

Coaxial Bias-Tee

50Ω Wideband 2.5 to 6000 MHz

ZNBT-60-1W+



CASE STYLE: K558

| Connectors | Model |
|------------|-------------|
| N-TYPE/BNC | ZNBT-60-1W+ |

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Maximum Ratings

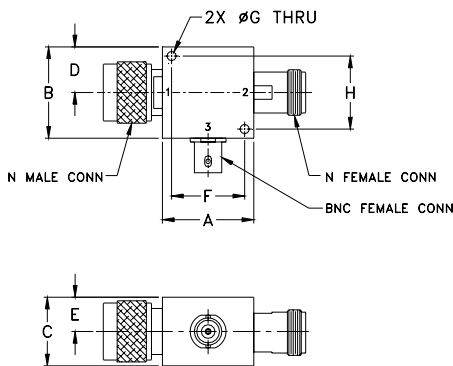
| | |
|-----------------------|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature | -55°C to 100°C |
| Input Current | 500mA |
| RF Power | 30 dBm |
| Voltage at DC Port | 30V |

Permanent damage may occur if any of these limits are exceeded.

Coaxial Connections

| | |
|-------|-------------------|
| RF | 1 (N-Type male) |
| RF&DC | 2 (N-Type female) |
| DC | 3 (BNC female) |

Outline Drawing



Outline Dimensions (inch/mm)

| A | B | C | D | E | F | G | H | wt |
|-------|-------|-------|-------|-------|-------|------|-------|-------|
| 1.25 | 1.25 | .94 | .63 | .47 | 1.00 | .125 | 1.000 | grams |
| 31.75 | 31.75 | 23.88 | 16.00 | 11.94 | 25.40 | 3.18 | 25.40 | 117.0 |

Features

- wideband coverage, 2.5 to 6000 MHz
- low insertion loss, 0.6 dB typ.
- high power, 1W & current, 0.5A

Applications

- biasing amplifiers
- biasing of laser diodes
- biasing of active antennas
- test accessory

Bias Tee Electrical Specifications

| MODEL NO. | FREQ. (MHz) | | INSERTION LOSS* (dB) | | | | | | ISOLATION*(dB) (RF port to DC port) (RF&DC port to DC port) | | | | | | VSWR** (:1) | | | | | |
|------------|-------------|------|----------------------|----------------|------|------|------|------|-------------------------------------------------------------|------|------|------|------|------|-------------|------|------|------|------|------|
| | | | L | | M | | U | | L | | M | | U | | L | | M | | U | |
| | | | f _l | f _h | Typ. | Max. | Typ. | Max. | Typ. | Max. | Typ. | Min. | Typ. | Min. | Typ. | Min. | Typ. | Max. | Typ. | Max. |
| ZNBT60-1W+ | 2.5 | 6000 | 0.2 | 0.9 | 0.6 | 2.0 | 1.6 | 2.2 | 75 | 45 | 45 | 25 | 35 | 20 | 1.1 | 1.5 | 1.1 | 1.3 | 1.35 | 1.6 |

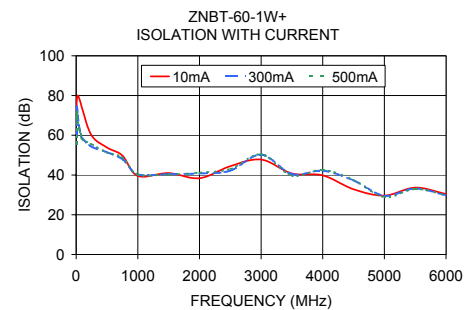
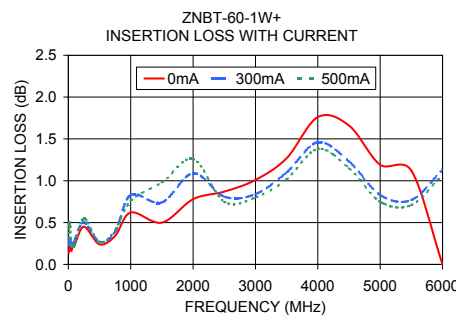
L= 2.5 - 25 MHz M= 25 - 3000 MHz U= 3000 - 6000 MHz

* Insertion Loss and Isolation are guaranteed up to 20 dBm-RF power and 200mA DC current.

