



# PASSIVE COMPONENTS CATALOG



## STELLANT SYSTEMS

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## Introduction

Stellant Systems is a partner for civil, military, and commercial organizations whose missions seek to ensure a safe, aware, and connected world. We are a premier manufacturer of critical spectrum and power amplification systems for defense, space, medical/ scientific and industrial customers worldwide.

The Folsom, CA facility has been a supplier of high performance RF components for the Military, Space, Commercial and Wireless markets for nearly 40 years.

The facility is over 57,000 square feet and is ISO 9001:2015 and AS 9100:2016 certified.

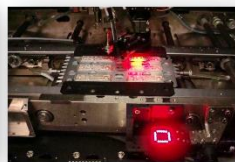


## Manufacturing Capabilities

- \* Advanced thermal, mechanical & electrical modeling
- \* Automated high-volume manufacturing
- \* Automated test and data management
- \* CNC machining, including vertical mills & turning centers
- \* Environmental Test lab
- \* Full forward and backward traceability
- \* Hermetic sealing in a controlled atmosphere
- \* Integrated company-wide MRP system
- \* In-house circuit fabrication
- \* Thin-film and solder assembly
- \* Test capabilities from RF through Millimeter Wave



Automated Die Attach Machine



Automated Wire-bonding Machine



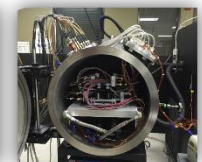
Laser Welding



Random Vibration Testing



Thermal Shock Testing



Thermal Vacuum Testing

## Ordering Information

The information in this catalog will, in most cases, will be sufficient for you to select a particular Stellant product. However, Stellant's engineering and technical capabilities allow us to offer these catalog devices as well as custom units designed to your specifications. Our engineering staff is backed by extensive in- house manufacturing capability. This assures a rapid response to a prototype request as well as continuous delivery of production orders.

Please contact us to place an order.

### Stellant Systems

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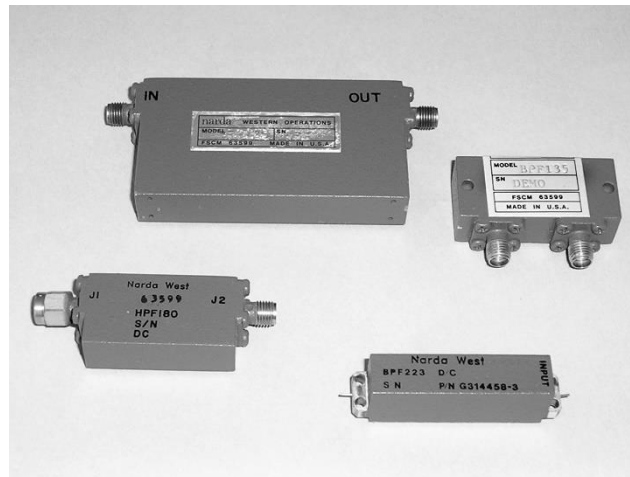
## Passive Components Product List

- Filters
- Diplexers/Multiplexers
- Hybrid Matrices
- Space Power Dividers, Combiners
- Circulators/Isolators
- Satcom Low Cost Isolators
- Wireless Filters
- Couplers

## Microwave Filters Features

### Features

- Bandpass Filters
  - 500 MHz – 18 GHz
- Band reject Filters
  - 3.5 GHz – 16.2 GHz
- Broadband High pass Filters
  - 0.5 GHz – 18 GHz
- Broadband Lowpass Filters
  - High Selectivity
  - Broad Stopbands
  - Space and Weight
  - Compact Size and Low Weight
  - Low Loss



### DESCRIPTION

Stellant's catalog and custom microwave filters are engineered with the help of CAD/CAM tools and utilize comb line and other filter structures. These devices offer high selectivity and broad stop band rejection combined with low insertion loss and low VSWR characteristics. Upper stopbands typically extend through the third and fourth harmonics of the highest frequency in the passband. These bandpass, band reject, high pass, and lowpass filters cover frequencies from 100 MHz to 18 GHz in bandwidths of less than 1% up to multi-octave. Filters are available in phase and/or amplitude matched sets, with phase matching to within  $\pm 2^\circ$  and amplitude matching  $\pm 0.3$  dB or better in the passbands. These filters can be integrated with other microwave components to provide optimum system performance in a compact size.

