



THIN FILM COAXIAL

# Bandpass Filter

**ZABF-8R075G-S+**

50Ω 7750 to 8400 MHz SMA Male/Female

## KEY FEATURES

- Low Passband Insertion Loss, 2.7 dB Typ.
- High Rejection, 56 dB Typ.
- Small Size

## APPLICATIONS

- Phased Array SATCOM Antenna
- Aerospace and Defense Signal Conditioning
- Test and Measurement Equipment

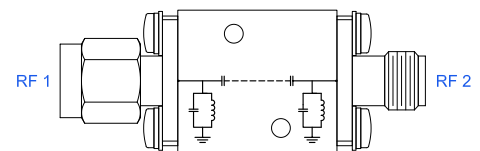
## PRODUCT OVERVIEW

Mini-Circuits' Connectorized Thin-Film filters offer low insertion loss and high rejection realized via Thin-Film on Alumina substrate, using a sputtering process that can guarantee an enhanced Q and repeatable performance. Low pass, high pass, and bandpass connectorized thin-film designs can be realized with this technology up to 40 GHz in a small form factor helping customers achieve their SWaP objectives. Using our high quality thin-film manufacturing process we can guarantee repeatability on large batches of filters.



Generic photo used for illustration purposes only

## FUNCTIONAL DIAGRAM



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

| Parameter       | F#                            | Frequency (MHz) | Min. | Typ. | Max. | Units |
|-----------------|-------------------------------|-----------------|------|------|------|-------|
| Passband        | Center Frequency <sup>2</sup> | —               | —    | 8075 | —    | MHz   |
|                 | Insertion Loss                | F1-F2           | —    | 2.7  | 3.2  | dB    |
|                 | Return Loss                   | F1-F2           | —    | 12   | —    | dB    |
| Stopband, Lower | Rejection                     | DC-F3           | 40   | 56   | —    | dB    |
|                 |                               | F3-F4           | 25   | 41   | —    | dB    |
| Stopband, Upper | Rejection                     | F5-F6           | 23   | 42   | —    | dB    |
|                 |                               | F6-F7           | —    | 40   | —    | dB    |

1. 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.

2. Typical variation  $\pm 3\%$

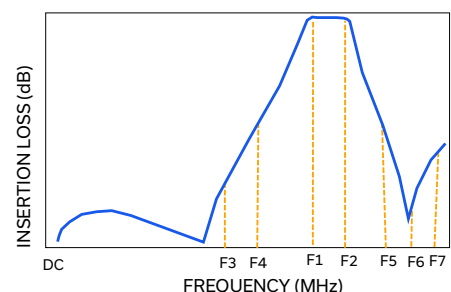
## ABSOLUTE MAXIMUM RATINGS<sup>3</sup>

| Parameter                | Ratings         |
|--------------------------|-----------------|
| Operating Temperature    | -55°C to +125°C |
| Storage Temperature      | -55°C to +125°C |
| Input Power <sup>4</sup> | 3W at 25°C      |

