



(LTCC) COAXIAL

# High Pass Filter

**ZHFW-K1042+**

50Ω 11.5 to 20 GHz 2.92mm Female

## KEY FEATURES

- Low Insertion Loss, 1.8 dB Typ.
- Return Loss, 14 dB Typ.
- Stop Band Rejection, 35 dB Typ.
- Broadband Connectorized Package.
- Power Handling: 2.5 Watts

## APPLICATIONS

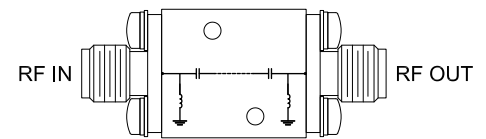
- Test and Measurement Equipment
- Radar, EW, and ECM Defense Systems
- Back Haul Radio Systems

*Generic photo used for illustration purposes only*

## PRODUCT OVERVIEW

ZHFW-K1042+ is a 50ohm high pass filter built in broad band connectorized package. Covering 11.5-20 GHz bandwidth, these units offer good matching within the passband and good rejection in stopband. ZHFW-K1042+ offer low insertion loss, and excellent power handling capability. It handles up to 2.5W RF input power and provides a wide operating temperature range from -55°C to 125°C.

## FUNCTIONAL DIAGRAM



## ELECTRICAL SPECIFICATIONS<sup>1,2</sup> AT +25°C

| Parameter |                            | F#              | Frequency (GHz) | Min. | Typ. | Max. | Units |
|-----------|----------------------------|-----------------|-----------------|------|------|------|-------|
| Pass Band | Insertion Loss             | F3-F4           | 11.5 - 14       | —    | 2.4  | —    | dB    |
|           |                            | F4-F5           | 14 - 18.5       | —    | 1.8  | 2.5  |       |
|           |                            | F5-F6           | 18.5 - 20       | —    | 2.4  | —    |       |
|           | Return Loss                | F3-F4           | 11.5 - 14       | —    | 12   | —    | dB    |
|           |                            | F4-F5           | 14 - 18.5       | —    | 14   | —    |       |
|           |                            | F5-F6           | 18.5 - 20       | —    | 12   | —    |       |
| Stop Band | Rejection                  | DC-F1           | DC - 7          | 35   | 43   | —    | dB    |
|           |                            | F1-F2           | 7 - 8.6         | 23   | 36   | —    |       |
|           | Freq. Cut-Off <sup>3</sup> | Fc <sup>3</sup> | 10.6            | —    | 3    | —    | dB    |

1. This filter is bi-directional, RF1 and RF2 ports may be interchanged, see S-Parameters for actual performance.

2. This component should not be used as a DC-block. In applications where DC voltage and/or current is present at either the input or output ports, external DC blocking capacitors are required.

3. Typical variation  $\pm 5\%$

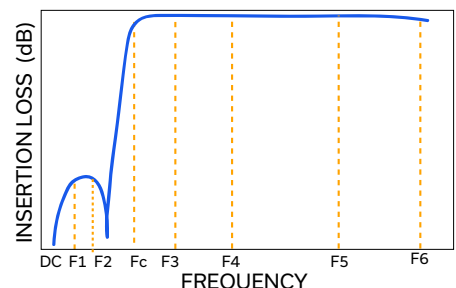
## ABSOLUTE MAXIMUM RATINGS<sup>4</sup>

| Parameter                | Ratings           |
|--------------------------|-------------------|
| Operating Temperature    | -55 °C to +125 °C |
| Storage Temperature      | -55 °C to +125 °C |
| Input Power <sup>5</sup> | 2.5 W @25°C       |

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

5. Power rating applies only to signals within the passband. Power rating above +25°C operating temperature decreases linearly to 0.6W at +125°C.