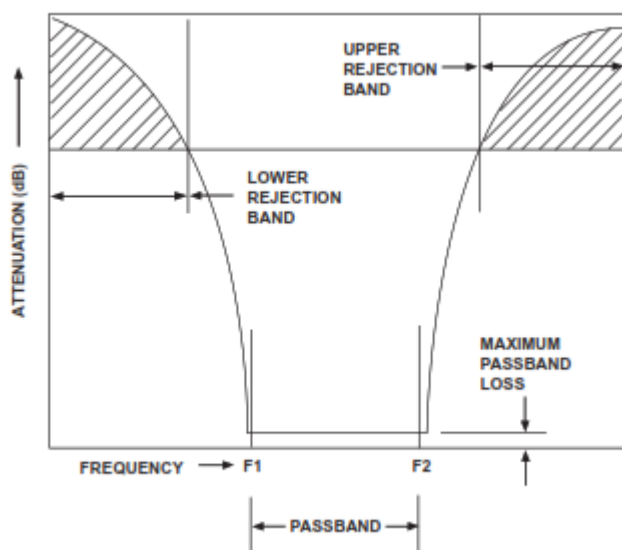
Our engineering staff is backed by extensive in-house manufacturing capability. This assures a rapid response to prototype development requests as well as continuous delivery of production orders. Our production capacity is one of the highest in the industry while our rejection rate is one of the lowest, resulting in reliable, on-time delivery of quality parts.

As always, quality, workmanship, and technology remain the trademark of all Stellant products.

## Broadband Microwave Filters

| Passband (GHz) | Model No. | Min. Rejection (dB) | Rejection Bands (GHz) |             | Max. Insertion Loss (dB) | Max. Passband VSWR | Outline Drawing |
|----------------|-----------|---------------------|-----------------------|-------------|--------------------------|--------------------|-----------------|
|                |           |                     | Lower                 | Upper Band  |                          |                    |                 |
| 0.50–1.00      | NBP-1000  | 5                   | DC–0.300              | 1.125–3.0   | 1                        | 1.4:1              | A               |
| 0.50–1.00      | NBP-1001  | 6                   | DC–0.375              | 1.125–12.4  | 1                        | 1.5:1              | A               |
| 0.70–3.80      | NBP-1002  | 60/35               | DC–0480               | 4.250–20.0  | 1                        | 1.8:1              | A               |
| 1.00–2.00      | NBP-1003  | 5                   | DC–0.600              | 2.250–6.0   | 1                        | 1.4:1              | A               |
| 1.00–2.00      | NBP-1004  | 6                   | DC–0.750              | 2.250–12.4  | 1                        | 1.5:1              | A               |
| 2.00–4.00      | NBP-1005  | 5                   | DC–1.300              | 4.500–12.4  | 0.75                     | 1.4:1              | A               |
| 2.00–4.00      | NBP-1006  | 6                   | DC–1.500              | 4.500–12.4  | 1                        | 1.5:1              | A               |
| 2.00–6.00      | NBP-1009  | 6                   | DC–0.970              | 6.500–18.0  | 1                        | 1.9:1              | A               |
| 2.00–6.00      | NBP-1010  | 5                   | DC–1.700              | 7.000–18.0  | 1                        | 1.9:1              | A               |
| 2.60–5.20      | NBP-1007  | 5                   | DC–1.700              | 5.850–15.0  | 0.75                     | 1.5:1              | A               |
| 2.60–6.50      | NBP-1008  | 6                   | DC–2.150              | 7.100–18.0  | 1                        | 1.7:1              | A               |
| 4.00–8.00      | NBP-1011  | 5                   | DC–2.600              | 9.000–21.0  | 0.75                     | 1.4:1              | A               |
| 4.00–8.00      | NBP-1012  | 6                   | DC–3.000              | 9.000–18.0  | 1                        | 1.5:1              | A               |
| 4.50–9.60      | NBP-1013  | 30/50               | DC–3.000              | 11.000–18.0 | 1                        | 1.6:1              | A               |
| 7.00–1.00      | NBP-1014  | 5                   | DC–4.750              | 12.300–22.0 | 0.8                      | 1.4:1              | A               |
| 7.50–7.00      | NBP-1022  | 5                   | DC–7.000              | 18.000–26.0 | 2                        | 1.5:1              | A               |
| 8.00–12.00     | NBP-1015  | 5                   | DC–5.750              | 13.300–24.0 | 0.8                      | 1.4:1              | A               |
| 8.00–12.00     | NBP-1016  | 6                   | DC–7.000              | 13.000–18.0 | 1                        | 1.4:1              | A               |
| 8.00–16.00     | NBP-1018  | 6                   | DC–6.500              | 17.000–25.0 | 1                        | 1.8:1              | A               |
| 11.00–18.00    | NBP-1017  | 5                   | DC–7.200              | 20.000–26.0 | 1                        | 1.6:1              | A               |
| 11.00–18.00    | NBP-1019  | 6                   | DC–9.000              | 19.500–25.0 | 1                        | 1.6:1              | A               |
| 12.00–18.00    | NBP-1020  | 5                   | DC–7.800              | 20.000–26.0 | 1                        | 1.6:1              | A               |
| 12.00–18.00    | NBP-1021  | 6                   | DC–11.00              | 19.000–24.0 | 1                        | 1.7:1              | A               |