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

4. Power rating applies only to signals within the passband.

## TYPICAL FREQUENCY RESPONSE





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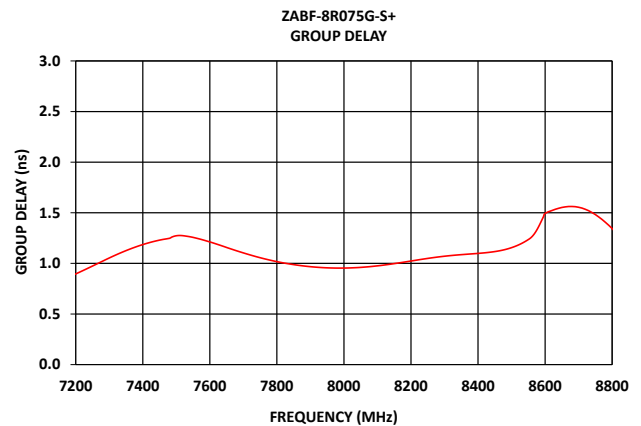
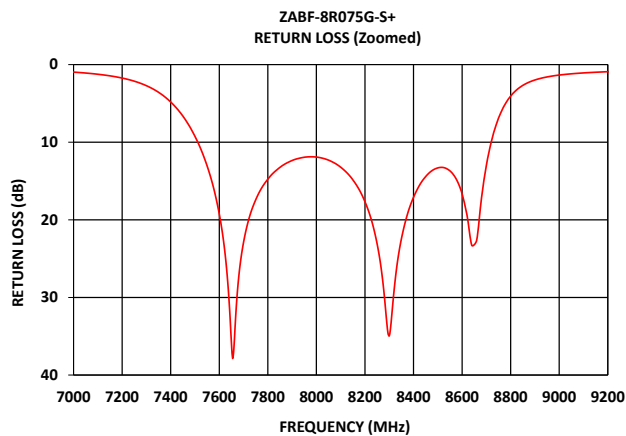
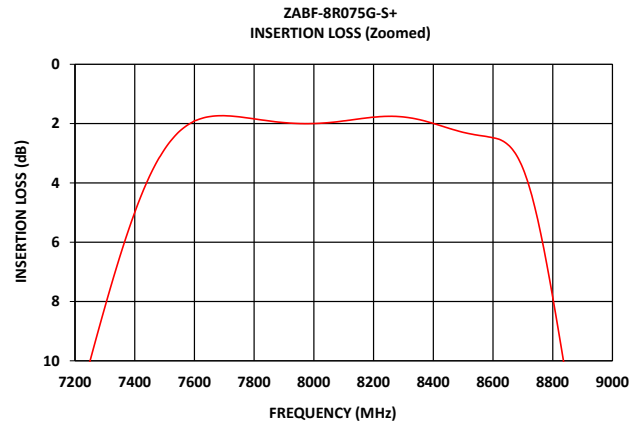
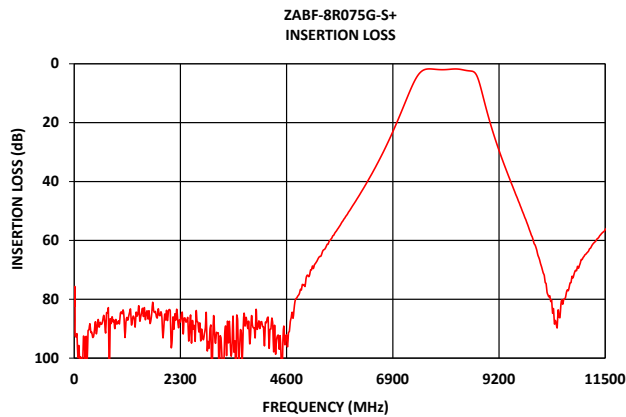
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50 $\Omega$  7750 to 8400 MHz SMA Male/Female

## TYPICAL PERFORMANCE GRAPHS AT +25°C





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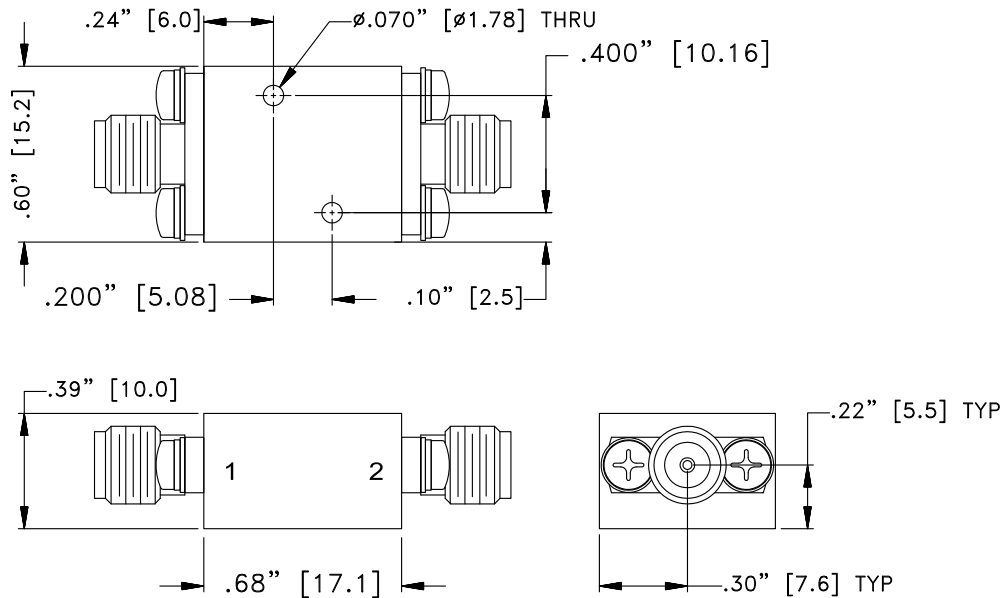
50Ω 7750 to 8400 MHz SMA Male/Female

## CONNECTOR DESCRIPTION

| Function         | Connector  |
|------------------|------------|
| RF1 <sup>5</sup> | SMA Male   |
| RF2 <sup>5</sup> | SMA Female |