## TYPICAL FREQUENCY RESPONSE





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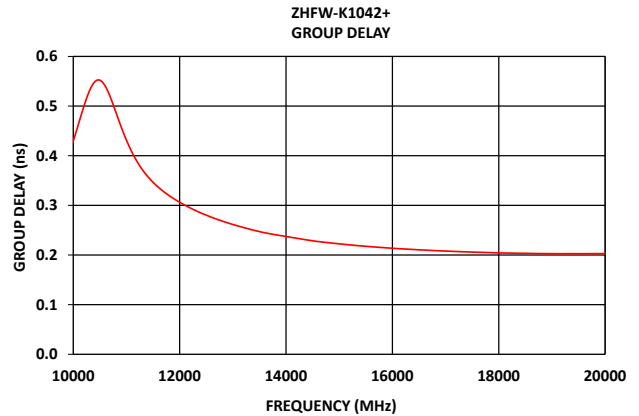
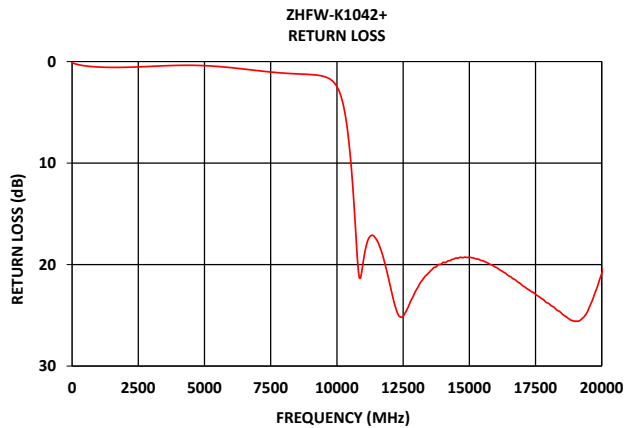
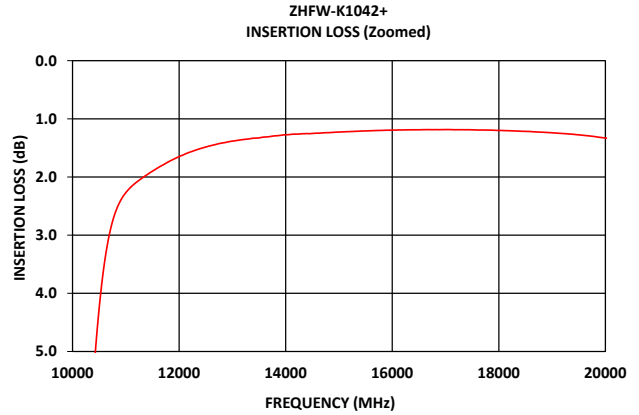
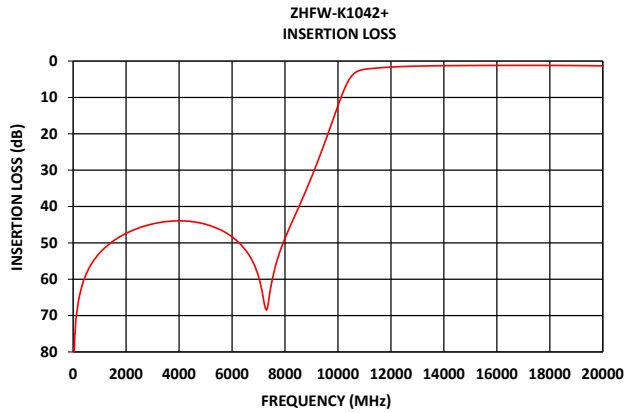
# High Pass Filter

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50Ω 11.5 to 20 GHz 2.92mm Female