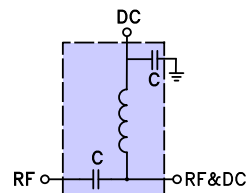
** VSWR measured with open and short at DC port.

Typical Performance Data

| Freq. (MHz) | Pin (dBm) | INSERTION LOSS (dB) with current | | | | | | | ISOLATION (dB) (Pin=-10dBm) with current | | | | | | |
|-------------|-----------|----------------------------------|-------|-------|-------|-------|-------|-------|------------------------------------------|-------|-------|-------|-------|--|--|
| | | 0mA | 100mA | 200mA | 300mA | 400mA | 500mA | 10mA | 100mA | 200mA | 300mA | 400mA | 500mA | | |
| 2.50 | 30.00 | 0.13 | 0.23 | 0.21 | 0.22 | 0.31 | 0.30 | 68.50 | 62.97 | 60.56 | 58.97 | 57.44 | 55.90 | | |
| 10.00 | 29.97 | 0.15 | 0.20 | 0.24 | 0.32 | 0.30 | 0.42 | 77.66 | 79.59 | 76.96 | 74.04 | 72.52 | 71.45 | | |
| 25.00 | 29.86 | 0.21 | 0.21 | 0.22 | 0.29 | 0.29 | 0.49 | 80.02 | 70.90 | 70.60 | 69.99 | 68.07 | 66.79 | | |
| 50.00 | 30.01 | 0.16 | 0.21 | 0.28 | 0.25 | 0.23 | 0.22 | 78.47 | 64.54 | 64.38 | 63.82 | 63.20 | 62.99 | | |
| 75.00 | 30.09 | 0.23 | 0.25 | 0.21 | 0.24 | 0.29 | 0.21 | 76.00 | 61.41 | 61.08 | 60.63 | 60.45 | 60.05 | | |
| 100.00 | 30.16 | 0.23 | 0.29 | 0.30 | 0.29 | 0.30 | 0.23 | 73.21 | 59.27 | 58.85 | 58.49 | 58.33 | 57.99 | | |
| 250.00 | 29.95 | 0.45 | 0.48 | 0.46 | 0.50 | 0.42 | 0.55 | 59.95 | 53.49 | 53.94 | 54.27 | 54.90 | 55.48 | | |
| 500.00 | 29.97 | 0.24 | 0.28 | 0.25 | 0.27 | 0.28 | 0.26 | 53.84 | 51.56 | 51.59 | 51.49 | 51.45 | 51.37 | | |
| 750.00 | 30.00 | 0.34 | 0.43 | 0.39 | 0.39 | 0.37 | 0.41 | 49.76 | 48.15 | 48.03 | 47.97 | 47.87 | 48.75 | | |
| 1000.00 | 30.12 | 0.62 | 0.67 | 0.77 | 0.83 | 0.82 | 0.76 | 39.51 | 40.38 | 40.33 | 40.30 | 40.34 | 40.39 | | |
| 1500.00 | 30.11 | 0.50 | 0.53 | 0.73 | 0.74 | 0.82 | 0.98 | 40.98 | 40.70 | 40.59 | 40.52 | 40.38 | 40.28 | | |
| 2000.00 | 30.07 | 0.78 | 0.81 | 1.07 | 1.09 | 1.15 | 1.26 | 38.39 | 40.41 | 40.59 | 40.79 | 41.03 | 41.19 | | |
| 2500.00 | 30.33 | 0.87 | 0.73 | 0.76 | 0.81 | 0.78 | 0.75 | 44.44 | 43.39 | 43.34 | 42.18 | 43.14 | 43.02 | | |
| 3000.00 | 30.23 | 1.01 | 0.81 | 0.83 | 0.84 | 0.81 | 0.80 | 47.79 | 50.29 | 50.00 | 50.25 | 50.35 | 50.41 | | |
| 3500.00 | 29.94 | 1.27 | 1.07 | 1.09 | 1.10 | 1.06 | 1.02 | 40.78 | 40.57 | 40.01 | 40.48 | 39.65 | 39.75 | | |
| 4000.00 | 29.62 | 1.76 | 1.54 | 1.51 | 1.46 | 1.41 | 1.38 | 39.82 | 41.94 | 42.51 | 42.21 | 42.62 | 42.60 | | |
| 4500.00 | 30.06 | 1.66 | 1.29 | 1.28 | 1.23 | 1.18 | 1.15 | 32.83 | 36.48 | 36.51 | 37.26 | 37.33 | 37.50 | | |
| 5000.00 | 30.07 | 1.19 | 0.92 | 0.87 | 0.83 | 0.79 | 0.75 | 29.66 | 29.37 | 29.59 | 29.56 | 29.33 | 28.96 | | |
| 5500.00 | 29.53 | 1.12 | 0.82 | 0.79 | 0.77 | 0.72 | 0.71 | 33.67 | 33.30 | 33.28 | 33.22 | 33.02 | 32.93 | | |
| 6000.00 | 30.02 | 1.54 | 1.17 | 1.13 | 1.13 | 1.10 | 1.07 | 30.44 | 29.81 | 29.89 | 29.76 | 29.58 | 29.95 | | |



