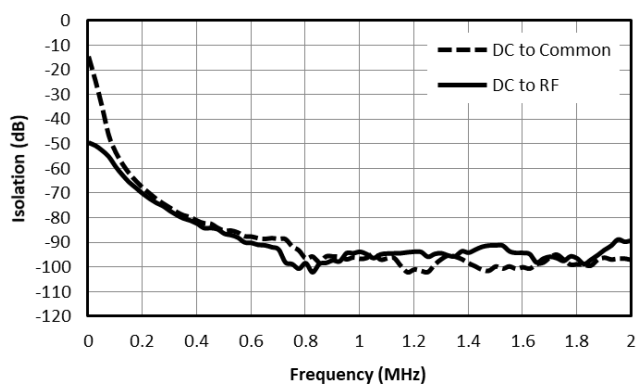
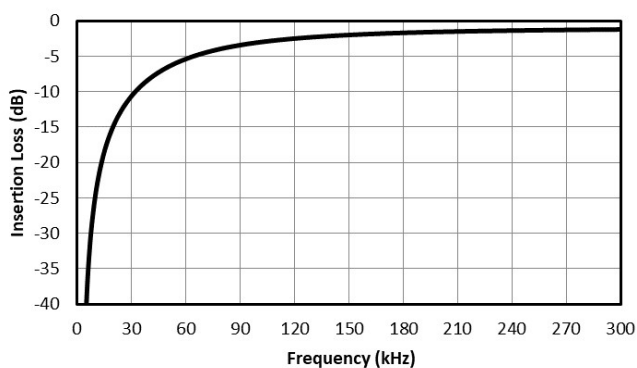
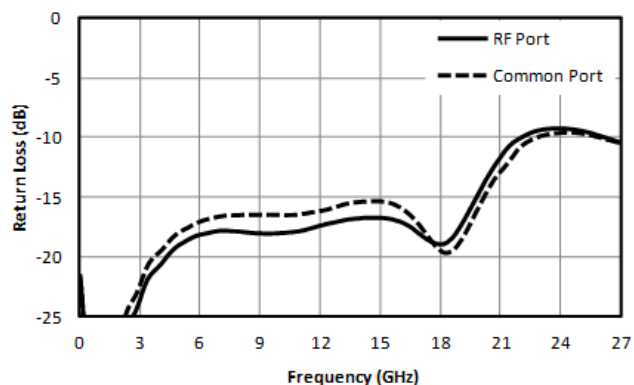
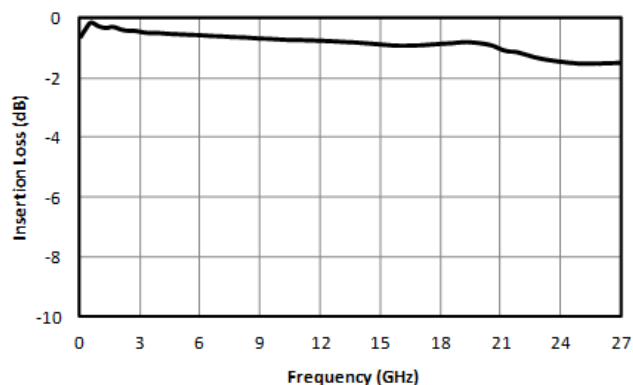
### Electrical Specifications

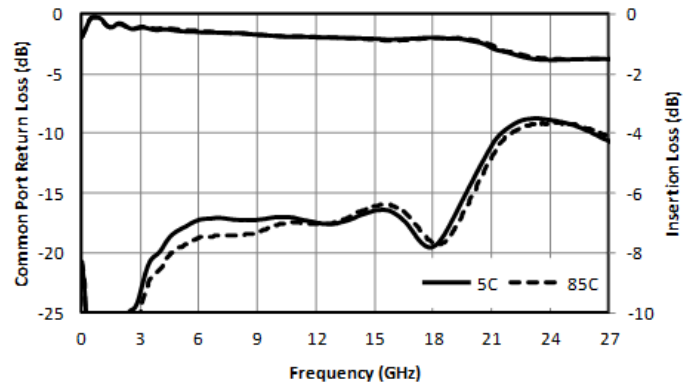
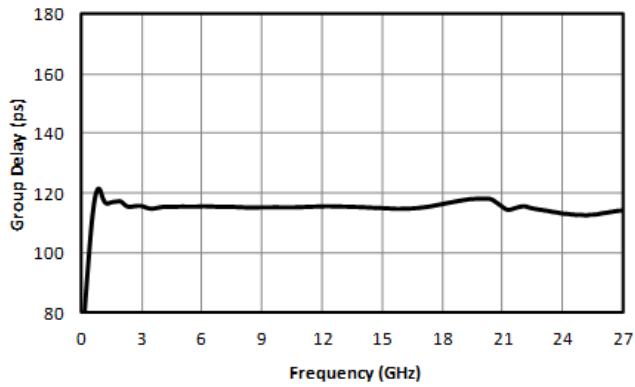
Specifications guaranteed from -55 to +100°C, measured in a 50Ω system.

