

## LEAD-FREE / RoHS-COMPLIANT

### MINIATURE SURFACE-MOUNT BIAS-TEE

**BTL-0012SMG**

#### Features

- Frequency Range: 500 kHz to 12 GHz
- Frequency Range with [External Coil](#): 5 kHz to 12 GHz
- 1 Watt RF Power Handling
- DC Current 500 mA
- Miniature Surface Mount Package
- Lead Free Assembly
- [Reflow Solderable](#)

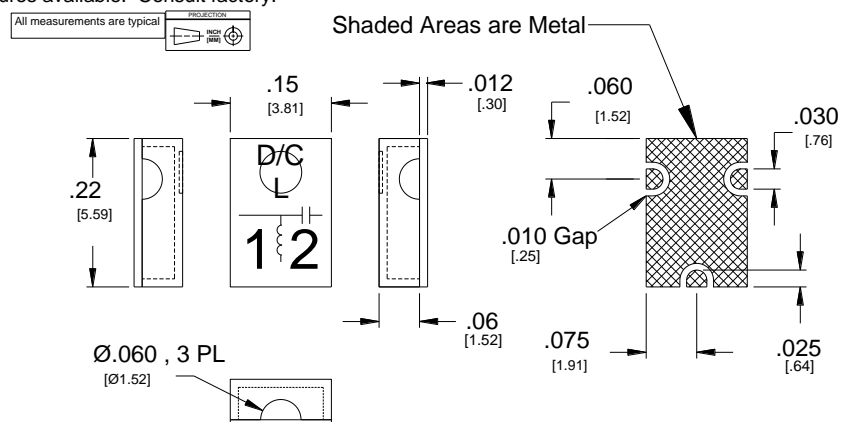


**Electrical Specifications** - Specifications guaranteed from -55 to +100°C, measured in a 50-Ohm system

| Parameter              | Frequency Range   | Min | Typ  | Max |
|------------------------|-------------------|-----|------|-----|
| Insertion Loss (dB)    | 500 kHz to 5 MHz  |     | 1    | 6   |
|                        | 5 MHz to 12 GHz   |     | 0.5  | 1.5 |
| DC Current (mA)        | 500 kHz to 12 GHz |     |      | 500 |
| DC Resistance (Ohms)   |                   |     | <1.5 |     |
| Capacitance (uF)       |                   |     | 1    |     |
| Inductance (uH)        |                   |     | 17   |     |
| DC Port Isolation (dB) |                   |     | 35   |     |
| DC Voltage Maximum (V) |                   |     |      | 30  |
| RF Power Maximum (W)   |                   |     |      | 1   |

| Model <sup>1</sup>             | Description   |
|--------------------------------|---|
| BTL-0012SMG-1<br>BTL-0012SMG-2 | 500 kHz - 12 GHz Bias Tee, Surface Mount, <b>LEAD-FREE/RoHS COMPLIANT</b> |

<sup>1</sup>Default is -2 when not specified.  
Connectorized test fixtures available. Consult factory.



Substrate material is 12-mil thick Rogers 4003, ½ Oz Electrodeposited Cu both sides.  
ENIG, Gold 2-8 μ-inches, over solderable electroplated nickel, 100-200 μ-inches per QQ-N-290A  
[Click here for suggested PCB layout.](#)

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## Typical Performance

Insertion Loss data was taken with de-embedding of connectors and traces. Return loss and group delay data include fixture effects.

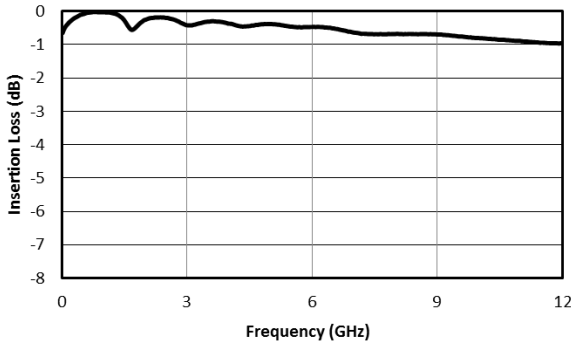


Fig. 1. Insertion loss.