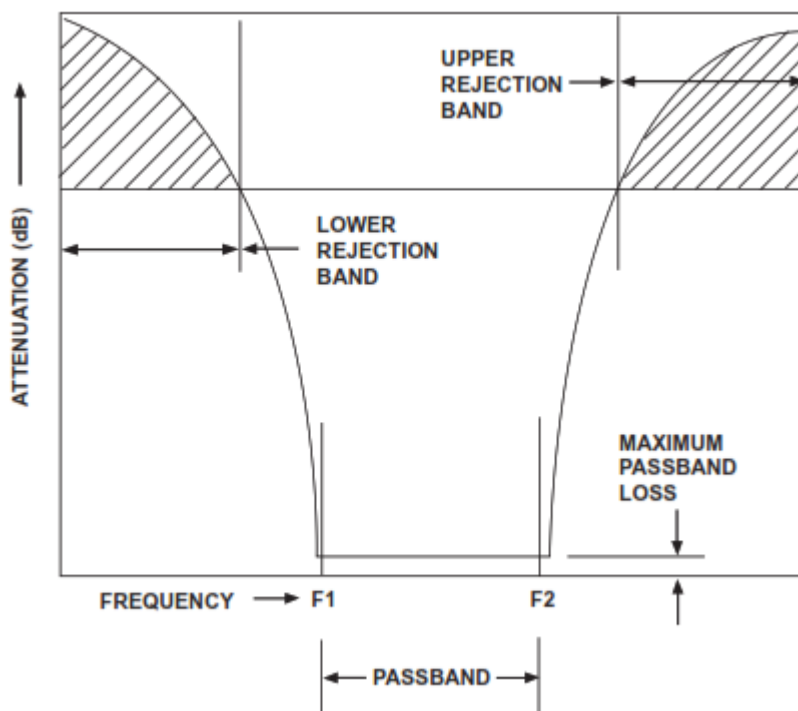
### Electrical Response



## Narrowband Microwave Filters

| Passband (GHz) | Model No. | Min. Rejection (dB) | Rejection Bands (GHz) |             | Max. Insertion Loss (dB) | Max. Passband VSWR | Outline Drawing |
|----------------|-----------|---------------------|-----------------------|-------------|--------------------------|--------------------|-----------------|
|                |           |                     | Lower Band            | Upper Band  |                          |                    |                 |
| 1.00–1.25      | NBP-2000  | 50                  | DC–0.725              | 1.450–5.0   | 0.5                      | 1.4:1              | A               |
| 1.25–1.40      | NBP-2001  | 50                  | DC–0.975              | 1.600–5.0   | 0.5                      | 1.4:1              | A               |
| 1.40–1.70      | NBP-2002  | 50                  | DC–1.050              | 1.920–6.0   | 0.4                      | 1.4:1              | A               |
| 1.43–1.54      | NBP-2003  | 50                  | DC–1.155              | 1.815–6.0   | 0.4                      | 1.3:1              | A               |
| 1.70–1.85      | NBP-2004  | 50                  | DC–1.000              | 2.900–8.0   | 0.35                     | 1.5:1              | A               |
| 1.75–1.85      | NBP-2005  | 50                  | DC–7.475              | 2.125–6.0   | 0.4                      | 1.3:1              | A               |
| 2.20–2.30      | NBP-2006  | 50                  | DC–1.925              | 2.575–8.0   | 0.4                      | 1.4:1              | A               |
| 3.70–4.20      | NBP-2007  | 50                  | DC–2.900              | 4.800–12.0  | 0.4                      | 1.4:1              | A               |
| 5.40–5.90      | NBP-2008  | 50                  | DC–4.600              | 6.500–18.0  | 0.5                      | 1.4:1              | A               |
| 5.00–8.00      | BPF-178   | 50                  | DC–3.000              | 10.000–15.0 | 1                        | 1.5:1              | A               |
| 5.90–6.40      | NBP-2009  | 50                  | DC–5.100              | 7.000–18.0  | 0.5                      | 1.4:1              | A               |
| 8.00–0.00      | NBP-2010  | 50                  | DC–7.100              | 10.900–21.0 | 0.75                     | 1.4:1              | A               |
| 10.00–2.00     | NBP-2011  | 50                  | DC–9.100              | 13.900–26.0 | 0.75                     | 1.4:1              | A               |
| 10.50–0.60     | BPF-157   | 20                  | DC–10.200             | 10.800–23.5 | 1                        | 1.5:1              | A               |