## TYPICAL PERFORMANCE GRAPHS





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# High Pass Filter

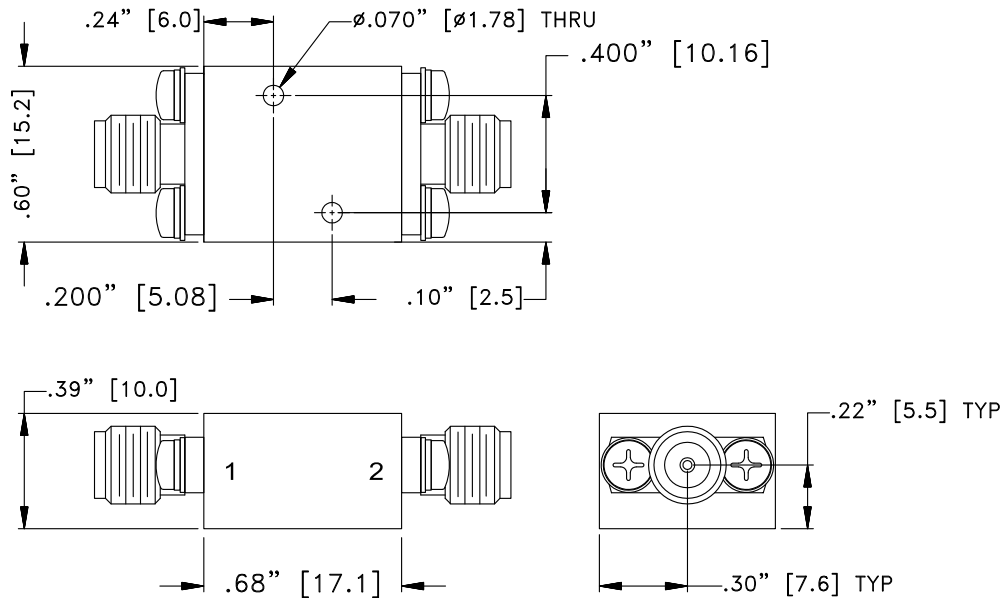
**ZHFW-K1042+**

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## CONNECTOR DESCRIPTION

| Function         | Marking on Unit | Connector     |
|------------------|-----------------|---------------|
| RF1 <sup>1</sup> | 1               | 2.92mm Female |
| RF2 <sup>1</sup> | 2               | 2.92mm Female |

## CASE STYLE DRAWING



Unit weight: 24grams

Dimensions are in inches (mm). Tolerances: 2 Pl.±.050"; 3 Pl.±.015"

## PRODUCT MARKING\*: ZHFW-K1042+

\*Marking may contain other features or characters for internal lot control.



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# High Pass Filter

**ZHFW-K1042+**

50Ω 11.5 to 20 GHz 2.92mm Female

ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD

[CLICK HERE](#)

|                           |                                              |
|---------------------------|----------------------------------------------|
| Performance Data & Graphs | Data                                         |
|                           | Graphs                                       |
|                           | S-Parameter (S2P Files) Data Set (.zip file) |
| Case Style                | UK3042                                       |
| RoHS Status               | Compliant                                    |
| Environmental Ratings     | ENV124                                       |

## 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-Circuits' 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/terms/viewterm.html](http://www.minicircuits.com/terms/viewterm.html)



