



Mini-Circuits

LUMPED LC COAXIAL

# Band Stop Filter

**NBSF-760+**

50Ω 680 to 840 MHz N-Type

## KEY FEATURES

- Low Insertion Loss, 0.9 dB Typ.
- Stopband Rejection, 42 dB Typ.
- Connectorized package

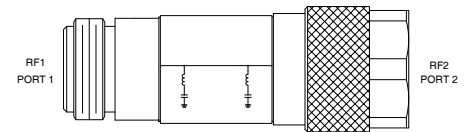


Generic photo used for illustration purposes only

## APPLICATIONS

- GPS
- Public Safety Radio

## FUNCTIONAL DIAGRAM



## PRODUCT OVERVIEW

Mini-Circuits' Model-NBSF-760+ is a Lumped LC bandstop filter that offer a good insertion loss and high rejection. This band stop filter rejects from 680 to 840 MHz. While passing DC - 400 MHz and 1350 - 1700 MHz, this filter has high Q capacitors and inductors to achieve a low insertion loss. It has repeatable performance across production lots.

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

| Parameter       | F#    | Frequency (MHz) | Min. | Typ. | Max. | Units |
|-----------------|-------|-----------------|------|------|------|-------|
| Passband, Lower | DC-F1 | DC - 400        | —    | 0.9  | 1.5  | dB    |
|                 | DC-F1 | DC - 400        | 7    | 10   | —    | dB    |
| Stopband        | F4-F5 | 680 - 840       | 30   | 42   | —    | dB    |
| Passband, Upper | F2-F3 | 1350 - 1700     | —    | 0.4  | 1    | dB    |
|                 | F2-F3 | 1350 - 1700     | 10   | 20   | —    | dB    |

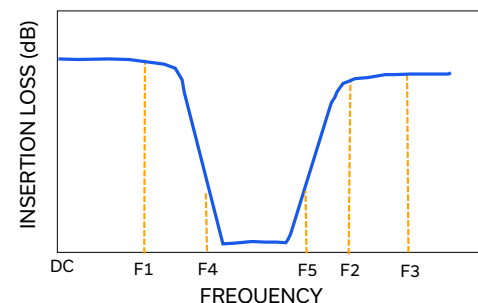
1. Bi-directional, RF1 and RF2 ports can be interchanged.

## ABSOLUTE MAXIMUM RATINGS<sup>2</sup>

|                       |                 |
|-----------------------|-----------------|
| Operating Temperature | -40°C to +85°C  |
| Storage Temperature   | -55°C to +100°C |
| Input Power           | 3 W             |

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

## TYPICAL FREQUENCY RESPONSE AT +25°C



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REV OR  
ECO-026012  
NBSF-760+  
EDU5076  
URJ  
230626