| 12.00–14.00    | NBP-2014  | 50                  | DC–10.000             | 15.500–24.5 | 1                        | 1.6:1              | A               |
| 13.20–13.40    | BPF-126   | 20                  | DC–12.800             | 13.800–23.5 | 1                        | 1.5:1              | A               |
| 14.00–16.00    | NBP-2012  | 50                  | DC–13.100             | 16.900–26.0 | 1                        | 1.6:1              | A               |
| 16.00–18.00    | NBP-2013  | 50                  | DC–15.100             | 18.900–26.0 | 1                        | 1.6:1              | A               |

### Electrical Response



## High-Pass Microwave Filters

| Passband (GHz) | Model No. | Min. Rejection (dB) | Rejection Band (GHz) | Insertion Loss (dB) | VSWR      |           | Outline Drawing |
|----------------|-----------|---------------------|----------------------|---------------------|-----------|-----------|-----------------|
|                |           |                     |                      |                     | to 12 GHz | to 18 GHz |                 |
| 0.48–8.00      | NHP-3005  | 4                   | DC-0.240             | 1.5                 | 2.00:1    | 2.00:1    | B               |
| 1.00–18.00     | NHP-3006  | 5                   | DC-0.500             | 1                   | 1.80:1    | 1.80:1    | B               |
| 1.00–12.00     | NHP-3000  | 4                   | DC-0.430             | 1                   | 1.80:1    | -         | B               |
| 2.00–10.00     | HPF-102   | 5                   | DC-1.600             | 1                   | 1.80:1    | -         | B               |
| 2.00–18.00     | HPF-161   | 4                   | DC-1.400             | 1                   | 2.00:1    | 2.00:1    | B               |
| 2.50–18.00     | NHP-3002  | 4                   | DC-1.200             | 1                   | 1.80:1    | 2.20:1    | B               |
| 4.00–9.00      | HPF-204   | 5                   | DC-3.400             | 1                   | 1.60:1    | -         | B               |
| 6.00–18.00     | HPF-220   | 5                   | DC-5.100             | 1                   | 2.00:1    | 2.00:1    | B               |
| 6.20–17.00     | NHP-3003  | 5                   | DC-3.900             | 0.8                 | 1.80:1    | 1.80:1    | B               |
| 7.00–17.00     | HPF-174   | 4                   | DC-5.400             | 1                   | 1.50:1    | 1.50:1    | B               |
| 8.00–18.00     | HPF-180   | 5                   | DC-7.000             | 1                   | 2.00:1    | 2.00:1    | B               |