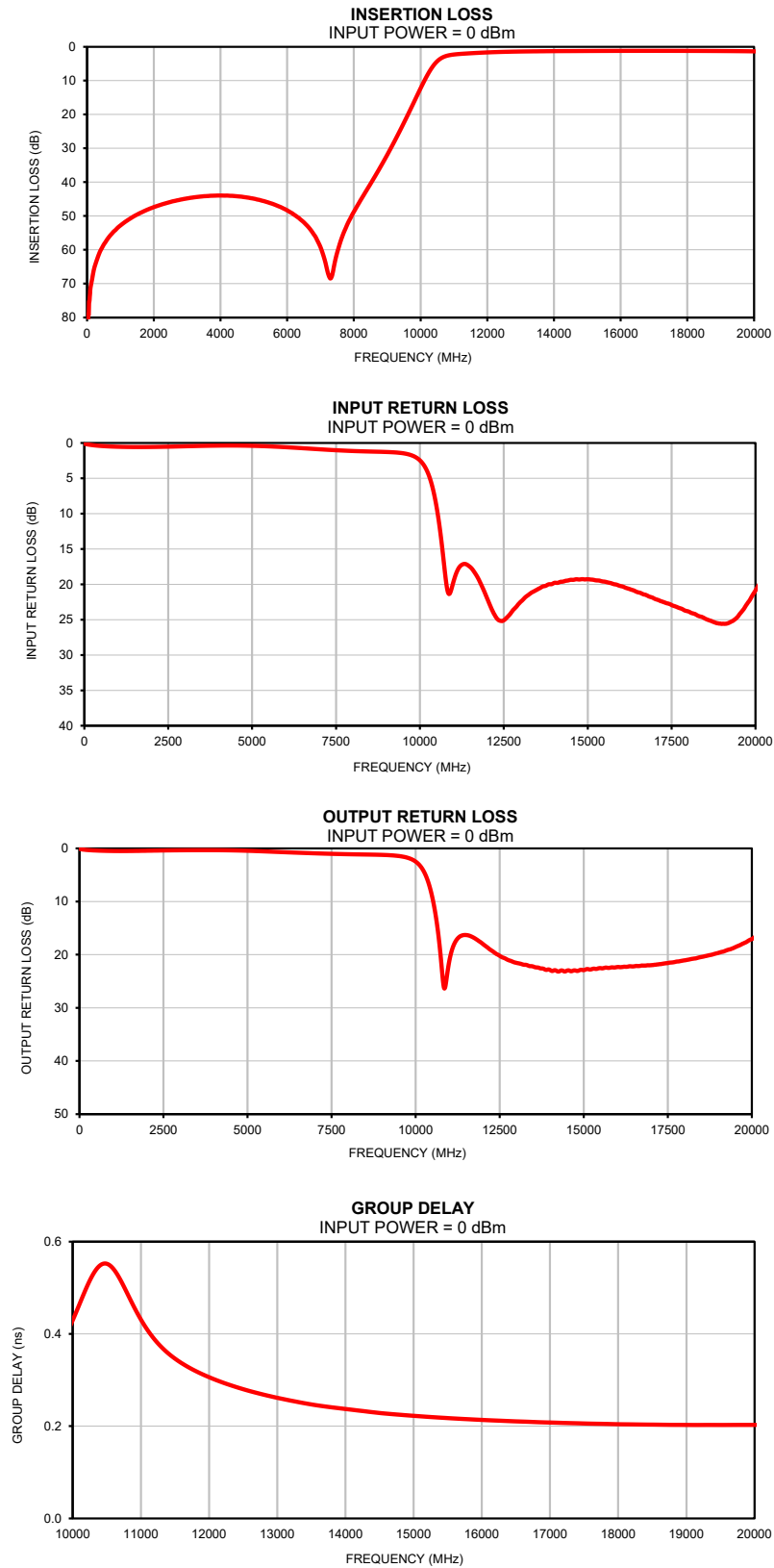
# Coaxial High Pass Filter

# ZHFW-K1042+

## Typical Performance Data

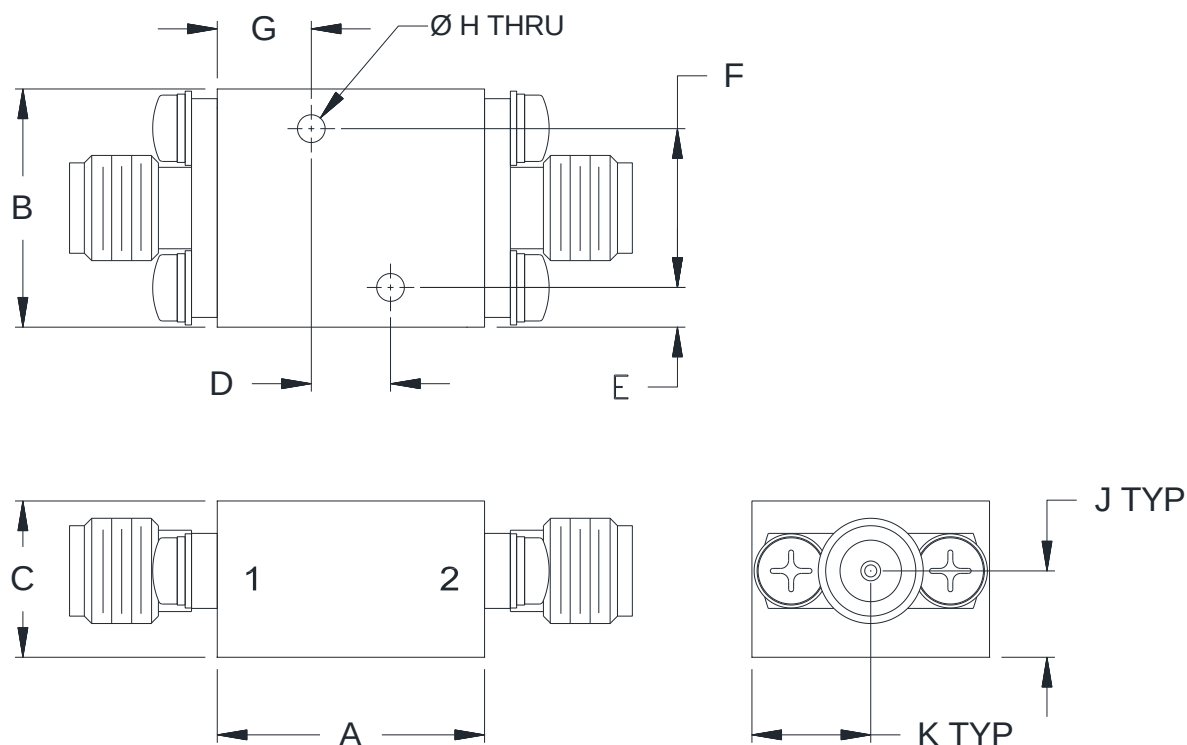
| FREQ. | Insertion Loss | Input Return Loss | Output Return Loss | FREQ. | Group Delay |
|-------|----------------|-------------------|--------------------|-------|-------------|
| (MHz) | (dB)           | (dB)              | (dB)               | (MHz) | (ns)        |
| 10    | 106.85         | 0.10              | 0.10               | 11500 | 0.35        |
| 20    | 88.93          | 0.12              | 0.11               | 11600 | 0.34        |
| 40    | 79.09          | 0.15              | 0.14               | 11700 | 0.33        |
| 100   | 71.29          | 0.21              | 0.21               | 11800 | 0.32        |
| 150   | 68.69          | 0.25              | 0.24               | 11900 | 0.31        |
| 200   | 65.99          | 0.28              | 0.28               | 12000 | 0.31        |
| 300   | 62.78          | 0.34              | 0.33               | 12100 | 0.30        |
| 400   | 60.24          | 0.39              | 0.37               | 12200 | 0.29        |
| 500   | 58.44          | 0.42              | 0.40               | 12300 | 0.29        |
| 600   | 56.96          | 0.45              | 0.43               | 12400 | 0.28        |
| 700   | 55.67          | 0.48              | 0.44               | 12500 | 0.28        |
| 850   | 54.16          | 0.51              | 0.47               | 12600 | 0.28        |
| 900   | 53.63          | 0.52              | 0.47               | 12700 | 0.27        |
| 1000  | 52.79          | 0.54              | 0.48               | 12800 | 0.27        |
| 1500  | 49.57          | 0.57              | 0.48               | 12900 | 0.26        |
| 2000  | 47.37          | 0.56              | 0.43               | 13000 | 0.26        |
| 3300  | 44.37          | 0.43              | 0.34               | 13100 | 0.26        |
| 4400  | 44.08          | 0.36              | 0.36               | 13200 | 0.26        |
| 5500  | 46.21          | 0.48              | 0.56               | 13300 | 0.25        |
| 6100  | 48.93          | 0.62              | 0.71               | 13400 | 0.25        |
| 7400  | 65.02          | 1.00              | 1.00               | 13500 | 0.25        |