Electrical Schematic



Notes

- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
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Bias Tee, Coaxial

ZNBT-60-1W+

Typical Performance Data

| FREQ. (MHz) | INSERTION LOSS with current (RF Port to RF&DC Port) (dB) | | | | | | ISOLATION with current (RF Port to DC Port, RF&DC Port to DC Port) (dB) | | | | | |
|----------------|----------------------------------------------------------------|-------|-------|-------|-------|-------|-------------------------------------------------------------------------------|-------|-------|-------|-------|-------|
| | 0mA | 100mA | 200mA | 300mA | 400mA | 500mA | 0mA | 100mA | 200mA | 300mA | 400mA | 500mA |
| | 2.50 | 0.13 | 0.23 | 0.21 | 0.22 | 0.31 | 0.30 | 68.50 | 62.97 | 60.56 | 58.97 | 57.44 |
| 10.00 | 0.15 | 0.20 | 0.24 | 0.32 | 0.30 | 0.42 | 77.66 | 79.59 | 76.96 | 74.04 | 72.52 | 71.45 |
| 25.00 | 0.21 | 0.21 | 0.22 | 0.29 | 0.29 | 0.49 | 80.02 | 70.90 | 70.60 | 69.99 | 68.07 | 66.79 |
| 50.00 | 0.16 | 0.21 | 0.28 | 0.25 | 0.23 | 0.22 | 78.47 | 64.54 | 64.38 | 63.82 | 63.20 | 62.99 |
| 75.00 | 0.23 | 0.25 | 0.21 | 0.24 | 0.29 | 0.21 | 76.00 | 61.41 | 61.08 | 60.63 | 60.45 | 60.05 |
| 100.00 | 0.23 | 0.29 | 0.30 | 0.29 | 0.30 | 0.23 | 73.21 | 59.27 | 58.85 | 58.49 | 58.33 | 57.99 |
| 250.00 | 0.45 | 0.48 | 0.46 | 0.50 | 0.42 | 0.55 | 59.95 | 53.49 | 53.94 | 54.27 | 54.90 | 55.48 |
| 500.00 | 0.24 | 0.28 | 0.25 | 0.27 | 0.28 | 0.26 | 53.84 | 51.56 | 51.59 | 51.49 | 51.45 | 51.37 |
| 750.00 | 0.34 | 0.43 | 0.39 | 0.39 | 0.37 | 0.41 | 49.76 | 48.15 | 48.03 | 47.97 | 47.87 | 48.75 |
| 1000.00 | 0.62 | 0.67 | 0.77 | 0.83 | 0.82 | 0.76 | 39.51 | 40.38 | 40.33 | 40.30 | 40.34 | 40.39 |
| 1500.00 | 0.50 | 0.53 | 0.73 | 0.74 | 0.82 | 0.98 | 40.98 | 40.70 | 40.59 | 40.52 | 40.38 | 40.28 |
| 2000.00 | 0.78 | 0.81 | 1.07 | 1.09 | 1.15 | 1.26 | 38.39 | 40.41 | 40.59 | 40.79 | 41.03 | 41.19 |
| 2500.00 | 0.87 | 0.73 | 0.76 | 0.81 | 0.78 | 0.75 | 44.44 | 43.39 | 43.34 | 42.18 | 43.14 | 43.02 |
| 3000.00 | 1.01 | 0.81 | 0.83 | 0.84 | 0.81 | 0.80 | 47.79 | 50.29 | 50.00 | 50.25 | 50.35 | 50.41 |
| 3500.00 | 1.27 | 1.07 | 1.09 | 1.10 | 1.06 | 1.02 | 40.78 | 40.57 | 40.01 | 40.48 | 39.65 | 39.75 |
| 4000.00 | 1.76 | 1.54 | 1.51 | 1.46 | 1.41 | 1.38 | 39.82 | 41.94 | 42.51 | 42.21 | 42.62 | 42.60 |
| 4500.00 | 1.66 | 1.29 | 1.28 | 1.23 | 1.18 | 1.15 | 32.83 | 36.48 | 36.51 | 37.26 | 37.33 | 37.50 |
| 5000.00 | 1.19 | 0.92 | 0.87 | 0.83 | 0.79 | 0.75 | 29.66 | 29.37 | 29.59 | 29.56 | 29.33 | 28.96 |
| 5500.00 | 1.12 | 0.82 | 0.79 | 0.77 | 0.72 | 0.71 | 33.67 | 33.30 | 33.28 | 33.22 | 33.02 | 32.93 |
| 6000.00 | 1.54 | 1.17 | 1.13 | 1.13 | 1.10 | 1.07 | 30.44 | 29.81 | 29.89 | 29.76 | 29.58 | 29.95 |

