## The Big Deal

- Low Insertion loss 0.6 dB typ.
- 2W Power Handling

- BNC-F (50 ) to BNC-M (75ת) Connectors


## Product Overview

Mini-Circuits' Z7550-BMBF+ is a coaxial $50 / 75 \Omega$ matching transformer covering the DC to 3000 MHz frequency range, supporting impedance matching in a wide range of systems including CATV, broadband networks, matching antenna systems and more. This model is ideal for $50 / 75 \Omega$ impedance matching in systems where minimizing overall signal loss is a priority. The transformer handles RF input power up to 2 W and comes housed in a rugged, compact aluminum alloy case ( $1.25 \times 1.25 \times 0.94$ ") with BNC-F $(50 \Omega)$ to BNC-M $(75 \Omega)$ connectors.

## Key Features

| Feature |  |
| :--- | :--- |
| Wideband, DC to 3000 MHz | Supports a wide variety of applications including CATV and DOCSIS® 3.1 systems and equipment. |
| Low insertion loss, 0.6 dB typ. | Enables excellent signal power transmission from input to output, minimizing overall system losses. |
| 2W Power handling | Supports a range of system power requirements. |
| Compact size, $1.25 \times 1.25 \times 0.94$ " | Accommodates tight space requirements for crowded system layouts. |
| Connectorized package BNC-F <br> $(50 \Omega)$ to BNC-M $(75 \Omega)$ connectors | Supports connections between components with different connector types. |

[^0]Matching Transformer
50/75 $\Omega$
DC to 3000 MHz

| Maximum Ratings |  |
| :--- | ---: |
| Operating Temperature | $-40^{\circ} \mathrm{C}$ to $85^{\circ} \mathrm{C}$ |
| Storage Temperature | $-55^{\circ} \mathrm{C}$ to $100^{\circ} \mathrm{C}$ |
| DC Current | 5 A max. |
| DC Resistance | $0.2 \Omega$ max. |
| Permanent damage may occurif any of these limits are exceeded. |  |

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

Coaxial Connections

| PORT - 1 |
| :--- |
| PORT - 2 |

BNC-Male(75 $)$
BNC-Female( $50 \Omega$ )


BNC-FEMALE


| Outline Dimensions |  |  |  |  |  |  |  | $\binom{$ inch }{mm} |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| A | B | C | D | E | F | G | H | Wt. |
| 1.25 | 1.25 | .94 | .63 | .47 | 1.00 | .13 | .13 | grams |

Note: Please refer to case style drawing for details

Features

- Low loss ( 0.6 dB typ.) matching device
- Wide band coverage, DC-3000 MHz
- Connectorized package


## Applications

- Impedance matching
- CATV
- Matching antenna systems

Z7550-BMBF+


Generic photo used for illustration purposes only
CASE STYLE: QP1876-1 Connectors Model $75 \Omega$ BNC-M Z7550-BMBF+ $50 \Omega$ BNC-F
+RoHS Compliant
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Electrical Specifications at $25^{\circ} \mathrm{C}$

| Parameter | Frequency (MHz) | Min. | Typ. | Max. | Unit |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Frequency Range | - | DC | - | 3000 | MHz |
| Insertion Loss | 10 | - | - | 0.5 |  |
|  | $950-2500$ | - | 0.5 | 1.0 | dB |
|  | $2500-3000$ | - | 1.2 | - |  |
| Power | 10 | - | - | 1.8 |  |

Typical Performance Data

| Frequency <br> (MHz) | Insertion Loss <br> (dB) | VSWR |  |
| :---: | :---: | :---: | :---: |
|  |  | $\mathbf{5 0 \Omega}$ | $\mathbf{7 5 \Omega}$ |
| 10 | 0.01 | 1.50 |  |
| 100 | 0.07 | 1.49 | 1.47 |
| 250 | 0.18 | 1.44 | 1.46 |
| 500 | 0.31 | 1.34 | 1.44 |
| 950 | 0.21 | 1.36 |  |
| 1500 | 0.30 | 1.10 | 1.18 |
| 1750 | 0.38 | 1.08 | 1.12 |
| 2300 | 0.47 | 1.29 | 1.12 |
| 2500 | 0.50 | 1.25 | 1.21 |
| 3000 | 0.71 | 1.30 | 1.12 |
|  |  |  | 1.38 |