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

## CASE STYLE DRAWING



Unit weight: 24grams

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

**PRODUCT MARKING\*:** ZABF-8R075G-S+

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



Mini-Circuits

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50Ω 7750 to 8400 MHz SMA Male/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     | ENV144                                       |

## 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)

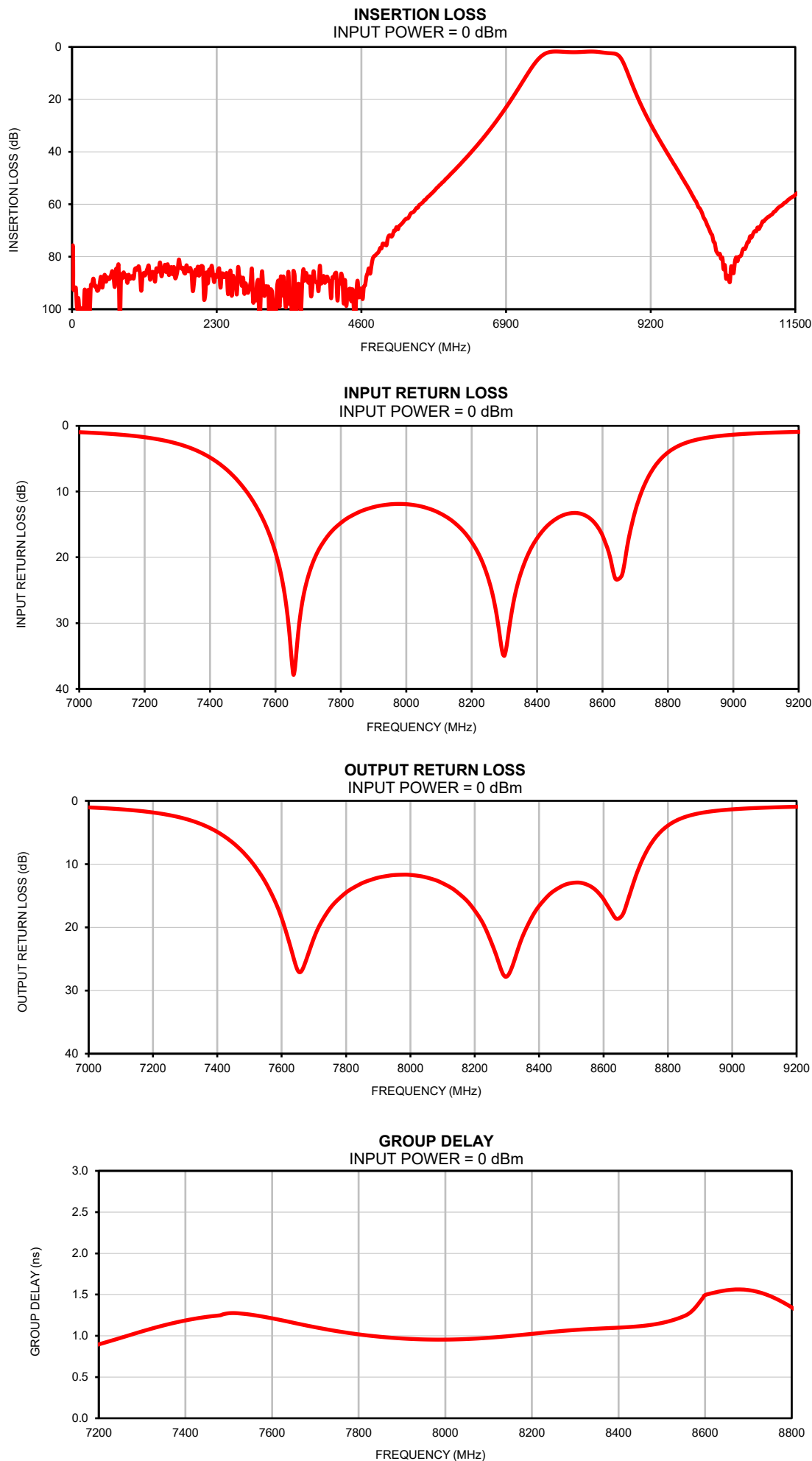


## Typical Performance Data

| FREQ. | Insertion Loss | Input Return Loss | Output Return Loss |
|-------|----------------|-------------------|--------------------|
| (MHz) | (dB)           | (dB)              | (dB)               |
| 10    | 76.98          | 0.00              | 0.00               |
| 100   | 95.70          | 0.00              | 0.00               |
| 200   | 92.61          | 0.00              | 0.00               |
| 300   | 90.71          | 0.01              | 0.01               |
| 500   | 89.07          | 0.02              | 0.02               |
| 700   | 84.60          | 0.04              | 0.04               |
| 1000  | 84.71          | 0.08              | 0.09               |
| 1200  | 84.40          | 0.12              | 0.14               |
| 1400  | 82.19          | 0.18              | 0.19               |
| 1600  | 86.72          | 0.23              | 0.25               |
| 1800  | 86.32          | 0.29              | 0.32               |
| 2000  | 83.75          | 0.36              | 0.38               |
| 2500  | 90.05          | 0.50              | 0.52               |
| 3000  | 95.30          | 0.61              | 0.60               |
| 3500  | 105.04         | 0.67              | 0.62               |
| 4000  | 87.33          | 0.66              | 0.62               |
| 4500  | 106.46         | 0.60              | 0.59               |
| 5000  | 75.60          | 0.51              | 0.51               |
| 5500  | 61.24          | 0.43              | 0.43               |
| 6000  | 49.00          | 0.40              | 0.41               |
| 6300  | 41.37          | 0.42              | 0.45               |
| 6680  | 30.40          | 0.57              | 0.62               |
| 6960  | 20.94          | 0.89              | 0.95               |
| 7260  | 9.65           | 2.24              | 2.35               |