| Parameter                      | Test Conditions | Minimum Frequency (GHz) | Maximum Frequency (GHz) | Min | Typ | Max | Unit |
|--------------------------------|-----------------|-------------------------|-------------------------|-----|-----|-----|------|
| Capacitance                    | -               | -                       | -                       | -   | 100 | -   | nF   |
| DC Port Isolation              | -               | 1                       | 26.5                    | -   | 30  | -   | dB   |
| DC Port Isolation              | -               | 0.0002                  | 1                       | -   | 50  | -   | dB   |
| DC Resistance                  | -               | -                       | -                       | -   | 1   | -   | Ω    |
| Inductance                     | -               | -                       | -                       | -   | 330 | -   | μH   |
| Insertion Loss                 | -               | 0.0003                  | 26.5                    | -   | 1   | 2   | dB   |
| Insertion Loss                 | -               | 0.0002                  | 0.0003                  | -   | 2   | -   | dB   |
| Return Loss                    | -               | 0.0002                  | 26.5                    | -   | 14  | -   | dB   |
| Risetime/Falltime <sub>1</sub> | -               | -                       | -                       | -   | 10  | -   | ps   |

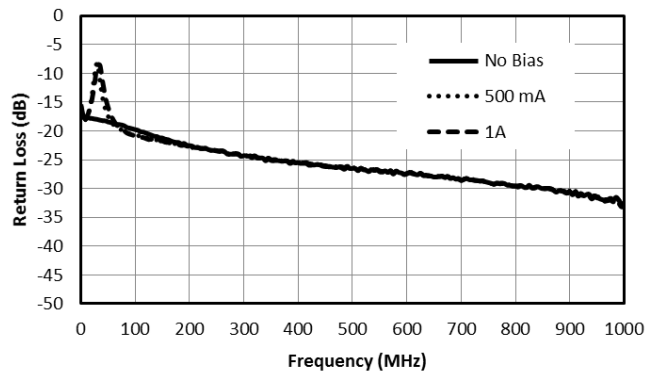
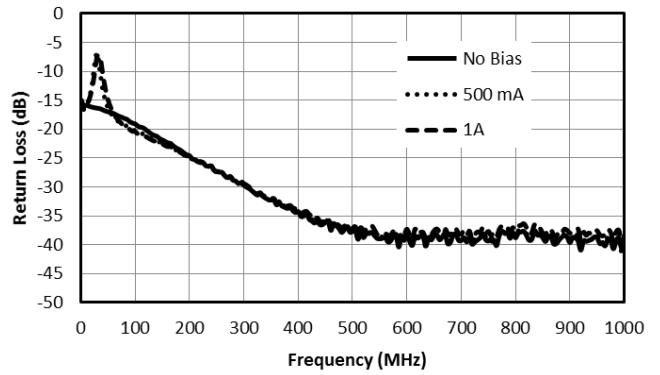
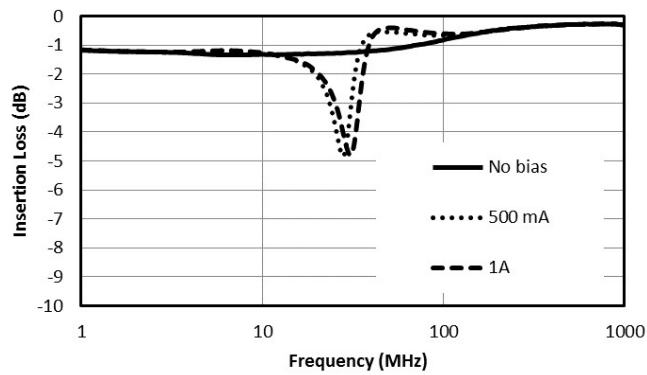
<sup>[1]</sup> Specified as 90%/10%. Calculated from  $\tau_{bt}^2 = (\tau_{out}^2 - \tau_{in}^2)$