| 8000  | 48.75          | 1.14              | 1.09               | 13600 | 0.24        |
| 10000 | 12.27          | 2.46              | 2.49               | 13700 | 0.24        |
| 10100 | 10.29          | 3.02              | 3.04               | 13800 | 0.24        |
| 10600 | 3.47           | 12.36             | 12.79              | 13900 | 0.24        |
| 11000 | 2.27           | 19.62             | 21.21              | 14000 | 0.24        |
| 11200 | 2.09           | 17.42             | 17.36              | 14100 | 0.24        |
| 11300 | 2.02           | 17.13             | 16.64              | 14200 | 0.23        |
| 11500 | 1.90           | 17.56             | 16.30              | 14300 | 0.23        |
| 11700 | 1.79           | 18.86             | 16.71              | 14400 | 0.23        |
| 12000 | 1.65           | 21.96             | 17.99              | 14500 | 0.23        |
| 12100 | 1.61           | 23.09             | 18.47              | 14600 | 0.23        |
| 12300 | 1.54           | 24.87             | 19.39              | 14700 | 0.23        |
| 12500 | 1.48           | 25.09             | 20.21              | 14800 | 0.22        |
| 12700 | 1.44           | 24.14             | 20.84              | 14900 | 0.22        |
| 13000 | 1.38           | 22.48             | 21.54              | 15000 | 0.22        |
| 13100 | 1.37           | 22.02             | 21.68              | 15100 | 0.22        |
| 13500 | 1.33           | 20.73             | 22.23              | 15200 | 0.22        |
| 14000 | 1.28           | 19.80             | 22.89              | 15300 | 0.22        |
| 14300 | 1.26           | 19.56             | 23.03              | 15400 | 0.22        |
| 14600 | 1.25           | 19.34             | 23.08              | 15500 | 0.22        |
| 14800 | 1.24           | 19.29             | 23.06              | 15600 | 0.22        |
| 15000 | 1.23           | 19.28             | 22.90              | 15700 | 0.22        |
| 15200 | 1.22           | 19.39             | 22.78              | 15800 | 0.22        |
| 15400 | 1.21           | 19.55             | 22.64              | 15900 | 0.21        |
| 15600 | 1.20           | 19.74             | 22.50              | 16000 | 0.21        |
| 15800 | 1.20           | 20.00             | 22.42              | 16200 | 0.21        |