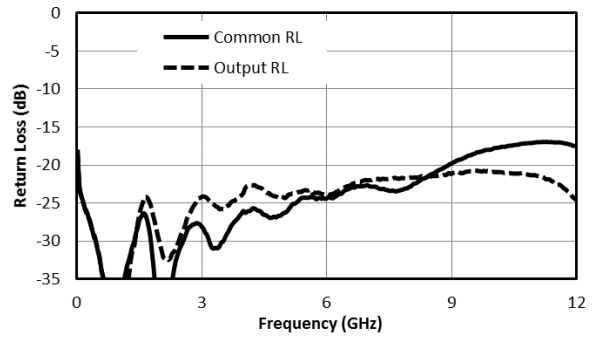


Fig. 2. Return loss

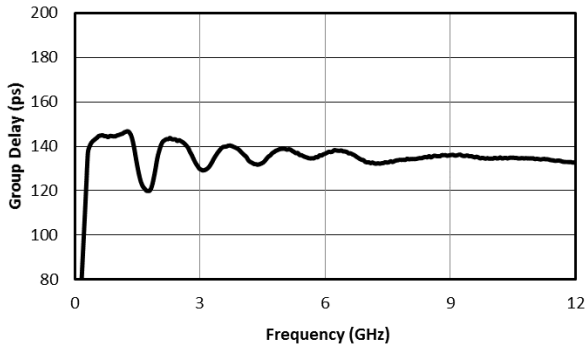


Fig. 3. Group delay

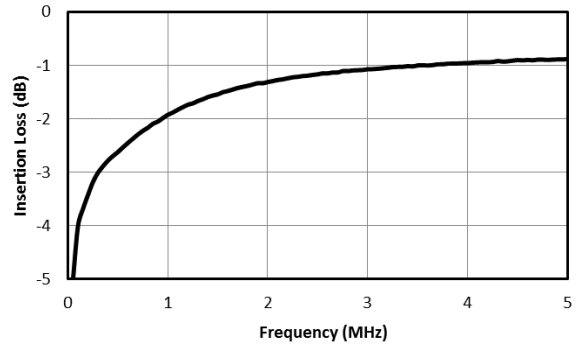


Fig. 4. Low Frequency

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## Typical Performance vs Bias Current at Low frequencies

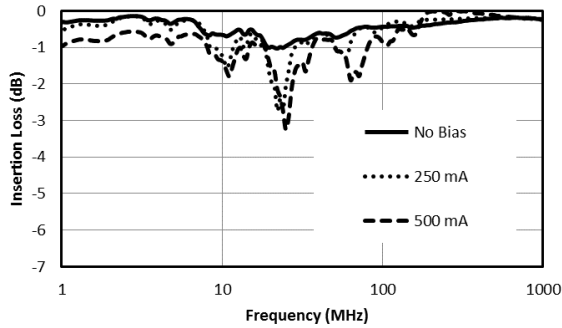


Fig. 5. Insertion loss vs Bias Current.

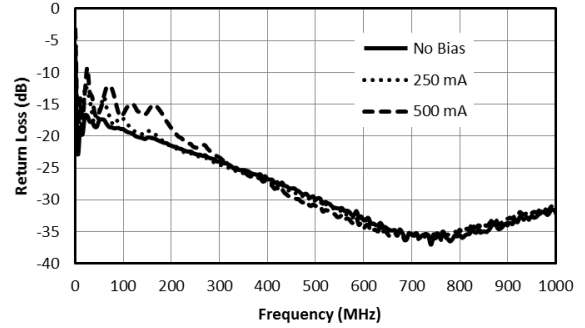


Fig. 6. Common Return Loss vs Bias Current

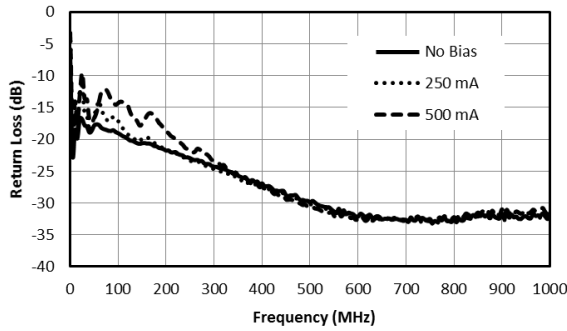


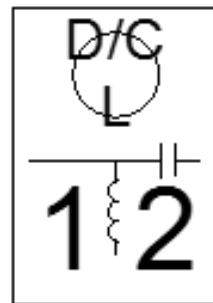
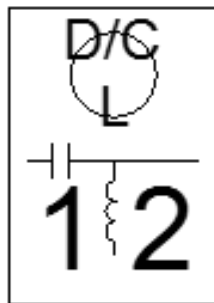
Fig. 7. RF Return Loss vs Bias Current

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**Port Configuration Option**



**BTL-0012SMG-1**

**BTL-0012SMG-2**

**Revision History**

| Revision code | Revision Date | Comment                   |
|---------------|---------------|---------------------------|
| -             | 1/2021        | Datasheet Initial Release |

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