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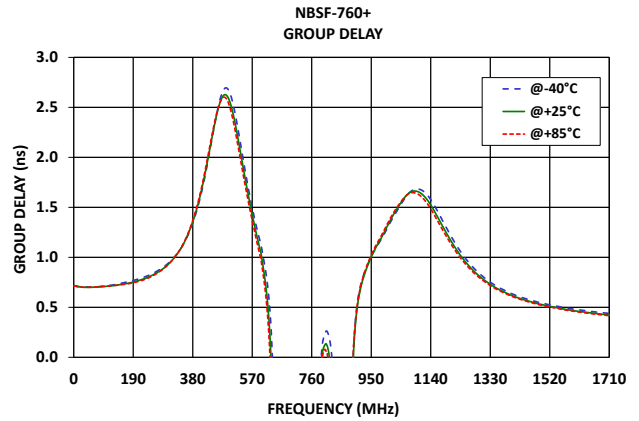
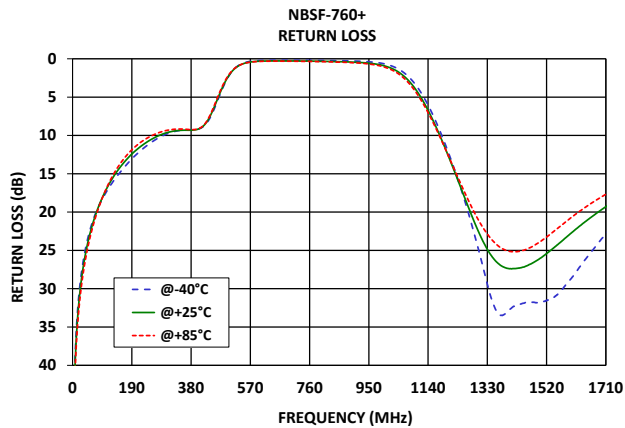
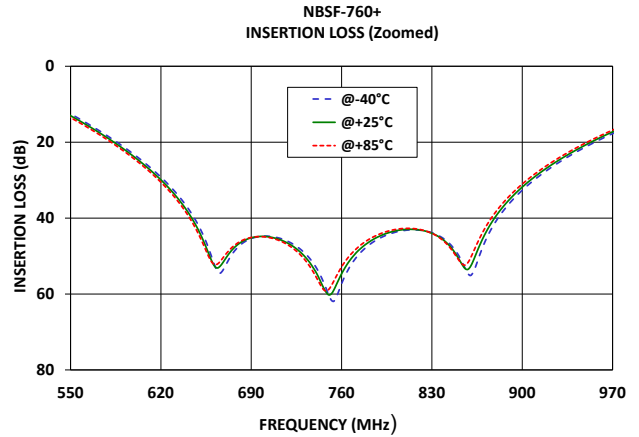
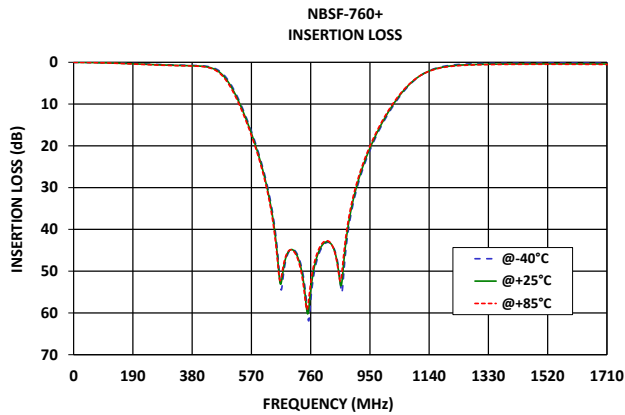
# Band Stop Filter

**NBSF-760+**

Mini-Circuits

50 $\Omega$  680 to 840 MHz N-Type

## TYPICAL PERFORMANCE GRAPHS





LUMPED LC COAXIAL

# Band Stop Filter

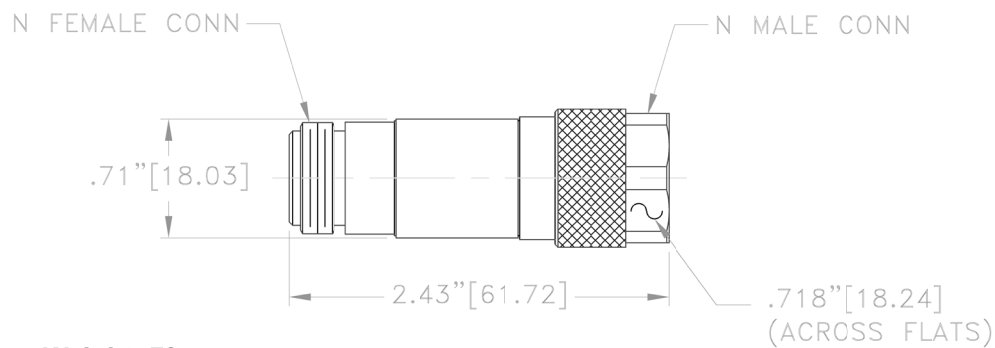
**NBSF-760+**

50Ω 680 to 840 MHz N-Type

## CONNECTOR DESCRIPTION

| Function         | Functionality | Connector |
|------------------|---------------|-----------|
| RF1 <sup>1</sup> | Port-1        | N- FEMALE |
| RF2 <sup>1</sup> | Port-2        | N- MALE   |