## Band Reject Microwave Filters

| Stopband (GHz) | Model No. | Min. Rejection (dB) | Pass Bands (GHz) |            | Max. Insertion Loss (dB) | Max. Passband VSWR | Outline Drawing |
|----------------|-----------|---------------------|------------------|------------|--------------------------|--------------------|-----------------|
|                |           |                     | Lower Band       | Upper Band |                          |                    |                 |
| 3.50–4.20      | NBR-4000  | 60                  | DC-3.300         | 4.65–8.0   | 0.8                      | 1.7:1              | C               |
| 6.80–7.20      | NBR-4001  | 40                  | DC-6.300         | 7.70–12.0  | 0.8                      | 1.7:1              | C               |
| 6.85–7.20      | NBR-4002  | 80                  | DC-6.600         | 7.60–12.0  | 1                        | 1.8:1              | D               |
| 10.00–10.25    | NBR-4003  | 80                  | DC-9.600         | 10.65–18.0 | 1                        | 1.8:1              | D               |
| 10.00–10.50    | NBR-4004  | 50                  | DC-9.800         | 10.85–18.0 | 1                        | 1.8:1              | D               |
| 10.00–10.70    | NBR-4008  | 80                  | DC-9.400         | 11.30–78.0 | 1                        | 1.8:1              | D               |
| 13.20–14.20    | NBR-4005  | 40                  | DC-13.200        | 14.70–18.0 | 1.4                      | 1.7:1              | C               |
| 15.80–16.20    | NBR-4006  | 40                  | DC-15.300        | 16.70–18.0 | 1.4                      | 1.7:1              | C               |
| 15.80–16.20    | NBR-4007  | 70                  | DC-15.000        | 17.20–20.0 | 1                        | 1.9:1              | D               |



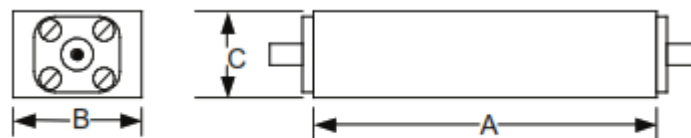
### Microwave Filters General Specifications

- Meets MIL-E-5400, Class 11 and MIL-E-16400 Environments
- Power Rating: 5 Watts CW
- Operating Temperature: -55° to +95°C
- Altitude: 0–70,000 Ft.
- Units are provided with SMA Female Connectors and threaded mounting holes
- Variation of catalog items or custom designs to your specifications are available

### OUTLINE A PACKAGE DIMENSIONS

| Model No. | DIM A | DIM B | DIM C |
|-----------|-------|-------|-------|
| NBP-1000  | 3.49  | 1.13  | 1.80  |
| NBP-1001  | 7.36  | 2.04  | 1.25  |
| NBP-1002  | 3.48  | 1.23  | 0.67  |
| NBP-1003  | 3.50  | 1.10  | 1.25  |
| NBP-1004  | 7.32  | 1.25  | 1.31  |
| NBP-1005  | 3.49  | 1.25  | 0.78  |
| NBP-1006  | 5.10  | 1.25  | 1.00  |
| NBP-1007  | 3.00  | 0.87  | 0.65  |
| NBP-1008  | 2.08  | 1.00  | 0.55  |
| NBP-1009  | 3.50  | 1.00  | 0.75  |
| NBP-1010  | 1.87  | 1.05  | 0.66  |
| NBP-1011  | 2.50  | 0.75  | 0.62  |
| NBP-1012  | 3.05  | 0.75  | 0.75  |
| NBP-1013  | 2.23  | 0.80  | 0.63  |
| NBP-1014  | 2.50  | 0.76  | 0.61  |
| NBP-1015  | 2.00  | 0.60  | 0.55  |
| NBP-1016  | 3.40  | 0.63  | 0.51  |
| NBP-1017  | 1.90  | 0.60  | 0.50  |
| NBP-1018  | 2.16  | 0.63  | 0.63  |
| NBP-1019  | 2.25  | 0.63  | 0.63  |
| NBP-1020  | 2.00  | 0.60  | 0.50  |