Notes
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| FREQ. | INSERTION LOSS | INPUT RETURN LOSS (50@) | OUTPUT RETURN LOSS (75 $)$ |
| :---: | :---: | :---: | :---: |
| (MHz) | (dB) | (dB) | (dB) |
| 1 | 0.01 | 14.05 | 14.43 |
| 10 | 0.01 | 13.92 | 14.44 |
| 15 | 0.01 | 13.91 | 14.46 |
| 20 | 0.01 | 13.90 | 14.46 |
| 30 | 0.02 | 13.89 | 14.47 |
| 40 | 0.03 | 13.88 | 14.50 |
| 50 | 0.03 | 13.89 | 14.51 |
| 60 | 0.04 | 13.89 | 14.53 |
| 70 | 0.05 | 13.90 | 14.55 |
| 80 | 0.05 | 13.91 | 14.57 |
| 90 | 0.06 | 13.92 | 14.59 |
| 100 | 0.07 | 13.93 | 14.62 |
| 150 | 0.10 | 14.04 | 14.74 |
| 200 | 0.14 | 14.20 | 14.86 |
| 250 | 0.18 | 14.41 | 14.96 |
| 300 | 0.21 | 14.66 | 15.12 |
| 350 | 0.24 | 14.97 | 15.34 |
| 400 | 0.27 | 15.32 | 15.60 |
| 450 | 0.29 | 15.70 | 15.90 |
| 500 | 0.31 | 16.12 | 16.33 |
| 525 | 0.32 | 17.12 | 16.61 |
| 550 | 0.33 | 16.57 | 16.90 |
| 600 | 0.34 | 17.03 | 17.47 |
| 650 | 0.33 | 17.51 | 18.02 |
| 700 | 0.32 | 17.98 | 18.71 |
| 750 | 0.30 | 18.45 | 19.42 |
| 800 | 0.26 | 18.91 | 19.97 |
| 850 | 0.23 | 19.34 | 20.47 |
| 900 | 0.21 | 19.74 | 21.12 |
| 950 | 0.21 | 20.09 | 21.72 |
| 1000 | 0.22 | 20.41 | 22.12 |
| 1025 | 0.23 | 21.41 | 22.31 |
| 1050 | 0.24 | 20.66 | 22.50 |
| 1100 | 0.26 | 20.85 | 22.74 |
| 1150 | 0.27 | 20.98 | 22.65 |
| 1200 | 0.28 | 21.04 | 22.37 |
| 1225 | 0.28 | 22.04 | 22.23 |
| 1250 | 0.28 | 21.03 | 22.12 |
| 1300 | 0.28 | 20.97 | 22.07 |
| 1350 | 0.28 | 20.85 | 22.32 |
| 1400 | 0.28 | 20.66 | 22.90 |
| 1450 | 0.29 | 20.41 | 23.82 |
| 1500 | 0.30 | 20.10 | 24.99 |
| 1550 | 0.31 | 19.74 | 26.14 |
| 1600 | 0.32 | 19.35 | 26.91 |
| 1650 | 0.34 | 18.94 | 27.15 |
| 1700 | 0.36 | 18.52 | 26.52 |
| 1750 | 0.38 | 18.14 | 25.09 |
| 1800 | 0.40 | 17.79 | 23.40 |
| 1850 | 0.41 | 17.48 | 21.98 |
| 1900 | 0.42 | 17.24 | 21.02 |
| 1925 | 0.41 | 18.24 | 20.65 |
| 1950 | 0.41 | 17.09 | 20.32 |
| 2000 | 0.41 | 17.02 | 19.79 |
| 2050 | 0.40 | 17.04 | 19.52 |
| 2100 | 0.40 | 17.18 | 19.54 |
| 2150 | 0.41 | 17.41 | 19.52 |
| 2200 | 0.43 | 17.74 | 19.46 |
| 2250 | 0.45 | 18.13 | 19.80 |
| 2300 | 0.47 | 18.51 | 20.58 |

## Typical Performance Curves


$75 \Omega$ RETURN LOSS


## Case Style

## Outline Dimensions



| CASE\# | A | B | C | D | E | F | G | H | WT.GRAMS |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| QP1876-1 | 1.25 | 1.25 | .94 | .63 | .47 | 1.000 | .13 | .13 | 51 |
|  | $(31.75)$ | $(31.75)$ | $(23.88)$ | $(16.00)$ | $(11.94)$ | $(25.40)$ | $(3.30)$ | $(3.30)$ |  |

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

## Notes:

1. Case material: Aluminum alloy.
2. Case finish:

For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.

## $\square$ Mini-Circuits

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 | $-55^{\circ} \text { to } 100^{\circ} \mathrm{C}$ <br> Ambient Environment | Individual Model Data Sheet |
| Storage Temperature | $-55^{\circ} \text { to } 100^{\circ} \mathrm{C}$ <br> Ambient Environment | Individual Model Data Sheet |
| Barometric Pressure | 100,000 Feet | MIL-STD-202, Method 105, Condition D |
| Humidity | $90 \% \mathrm{RH}, 65^{\circ} \mathrm{C}$ <br> Units may require bake-out after humidity to restore full performance. | MIL-STD-202, Method 103 |
| Thermal Shock | $-65^{\circ}$ to $125^{\circ} \mathrm{C}, 5$ cycles | MIL-STD-202, Method 107, Condition B |
| Vibration (High Frequency) | 20 g peak, $10-2000 \mathrm{~Hz}, 12$ times in each of three perpendicular directions (total 36) | MIL-STD-202, Method 204, Condition D |
| Mechanical Shock | $100 \mathrm{~g}, 6 \mathrm{~ms}$ sawtooth, 3 shocks each direction 3 axes (total 18) | MIL-STD-202, Method 213, Condition I |
| ENV28 Rev: B 09/26/13 M143494 File: ENV28.pdf |  |  |
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