## CASE STYLE DRAWING



**Weight: 73 gram**

**Dimensions are in inches (mm). Tolerances: 2Pl.  $\pm .05/-0.04$ ; 3Pl.  $\pm .030$**

**PRODUCT MARKING\*:** NBSF-760+

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



Mini-Circuits

LUMPED LC COAXIAL

# Band Stop Filter

NBSF-760+

50Ω

680 to 840 MHz

N- Type

ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD

[CLICK HERE](#)

|                           |                                              |
|---------------------------|----------------------------------------------|
| Performance Data & Graphs | Data                                         |
|                           | Graphs                                       |
|                           | S-Parameter (S2P Files) Data Set (.zip file) |
| Case Style                | FF967                                        |
| RoHS Status               | Compliant                                    |
| Environmental Ratings     | ENV28                                        |

## 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)



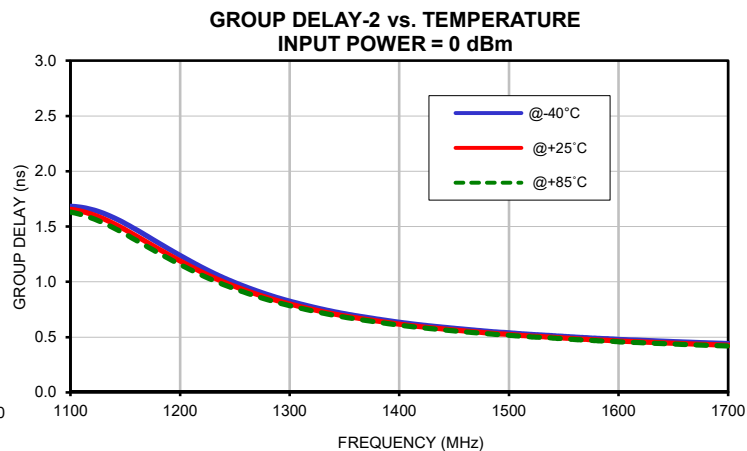
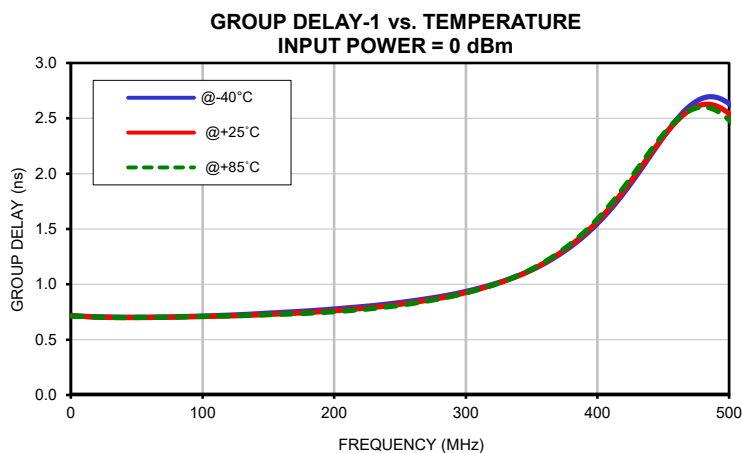
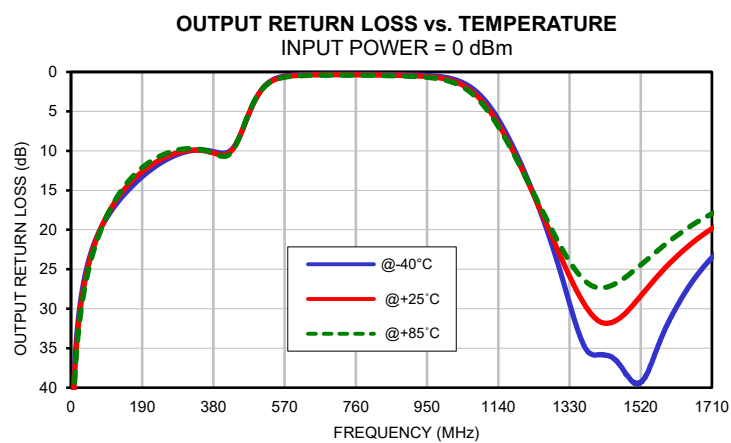
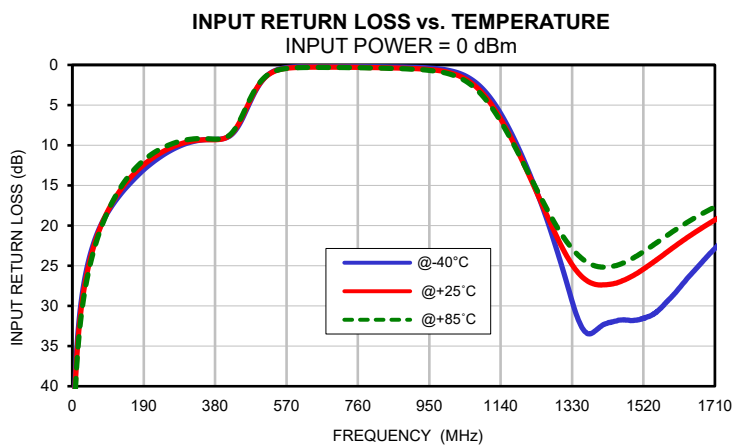
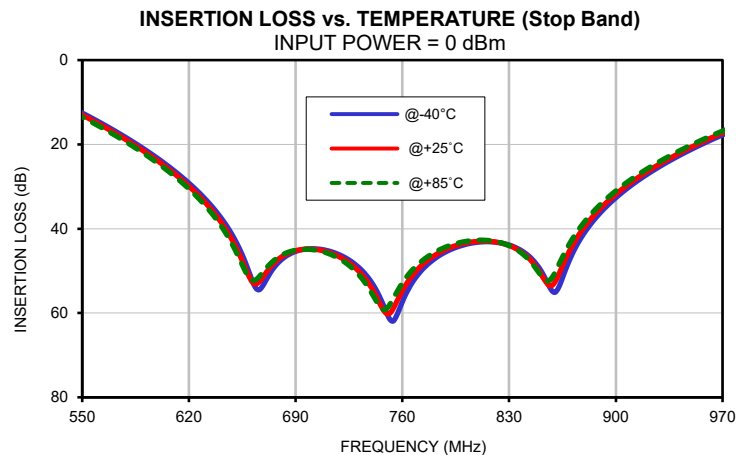
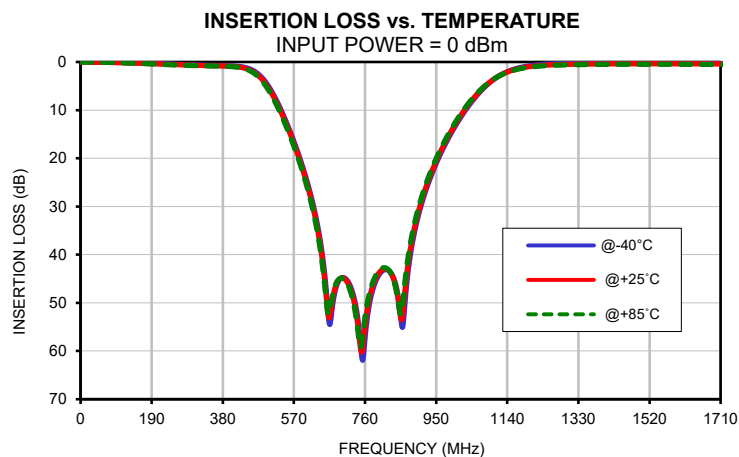
## Typical Performance Data