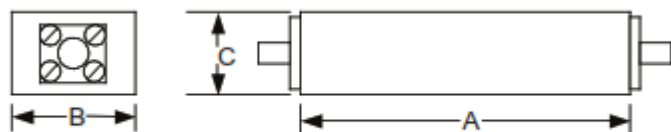
| Model No. | DIM A | DIM B | DIM C |
|-----------|-------|-------|-------|
| NBP-1021  | 2.90  | 0.56  | 0.63  |
| NBP-1022  | 2.50  | 0.70  | 0.50  |
| NBP-2000  | 3.00  | 0.86  | 1.45  |
| NBP-2001  | 3.00  | 1.00  | 1.55  |
| NBP-2002  | 2.75  | 1.00  | 1.38  |
| NBP-2003  | 4.00  | 1.13  | 0.88  |
| NBP-2004  | 2.50  | 1.00  | 1.20  |
| NBP-2005  | 4.00  | 1.13  | 0.88  |
| NBP-2006  | 4.00  | 1.13  | 0.88  |
| NBP-2007  | 3.00  | 1.00  | 1.00  |
| NBP-2008  | 2.50  | 0.75  | 0.75  |
| NBP-2009  | 2.50  | 0.75  | 0.75  |
| NBP-2010  | 3.00  | 0.63  | 0.63  |
| NBP-2011  | 3.00  | 0.70  | 0.63  |
| NBP-2012  | 3.25  | 0.63  | 0.50  |
| NBP-2013  | 3.75  | 0.60  | 0.50  |
| NBP-2014  | 0.63  | 0.63  | 0.56  |
| BPF-178   | 2.03  | 0.60  | 0.61  |
| BPF-157   | 2.00  | 0.63  | 0.50  |
| BPF-126   | 1.24  | 0.60  | 0.55  |



**OUTLINE A**

**OUTLINE B PACKAGE DIMENSIONS**

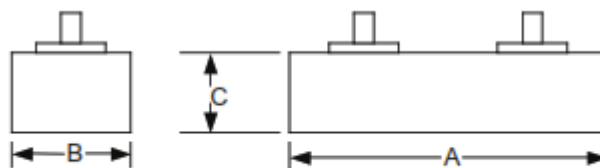
| MODEL NO. | DIM A | DIM B | DIM C |
|-----------|-------|-------|-------|
| NHP-3000  | 1.75  | 1     | 0.5   |
| NHP-3002  | 1.15  | 0.8   | 0.5   |
| NHP-3003  | 1.29  | 1     | 0.65  |
| NHP-3005  | 1.2   | 0.4   | 0.4   |
| NHP-3006  | 1.2   | 0.4   | 0.4   |
| HPF-204   | 1.33  | 0.8   | 0.5   |
| HPF-174*  | 1.10  | 0.8   | 0.4   |
| HPF-180** | 1.39  | 0.75  | 0.5   |
| HPF-220   | 1.45  | 0.86  | 0.5   |
| HPF-102   | 1.52  | 0.84  | 0.5   |
| HPF-161   | 1.65  | 0.75  | 0.5   |



**OUTLINE B**

**OUTLINE C PACKAGE DIMENSIONS**

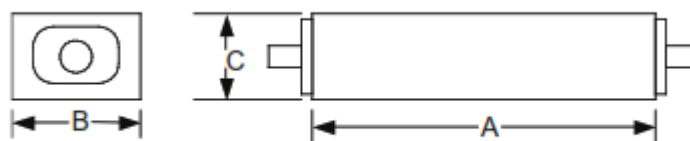
| MODEL NO. | DIM A | DIM B | DIM C |
|-----------|-------|-------|-------|
| NBR-4000  | 6.25  | 0.65  | 1.40  |
| NBR-4001  | 3.25  | 0.60  | 1.25  |
| NBR-4005  | 2.00  | 0.62  | 0.75  |
| NBR-4006  | 2.00  | 0.62  | 0.75  |



