

# Coaxial RF Transformer

50Ω

0.2 to 500 MHz

FTB-1-1+



Generic photo used for illustration purposes only

CASE STYLE: H16-1

BNC Connectors

Model

FEMALE/FEMALE FTB-1-1\*A15+

MALE/FEMALE FTB-1-1\*C15+

BRACKET (OPTION "B")

**+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 |
| RF Power              | 250mW          |
| DC Current            | 30mA           |

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

## Coaxial Connections

|           | Marking |
|-----------|---------|
| PRIMARY   | BAL     |
| SECONDARY | UNBAL   |

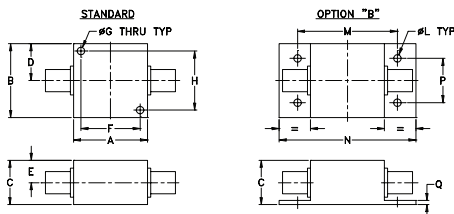
## Features

- wideband, 0.2 to 500 MHz
- balanced to single-ended
- balanced port: isolated Female BNC

## Applications

- DC Block

## Outline Drawing

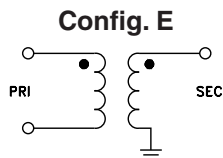


## Outline Dimensions (inch/mm)

| A     | B     | C     | D     | E     | F     | G    | H     |
|-------|-------|-------|-------|-------|-------|------|-------|
| 1.25  | 1.25  | .81   | .63   | .41   | 1.000 | .125 | 1.000 |
| 31.75 | 31.75 | 20.57 | 16.00 | 10.41 | 25.40 | 3.18 | 25.40 |

| J  | K  | L    | M     | N     | P     | Q    | wt    |
|----|----|------|-------|-------|-------|------|-------|
| -- | -- | .125 | 1.688 | 2.19  | .750  | .06  | grams |
| -- | -- | 3.18 | 42.88 | 55.63 | 19.05 | 1.52 | 70.0  |



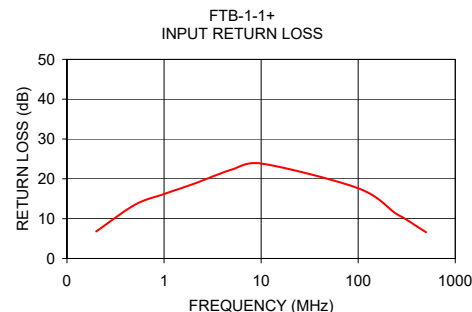
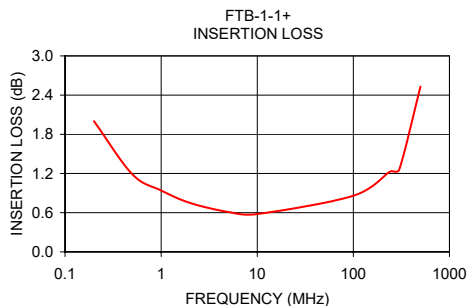
## Transformer Electrical Specifications

| Ω<br>RATIO | FREQUENCY<br>(MHz) | INSERTION LOSS* |             |             |
|------------|--------------------|-----------------|-------------|-------------|
|            |                    | 3 dB<br>MHz     | 2 dB<br>MHz | 1 dB<br>MHz |
| 1          | 0.2-500            | 0.2-500         | 0.5-300     | 1-100       |

\* Insertion Loss is referenced to mid-band loss, 0.6 dB typ.

## Typical Performance Data

| FREQUENCY<br>(MHz) | INSERTION<br>LOSS<br>(dB) | INPUT<br>R. LOSS<br>(dB) |
|--------------------|---------------------------|--------------------------|
| 0.20               | 2.00                      | 6.79                     |
| 0.50               | 1.19                      | 13.47                    |
| 1.00               | 0.94                      | 16.19                    |
| 2.00               | 0.75                      | 18.70                    |
| 5.00               | 0.61                      | 22.34                    |
| 10.00              | 0.58                      | 23.84                    |
| 100.00             | 0.86                      | 17.64                    |
| 241.48             | 1.23                      | 11.38                    |
| 300.00             | 1.26                      | 10.05                    |
| 500.00             | 2.53                      | 6.59                     |