| FREQ. | INSERTION LOSS |        |        | INPUT RETURN LOSS |        |        | OUTPUT RETURN LOSS |        |        |
|-------|----------------|--------|--------|-------------------|--------|--------|--------------------|--------|--------|
| (MHz) | (dB)           |        |        | (dB)              |        |        | (dB)               |        |        |
|       | @-40°C         | @+25°C | @+85°C | @-40°C            | @+25°C | @+85°C | @-40°C             | @+25°C | @+85°C |
| 1     | 0.01           | 0.01   | 0.01   | 56.84             | 56.42  | 55.94  | 56.15              | 55.97  | 55.22  |
| 10    | 0.01           | 0.01   | 0.02   | 37.01             | 38.05  | 38.96  | 37.10              | 38.11  | 39.01  |
| 22    | 0.02           | 0.03   | 0.03   | 30.12             | 31.04  | 31.94  | 30.31              | 31.16  | 31.99  |
| 34    | 0.03           | 0.04   | 0.04   | 26.42             | 27.20  | 27.99  | 26.60              | 27.28  | 28.03  |
| 40    | 0.04           | 0.04   | 0.05   | 25.06             | 25.75  | 26.48  | 25.25              | 25.85  | 26.53  |
| 55    | 0.05           | 0.06   | 0.06   | 22.47             | 22.94  | 23.49  | 22.65              | 23.04  | 23.56  |
| 61    | 0.06           | 0.07   | 0.07   | 21.64             | 22.02  | 22.50  | 21.83              | 22.14  | 22.58  |
| 70    | 0.07           | 0.08   | 0.09   | 20.57             | 20.81  | 21.17  | 20.77              | 20.93  | 21.27  |
| 100   | 0.11           | 0.13   | 0.14   | 17.95             | 17.71  | 17.70  | 18.14              | 17.84  | 17.83  |
| 100   | 0.11           | 0.13   | 0.14   | 17.95             | 17.71  | 17.70  | 18.14              | 17.84  | 17.83  |
| 202   | 0.32           | 0.39   | 0.45   | 12.58             | 11.98  | 11.43  | 12.79              | 12.20  | 11.68  |
| 301   | 0.59           | 0.67   | 0.74   | 9.82              | 9.65   | 9.35   | 10.19              | 10.03  | 9.76   |
| 400   | 0.79           | 0.89   | 0.94   | 9.19              | 9.21   | 9.17   | 10.27              | 10.50  | 10.66  |
| 600   | 23.45          | 24.05  | 24.59  | 0.22              | 0.31   | 0.34   | 0.37               | 0.46   | 0.51   |
| 680   | 47.57          | 46.86  | 46.45  | 0.19              | 0.28   | 0.31   | 0.30               | 0.36   | 0.41   |
| 700   | 44.76          | 44.83  | 44.94  | 0.19              | 0.28   | 0.31   | 0.29               | 0.36   | 0.41   |
| 800   | 43.89          | 43.51  | 43.11  | 0.22              | 0.33   | 0.38   | 0.31               | 0.38   | 0.44   |
| 840   | 45.65          | 46.08  | 46.33  | 0.24              | 0.37   | 0.42   | 0.32               | 0.40   | 0.47   |
| 1000  | 13.45          | 13.04  | 12.68  | 0.66              | 0.93   | 1.08   | 0.70               | 0.90   | 1.06   |
| 1020  | 10.98          | 10.61  | 10.31  | 0.89              | 1.20   | 1.39   | 0.91               | 1.16   | 1.35   |
| 1040  | 8.77           | 8.46   | 8.22   | 1.23              | 1.60   | 1.82   | 1.25               | 1.55   | 1.77   |
| 1060  | 6.84           | 6.61   | 6.43   | 1.74              | 2.18   | 2.44   | 1.74               | 2.11   | 2.37   |
| 1080  | 5.21           | 5.05   | 4.95   | 2.44              | 2.96   | 3.26   | 2.43               | 2.88   | 3.18   |
| 1090  | 4.49           | 4.38   | 4.31   | 2.89              | 3.44   | 3.75   | 2.87               | 3.35   | 3.66   |
| 1100  | 3.86           | 3.78   | 3.75   | 3.39              | 3.98   | 4.30   | 3.37               | 3.89   | 4.20   |
| 1120  | 2.81           | 2.81   | 2.83   | 4.60              | 5.25   | 5.57   | 4.56               | 5.13   | 5.46   |
| 1140  | 2.02           | 2.09   | 2.15   | 6.05              | 6.73   | 7.03   | 6.00               | 6.61   | 6.91   |
| 1160  | 1.45           | 1.57   | 1.65   | 7.74              | 8.41   | 8.65   | 7.68               | 8.27   | 8.53   |