| 16000 | 1.19           | 20.27             | 22.32              | 16400 | 0.21        |
| 16200 | 1.19           | 20.60             | 22.26              | 16500 | 0.21        |
| 16400 | 1.19           | 20.93             | 22.18              | 16900 | 0.21        |
| 16600 | 1.19           | 21.28             | 22.14              | 17000 | 0.21        |
| 16800 | 1.19           | 21.66             | 22.04              | 17100 | 0.21        |
| 17000 | 1.18           | 22.05             | 21.97              | 17200 | 0.21        |
| 17500 | 1.19           | 22.93             | 21.57              | 17300 | 0.21        |
| 18000 | 1.20           | 23.84             | 21.06              | 17500 | 0.21        |
| 18500 | 1.21           | 24.86             | 20.43              | 17700 | 0.21        |
| 18700 | 1.23           | 25.23             | 20.14              | 18000 | 0.20        |
| 19000 | 1.24           | 25.59             | 19.66              | 18500 | 0.20        |
| 19500 | 1.28           | 24.39             | 18.60              | 19000 | 0.20        |
| 20000 | 1.33           | 20.87             | 17.05              | 20000 | 0.20        |

## Typical Performance Curves



## Outline Dimensions

UK3042



| CASE#  | A             | B             | C             | D              | E            | F               |
|--------|---------------|---------------|---------------|----------------|--------------|-----------------|
| UK3042 | .68<br>(17.1) | .60<br>(15.2) | .39<br>(10.0) | .200<br>(5.08) | .10<br>(2.5) | .400<br>(10.16) |

| CASE#  | G            | H              | J            | K            | WT.GRAMS |
|--------|--------------|----------------|--------------|--------------|----------|
| UK3042 | .24<br>(6.0) | .070<br>(1.78) | .22<br>(5.5) | .30<br>(7.6) | 24       |

Dimensions are in inches (mm). Tolerances: 2 Pl.  $\pm .050$ ; 3 Pl.  $\pm .015$

### Notes:

- Case material: Brass alloy.
- Case Finish:
  - Case & Cover of the units –Gold plating.
- Refer to the individual model data sheet for the type of connectors available.



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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 125° C<br>Ambient Environment | Individual Model Data Sheet |
| Storage Temperature   | -55° to 125° C<br>Ambient Environment | Individual Model Data Sheet |