### Notes

- A. 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.  
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.  
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)



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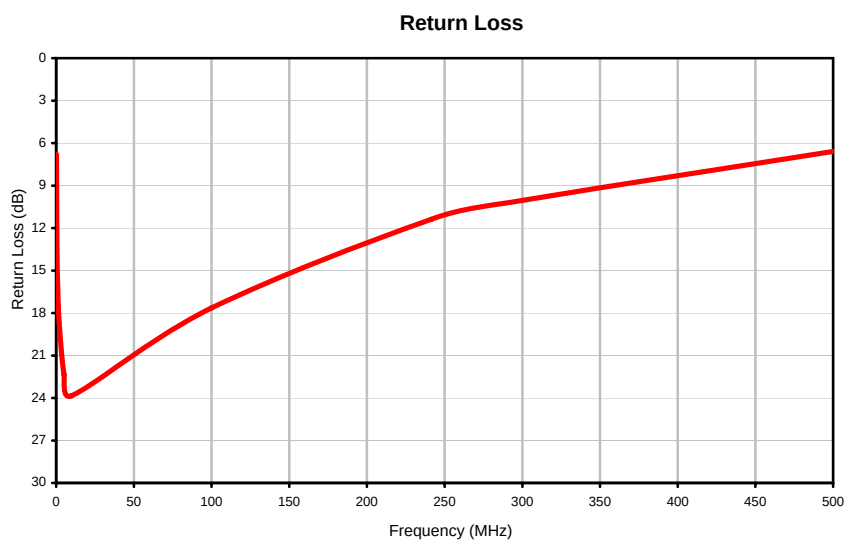
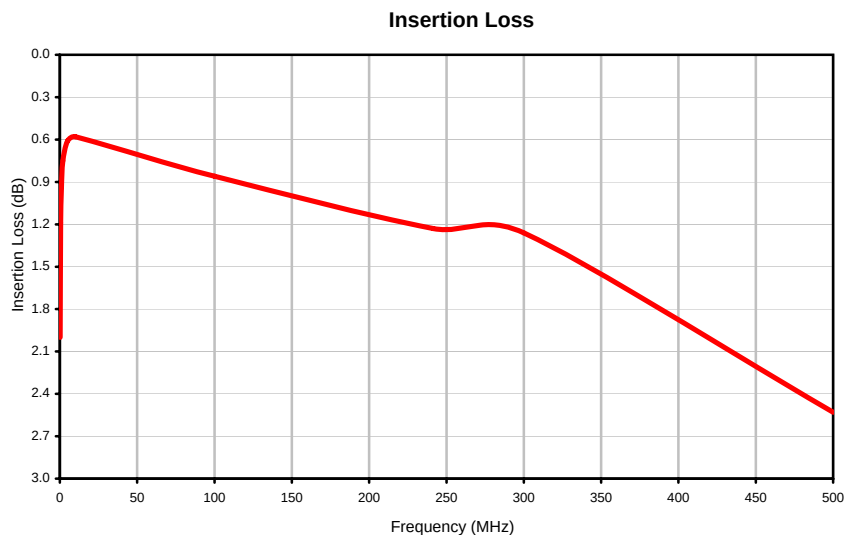
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*Typical Performance Data*

| FREQUENCY<br>(MHz) | INSERTION<br>LOSS<br>(dB) | RETURN<br>LOSS<br>(dB) |
|--------------------|---------------------------|------------------------|
| 0.20               | 2.00                      | 6.79                   |
| 0.50               | 1.19                      | 13.47                  |
| 1.00               | 0.94                      | 16.19                  |
| 2.00               | 0.75                      | 18.70                  |
| 5.00               | 0.61                      | 22.34                  |
| 10.00              | 0.58                      | 23.84                  |
| 100.00             | 0.86                      | 17.64                  |
| 241.48             | 1.23                      | 11.38                  |
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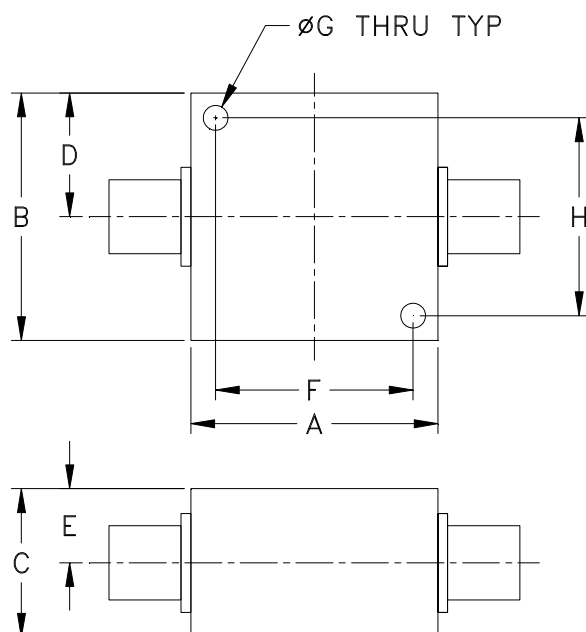
## Typical Performance Curves