**OUTLINE C**

**OUTLINE D PACKAGE DIMENSIONS**

| MODEL NO. | DIM A | DIM B | DIM C |
|-----------|-------|-------|-------|
| NBR-4002  | 5.00  | 1.13  | 0.75  |
| NBR-4003  | 3.48  | 1.10  | 0.62  |
| NBR-4004  | 2.50  | 1.52  | 0.63  |
| NBR-4007  | 6.62  | 0.62  | 0.62  |
| NBR-4008  | 3.20  | 1.20  | 0.60  |



**OUTLINE D**

## VHF Filter Model V-109

### DESCRIPTION

The V-109 is a narrow-band IF filter designed to have minimum phase distortion throughout its passband while producing moderate skirt selectivity. This is accomplished with lumped elements in a miniature package designed to withstand a rigorous environment.



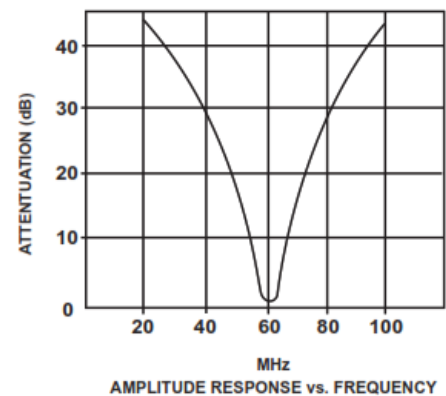
The V-109 filters are precisely tuned so that the phase characteristics from unit to unit are very accurately matched.

### SPECIFICATIONS

| Electrical                       |                                   |
|----------------------------------|-----------------------------------|
| Center Frequency                 | 60 MHz                            |
| Midband Loss                     | 2.0 dB Max.                       |
| Bandwidth (3 dB)                 | 8.1 MHz                           |
| Stopband ( $F_0 \pm 30$ MHz)     | 36 dB                             |
| Phase Linearity                  | $\pm 3^\circ$ over 3 dB Bandwidth |
| Phase Tracking (0-60°C)          | $\pm 0.5^\circ$ (for 3 units)     |
| Basic Phase Difference (3 units) | 5.0° Max.                         |

| Environmental                              |                                |
|--|--------------------------------|
| Temperature<br>Operating<br>]Non-Operating | -62° to +75°C<br>-62° to +95°C |
| Altitude                                   | 60,000 ft.                     |
| Humidity                                   | 95%                            |
| Shock & Vibration                          | MIL-E-5400                     |

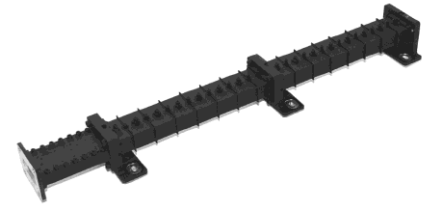
| Mechanical |                       |
|------------|-----------------------|
| Size       | 4.1”L x 1.0”W x .85”H |
| Weight     | 2 oz. TYP             |
| Connectors | SMA Female            |



## X-Band Waveguide Filter

### FEATURES

- Pre-Select Receiver Application
- Low Insertion Loss
- Out-of-Band Rejection Through 30 GHz
- Low VSWR - 1.20:1 Maximum



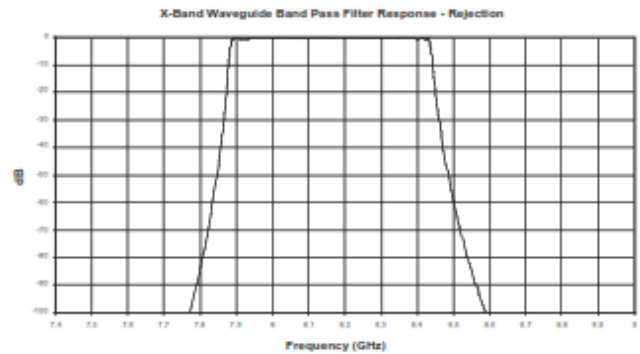
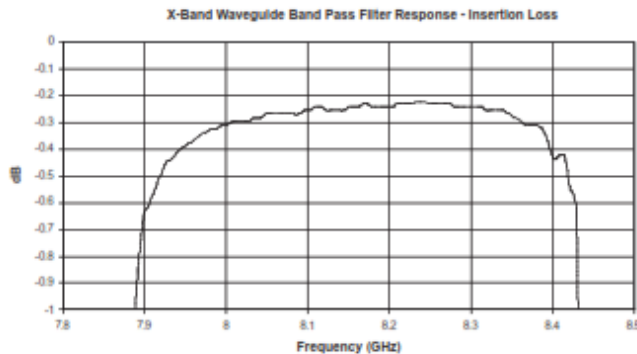
### DESCRIPTION