## Typical Performance Plots

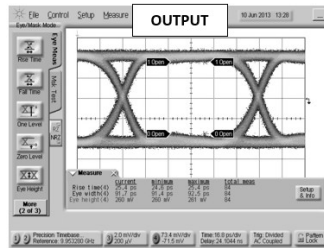
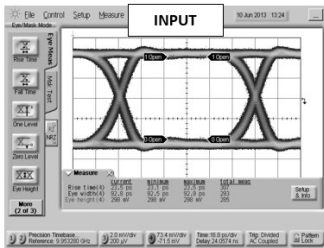




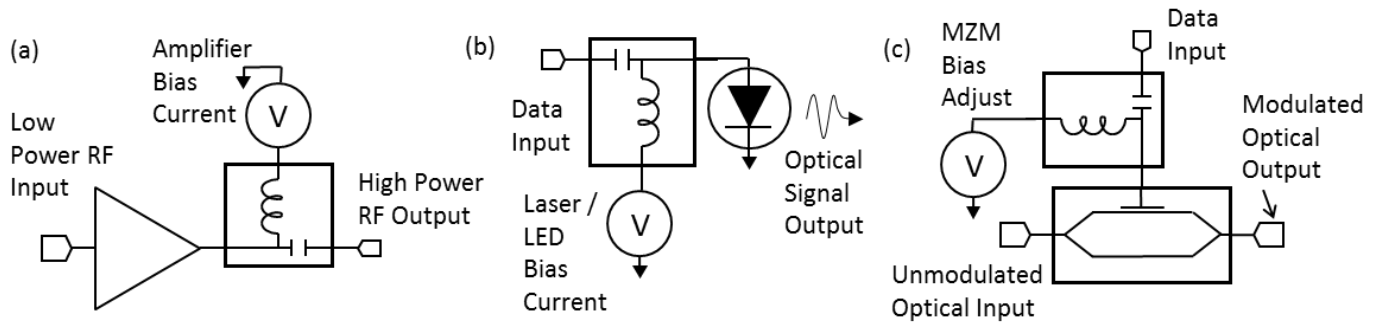
### Typical Performance vs Bias Current at Low frequencies



## Time Domain Performance Plots



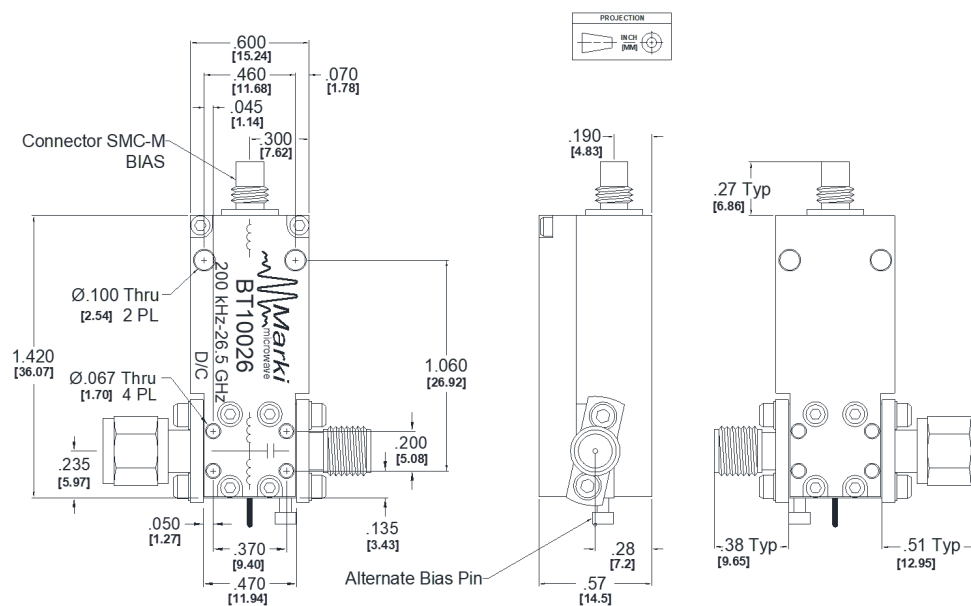
## Application Information



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



| Port                                          | Connector Type |
|-----------------------------------------------|----------------|
| Bias                                          | SMA Male       |
| RF in                                         | SMA Female     |
| Note: Bias-Tee Connectors are not removeable. |                |

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