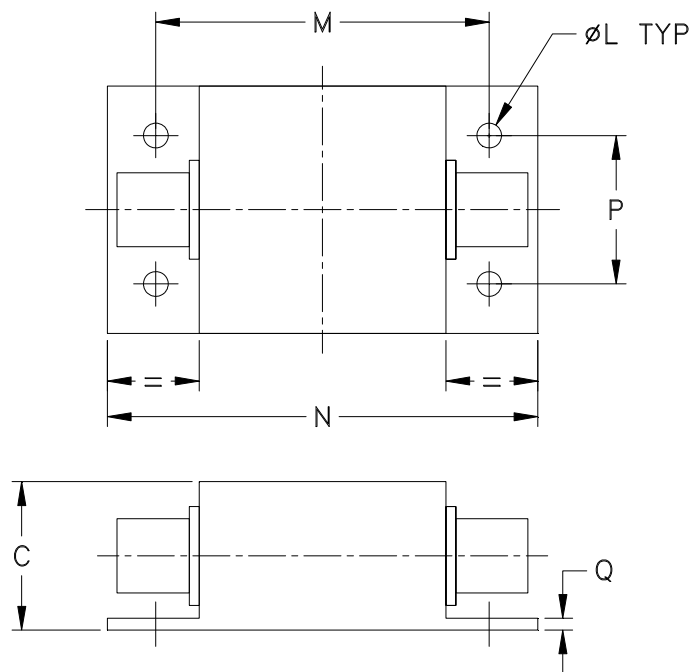
## Outline Dimensions

H16-1

STANDARD



OPTION "B"



| CASE# | A               | B               | C              | D              | E              | F                | G              | H                | J  | K  | L              | M                | N               |
|-------|-----------------|-----------------|----------------|----------------|----------------|------------------|----------------|------------------|----|----|----------------|------------------|-----------------|
| H16-1 | 1.25<br>(31.75) | 1.25<br>(31.75) | .81<br>(20.57) | .63<br>(16.00) | .41<br>(10.41) | 1.000<br>(25.40) | .125<br>(3.18) | 1.000<br>(25.40) | -- | -- | .125<br>(3.18) | 1.688<br>(42.88) | 2.19<br>(55.63) |

| CASE# | P               | Q             | WT.GRAMS |
|-------|-----------------|---------------|----------|
| H16-1 | .750<br>(19.05) | .06<br>(1.52) | 70       |

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

### Notes:

1. Case material: Aluminum alloy.
2. Case finish:  
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
3. Mounting bracket available on request. Add suffix B to part number.
4. Bracket version, option B, dimension "C" changes from .81 to 1.00 inches when connectors are type N.
5. Refer to the individual model data sheet for the type of connectors available.



ISO 9001 ISO 14001 CERTIFIED

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site

The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: [www.minicircuits.com](http://www.minicircuits.com)

RF/IF MICROWAVE COMPONENTS





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<br>Ambient Environment                                                   | Individual Model Data Sheet          |
| Storage Temperature        | -55° to 100° C<br>Ambient Environment                                                  | Individual Model Data Sheet          |
| Barometric Pressure        | 100,000 Feet                                                                           | MIL-STD-202, Method 105, Condition D |
| Humidity                   | 90% RH, 65°C<br>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 |