| 1180  | 1.06           | 1.21   | 1.31   | 9.63              | 10.24  | 10.38  | 9.55               | 10.08  | 10.27  |
| 1200  | 0.79           | 0.96   | 1.06   | 11.68             | 12.19  | 12.19  | 11.59              | 12.02  | 12.10  |
| 1220  | 0.61           | 0.79   | 0.89   | 13.91             | 14.21  | 14.04  | 13.80              | 14.06  | 13.99  |
| 1240  | 0.49           | 0.67   | 0.78   | 16.29             | 16.30  | 15.88  | 16.16              | 16.16  | 15.91  |
| 1260  | 0.41           | 0.59   | 0.70   | 18.85             | 18.40  | 17.67  | 18.68              | 18.32  | 17.82  |
| 1280  | 0.36           | 0.54   | 0.64   | 21.66             | 20.47  | 19.38  | 21.44              | 20.51  | 19.71  |
| 1300  | 0.32           | 0.50   | 0.59   | 24.64             | 22.41  | 20.93  | 24.42              | 22.70  | 21.54  |
| 1320  | 0.29           | 0.47   | 0.56   | 27.81             | 24.12  | 22.28  | 27.65              | 24.84  | 23.24  |
| 1340  | 0.28           | 0.45   | 0.54   | 30.91             | 25.52  | 23.40  | 30.89              | 26.84  | 24.71  |
| 1350  | 0.27           | 0.44   | 0.53   | 32.08             | 26.07  | 23.85  | 32.40              | 27.78  | 25.36  |
| 1360  | 0.26           | 0.43   | 0.52   | 32.95             | 26.53  | 24.25  | 33.70              | 28.65  | 25.92  |
| 1380  | 0.25           | 0.42   | 0.51   | 33.44             | 27.13  | 24.81  | 35.52              | 30.15  | 26.79  |
| 1400  | 0.24           | 0.41   | 0.50   | 32.81             | 27.38  | 25.12  | 35.86              | 31.25  | 27.28  |
| 1420  | 0.24           | 0.40   | 0.49   | 32.21             | 27.37  | 25.18  | 35.83              | 31.79  | 27.35  |
| 1440  | 0.23           | 0.40   | 0.48   | 31.96             | 27.24  | 25.06  | 36.05              | 31.77  | 27.09  |
| 1460  | 0.22           | 0.39   | 0.48   | 31.75             | 26.95  | 24.78  | 36.89              | 31.31  | 26.62  |
| 1480  | 0.22           | 0.39   | 0.48   | 31.78             | 26.53  | 24.36  | 38.30              | 30.52  | 25.97  |
| 1500  | 0.21           | 0.38   | 0.47   | 31.78             | 26.02  | 23.83  | 39.32              | 29.50  | 25.23  |
| 1520  | 0.21           | 0.38   | 0.47   | 31.54             | 25.42  | 23.26  | 39.32              | 28.39  | 24.46  |
| 1540  | 0.21           | 0.38   | 0.47   | 31.20             | 24.76  | 22.61  | 37.96              | 27.27  | 23.66  |
| 1560  | 0.20           | 0.38   | 0.48   | 30.54             | 24.08  | 21.97  | 35.47              | 26.14  | 22.84  |
| 1580  | 0.20           | 0.38   | 0.48   | 29.57             | 23.39  | 21.32  | 33.13              | 25.09  | 22.05  |
| 1600  | 0.20           | 0.39   | 0.48   | 28.63             | 22.71  | 20.68  | 31.14              | 24.11  | 21.31  |
| 1625  | 0.20           | 0.39   | 0.49   | 27.22             | 21.86  | 19.93  | 29.01              | 22.99  | 20.46  |
| 1631  | 0.20           | 0.39   | 0.49   | 26.91             | 21.68  | 19.76  | 28.52              | 22.73  | 20.26  |
| 1634  | 0.20           | 0.39   | 0.49   | 26.72             | 21.57  | 19.66  | 28.28              | 22.61  | 20.15  |
| 1652  | 0.20           | 0.40   | 0.50   | 25.78             | 21.00  | 19.16  | 26.95              | 21.88  | 19.57  |
| 1661  | 0.20           | 0.40   | 0.50   | 25.32             | 20.73  | 18.91  | 26.34              | 21.52  | 19.29  |
| 1673  | 0.20           | 0.40   | 0.51   | 24.70             | 20.37  | 18.60  | 25.58              | 21.08  | 18.94  |
| 1682  | 0.21           | 0.40   | 0.51   | 24.23             | 20.10  | 18.37  | 25.05              | 20.77  | 18.69  |
| 1694  | 0.21           | 0.40   | 0.51   | 23.61             | 19.75  | 18.07  | 24.36              | 20.36  | 18.38  |
| 1700  | 0.21           | 0.41   | 0.51   | 23.33             | 19.58  | 17.92  | 24.03              | 20.17  | 18.22  |