| 7460  | 3.56           | 7.08              | 7.14               |
| 7750  | 1.77           | 17.42             | 17.04              |
| 7800  | 1.84           | 14.76             | 14.51              |
| 7850  | 1.91           | 13.24             | 13.02              |
| 7900  | 1.97           | 12.36             | 12.15              |
| 8000  | 2.00           | 11.91             | 11.72              |
| 8075  | 1.94           | 12.69             | 12.49              |
| 8150  | 1.84           | 14.84             | 14.63              |
| 8200  | 1.78           | 17.67             | 17.36              |
| 8250  | 1.75           | 23.09             | 22.19              |
| 8300  | 1.78           | 34.97             | 27.77              |
| 8400  | 1.99           | 17.09             | 16.63              |
| 8680  | 3.09           | 17.18             | 15.04              |
| 8800  | 7.86           | 4.06              | 3.92               |
| 9020  | 20.68          | 1.28              | 1.28               |
| 9220  | 30.29          | 0.89              | 0.91               |
| 9600  | 45.77          | 0.64              | 0.67               |
| 9640  | 47.34          | 0.63              | 0.65               |
| 9680  | 48.97          | 0.62              | 0.64               |
| 9720  | 50.61          | 0.60              | 0.63               |
| 9760  | 52.26          | 0.60              | 0.62               |
| 9800  | 53.84          | 0.59              | 0.61               |
| 9840  | 55.53          | 0.58              | 0.60               |
| 9880  | 57.27          | 0.57              | 0.59               |
| 9920  | 58.84          | 0.57              | 0.58               |
| 9960  | 61.07          | 0.56              | 0.58               |
| 10000 | 62.40          | 0.56              | 0.57               |
| 10040 | 64.91          | 0.56              | 0.56               |
| 10080 | 66.67          | 0.56              | 0.56               |
| 10120 | 68.89          | 0.55              | 0.55               |
| 10160 | 71.18          | 0.55              | 0.55               |
| 10200 | 74.26          | 0.55              | 0.54               |
| 10500 | 85.92          | 0.56              | 0.52               |
| 10600 | 80.06          | 0.57              | 0.51               |
| 11000 | 66.51          | 0.63              | 0.52               |
| 11500 | 56.37          | 0.71              | 0.57               |