REV. X1
 ZNBT-60-1W+
 061123
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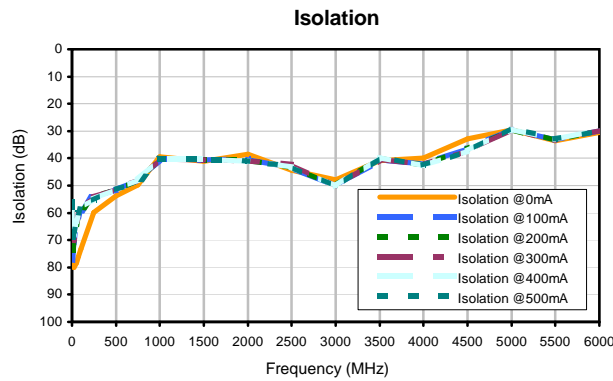
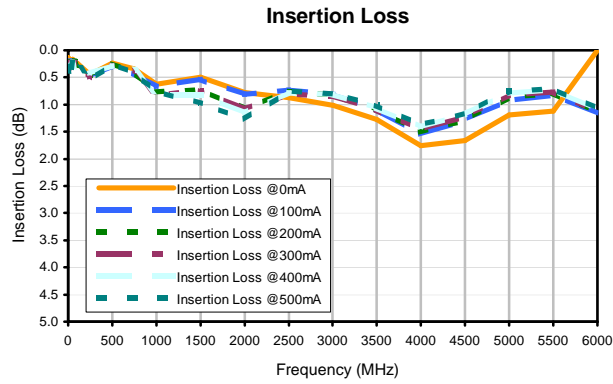
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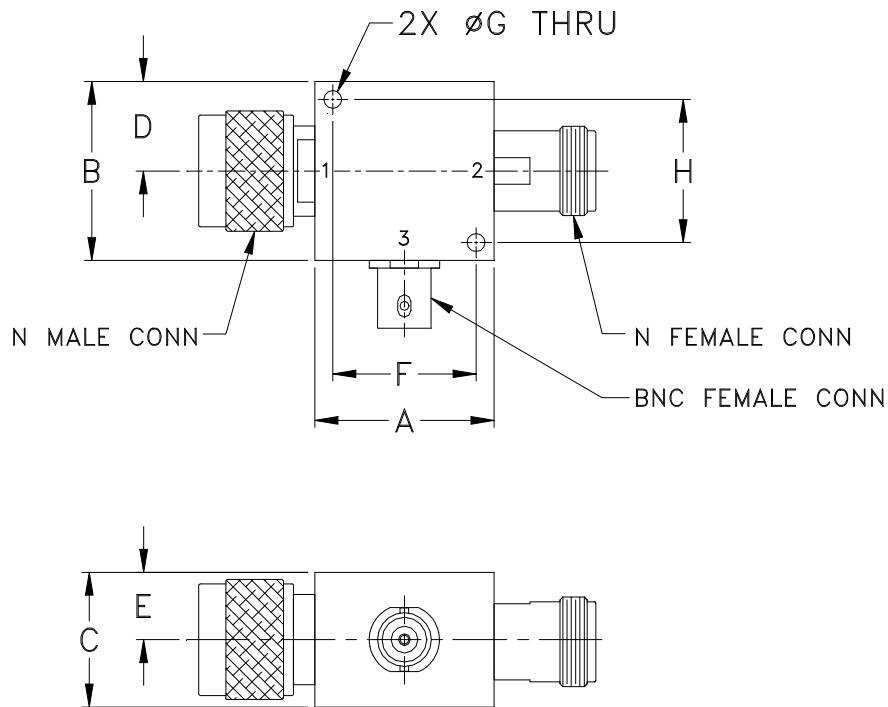
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Typical Performance Curves



Outline Dimensions



| CASE# | A | B | C | D | E | F | G | H | J | K | L | M | N |
|-------|-----------------|-----------------|----------------|----------------|----------------|------------------|----------------|------------------|----|----|----|----|----|
| K558 | 1.25 (31.75) | 1.25 (31.75) | .94 (23.88) | .63 (16.00) | .47 (11.94) | 1.000 (25.40) | .125 (3.18) | 1.000 (25.40) | -- | -- | -- | -- | -- |

| CASE# | P | Q | WT. GRAMS |
|-------|----|----|-----------|
| K558 | -- | -- | 117.0 |

Dimensions are in inches (mm). Tolerances: 2 Pl. $\pm .03$; 3 Pl. $\pm .015$

Notes:

- Case material: Aluminum alloy.
- Case finish:
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
- Refer to the individual model data sheet for the type of connectors available.



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All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

| Specification | Test/Inspection Condition | Reference/Spec |
|----------------------------|----------------------------------------------------------------------------------------|--------------------------------------|
| Operating Temperature | -55° to 100°C Ambient Environment | Individual Model Data Sheet |
| Storage Temperature | -55° to 100° C Ambient Environment | Individual Model Data Sheet |
| Barometric Pressure | 100,000 Feet | MIL-STD-202, Method 105, Condition D |
| Humidity | 90% RH, 65°C Units may require bake-out after humidity to restore full performance. | MIL-STD-202, Method 103 |
| Thermal Shock | -65° to 125°C, 5 cycles | MIL-STD-202, Method 107, Condition B |
| Vibration (High Frequency) | 20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36) | MIL-STD-202, Method 204, Condition D |
| Mechanical Shock | 100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18) | MIL-STD-202, Method 213, Condition I |