## Typical Performance Data

| FREQ. | GROUP DELAY-1 |        |        | FREQ. | GROUP DELAY-2 |        |        |
|-------|---------------|--------|--------|-------|---------------|--------|--------|
| (MHz) | (ns)          |        |        | (MHz) | (ns)          |        |        |
|       | @-40°C        | @+25°C | @+85°C |       | @-40°C        | @+25°C | @+85°C |
| 1     | 0.71          | 0.72   | 0.71   | 1350  | 0.71          | 0.69   | 0.68   |
| 4     | 0.71          | 0.71   | 0.71   | 1352  | 0.71          | 0.69   | 0.68   |
| 7     | 0.71          | 0.71   | 0.71   | 1356  | 0.70          | 0.68   | 0.67   |
| 10    | 0.71          | 0.71   | 0.71   | 1358  | 0.70          | 0.68   | 0.67   |
| 13    | 0.71          | 0.71   | 0.71   | 1360  | 0.69          | 0.68   | 0.66   |
| 16    | 0.71          | 0.71   | 0.70   | 1364  | 0.69          | 0.67   | 0.66   |
| 22    | 0.71          | 0.70   | 0.70   | 1366  | 0.68          | 0.67   | 0.66   |
| 25    | 0.71          | 0.70   | 0.70   | 1388  | 0.65          | 0.63   | 0.62   |
| 31    | 0.70          | 0.70   | 0.70   | 1390  | 0.65          | 0.63   | 0.62   |
| 37    | 0.70          | 0.70   | 0.70   | 1400  | 0.63          | 0.62   | 0.61   |
| 40    | 0.70          | 0.70   | 0.70   | 1410  | 0.62          | 0.60   | 0.60   |
| 49    | 0.70          | 0.70   | 0.70   | 1420  | 0.61          | 0.59   | 0.59   |
| 52    | 0.70          | 0.70   | 0.70   | 1430  | 0.60          | 0.58   | 0.58   |
| 55    | 0.70          | 0.70   | 0.70   | 1440  | 0.59          | 0.57   | 0.57   |
| 58    | 0.70          | 0.70   | 0.70   | 1450  | 0.58          | 0.56   | 0.56   |
| 61    | 0.70          | 0.70   | 0.70   | 1460  | 0.57          | 0.56   | 0.55   |
| 100   | 0.71          | 0.71   | 0.71   | 1470  | 0.56          | 0.55   | 0.54   |
| 109   | 0.72          | 0.71   | 0.71   | 1480  | 0.55          | 0.54   | 0.53   |
| 160   | 0.75          | 0.73   | 0.73   | 1490  | 0.55          | 0.53   | 0.52   |
| 175   | 0.76          | 0.74   | 0.74   | 1500  | 0.54          | 0.52   | 0.52   |
| 181   | 0.76          | 0.75   | 0.74   | 1510  | 0.53          | 0.52   | 0.51   |
| 199   | 0.78          | 0.76   | 0.75   | 1520  | 0.52          | 0.51   | 0.50   |
| 202   | 0.78          | 0.76   | 0.75   | 1530  | 0.52          | 0.50   | 0.50   |
| 220   | 0.80          | 0.78   | 0.77   | 1540  | 0.51          | 0.50   | 0.49   |
| 250   | 0.84          | 0.82   | 0.81   | 1550  | 0.51          | 0.49   | 0.49   |
| 265   | 0.86          | 0.85   | 0.84   | 1560  | 0.50          | 0.49   | 0.48   |
| 292   | 0.92          | 0.90   | 0.90   | 1570  | 0.50          | 0.48   | 0.47   |
| 301   | 0.94          | 0.93   | 0.93   | 1580  | 0.49          | 0.48   | 0.47   |
| 310   | 0.97          | 0.96   | 0.96   | 1590  | 0.49          | 0.47   | 0.46   |
| 316   | 0.98          | 0.98   | 0.98   | 1600  | 0.48          | 0.46   | 0.46   |
| 325   | 1.02          | 1.01   | 1.01   | 1610  | 0.47          | 0.46   | 0.45   |
| 334   | 1.05          | 1.05   | 1.05   | 1622  | 0.47          | 0.46   | 0.45   |
| 346   | 1.11          | 1.11   | 1.11   | 1628  | 0.47          | 0.45   | 0.45   |
| 352   | 1.14          | 1.14   | 1.15   | 1631  | 0.47          | 0.45   | 0.45   |
| 370   | 1.26          | 1.27   | 1.28   | 1634  | 0.47          | 0.45   | 0.44   |
| 373   | 1.28          | 1.29   | 1.31   | 1640  | 0.46          | 0.45   | 0.44   |
| 385   | 1.39          | 1.40   | 1.42   | 1643  | 0.46          | 0.45   | 0.44   |
| 391   | 1.45          | 1.47   | 1.48   | 1655  | 0.46          | 0.44   | 0.44   |
| 394   | 1.48          | 1.50   | 1.52   | 1685  | 0.45          | 0.43   | 0.42   |
| 397   | 1.51          | 1.53   | 1.55   | 1691  | 0.44          | 0.43   | 0.42   |
| 400   | 1.55          | 1.57   | 1.59   | 1700  | 0.44          | 0.43   | 0.42   |