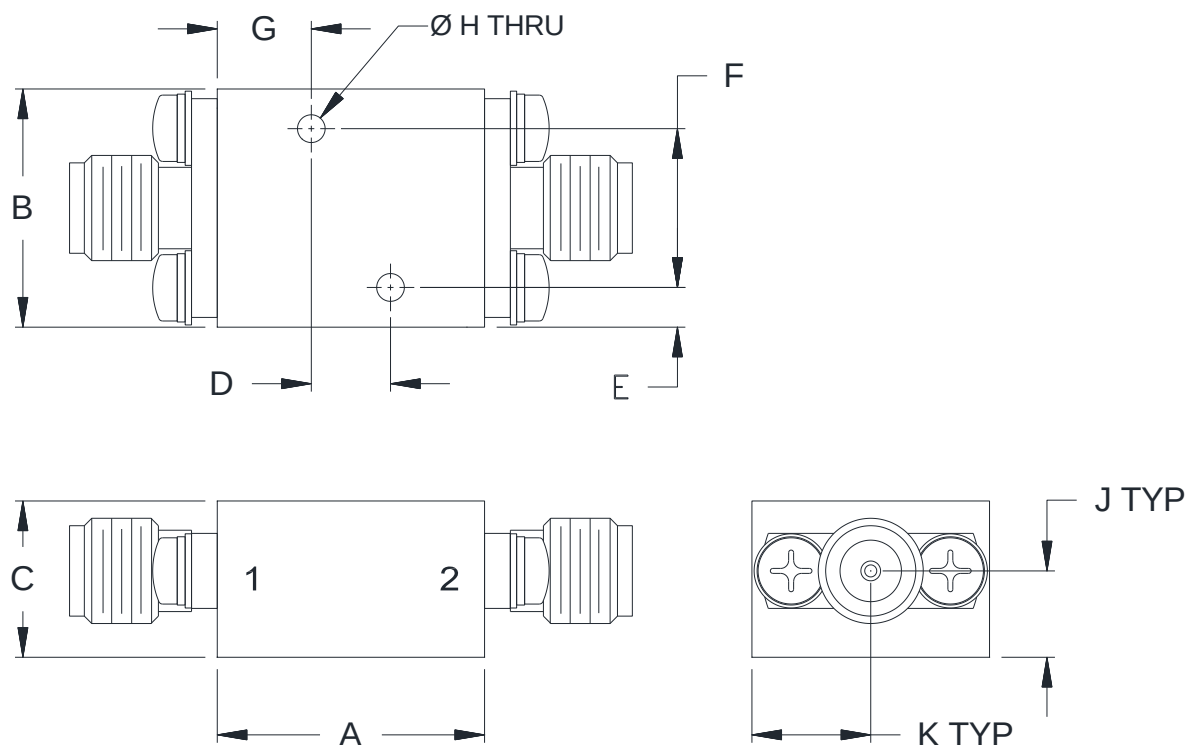
| FREQ. | Group Delay |
|-------|-------------|
| (MHz) | (ns)        |
| 7750  | 1.06        |
| 7760  | 1.05        |
| 7770  | 1.04        |
| 7780  | 1.03        |
| 7790  | 1.02        |
| 7800  | 1.02        |
| 7810  | 1.01        |
| 7820  | 1.00        |
| 7830  | 1.00        |
| 7840  | 0.99        |
| 7850  | 0.99        |
| 7860  | 0.98        |
| 7870  | 0.98        |
| 7880  | 0.97        |
| 7890  | 0.97        |
| 7900  | 0.97        |
| 7910  | 0.96        |
| 7920  | 0.96        |
| 7930  | 0.96        |
| 7940  | 0.96        |
| 7950  | 0.96        |
| 7960  | 0.95        |
| 7970  | 0.95        |
| 7980  | 0.95        |
| 7990  | 0.95        |
| 8000  | 0.95        |
| 8010  | 0.95        |
| 8020  | 0.96        |
| 8030  | 0.96        |
| 8040  | 0.96        |
| 8050  | 0.96        |
| 8060  | 0.96        |
| 8075  | 0.97        |
| 8090  | 0.97        |
| 8100  | 0.98        |
| 8110  | 0.98        |
| 8120  | 0.98        |
| 8130  | 0.99        |
| 8140  | 0.99        |
| 8150  | 1.00        |
| 8160  | 1.00        |
| 8170  | 1.01        |
| 8180  | 1.01        |
| 8190  | 1.02        |
| 8200  | 1.02        |
| 8210  | 1.03        |
| 8220  | 1.03        |
| 8230  | 1.04        |
| 8240  | 1.04        |
| 8250  | 1.05        |
| 8260  | 1.05        |
| 8270  | 1.06        |
| 8280  | 1.06        |
| 8290  | 1.07        |
| 8300  | 1.07        |
| 8310  | 1.07        |
| 8320  | 1.08        |
| 8330  | 1.08        |
| 8350  | 1.09        |
| 8400  | 1.10        |

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 | -40° to 100° C<br>Ambient Environment                                                                  | Individual Model Data Sheet                                     |
| Storage Temperature   | -55° to 100° C<br>Ambient Environment                                                                  | Individual Model Data Sheet                                     |
| Humidity              | 90 to 95% RH, 40°C, 96 hours<br>Units may require bake-out after humidity to restore full performance. | MIL-STD-202. method 103. Condition B                            |
| Thermal Shock         | -40°C to 100°C, 100 cycles                                                                             | MIL-STD-202, Method 107, Condition A-3, except -40°C and +100°C |