## Typical Performance Curves

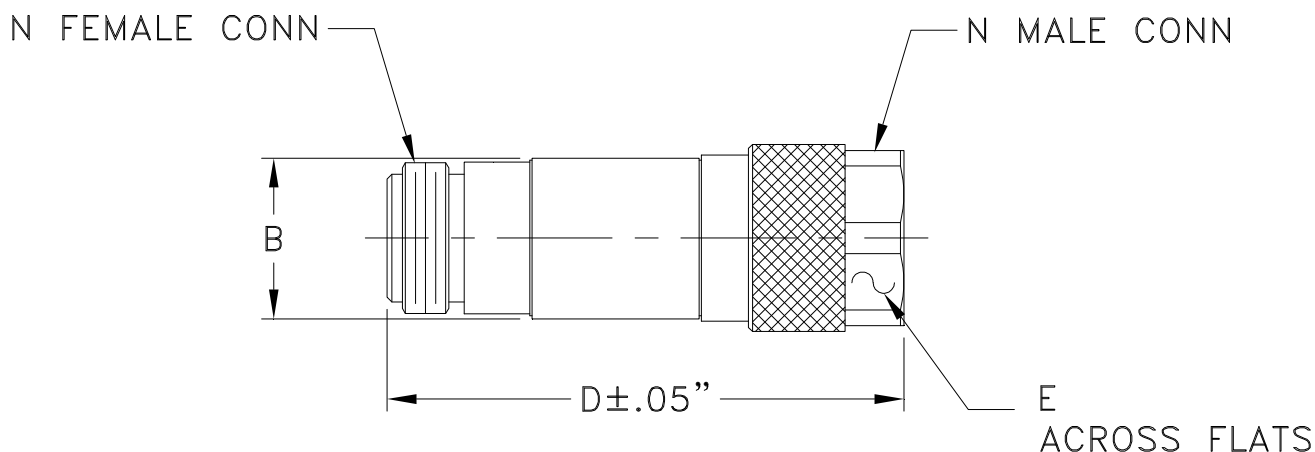


# Case Style

# FF

## Outline Dimensions

FF967



| CASE #. | A  | B              | C  | D               | E               | WT GRAMS |
|---------|----|----------------|----|-----------------|-----------------|----------|
| FF967   | -- | .71<br>(18.03) | -- | 2.43<br>(61.72) | .718<br>(18.24) | 73.0     |

Dimensions are in inches (mm). Tolerances: 2Pl. +.05/-.04; 3Pl. ± .030

### Notes:

1. Case material: Brass.
2. Case finish: Nickel plate.



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



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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 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 |