The waveguide band pass filter design utilizes a 16 element, Cavity Coupled, Waveguide filter cascaded with a Waffle Iron Lowpass Filter. The filter provides a 65 dB rejection at 150 MHz above and below the passband as well as extended stop band rejection through 30 GHz.

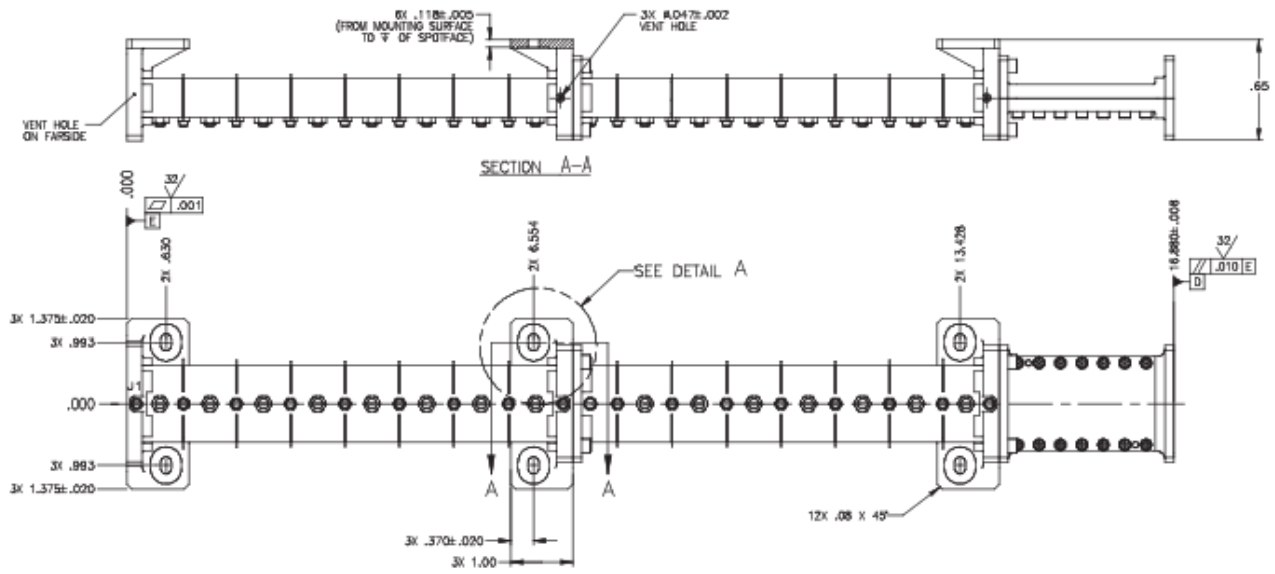
### SPECIFICATIONS

| MODEL NUMBER              | X-131-1      |
|---------------------------|--------------|
| Passband (GHz)            | 7.9–8.4      |
| Return Loss (dB Min.)     | 21           |
| Insertion Loss (dB Max.)  | 0.75         |
| Pass Band Flatness (Max.) | 0.5 dB pk-pk |
| Rejection (dB Min.)       |              |
| Below 7.75 GHz            | 65           |
| 8.45 to 8.50 GHz          | 22           |
| 8.50 to 25 GHz            | 65           |
| 25 to 30 GHz              | 60           |

### TYPICAL MEASURED DATA



OUTLINE DRAWING



## Waveguide Switchable Notch Filter

### FEATURES

- RF Interference Suppression Equipment
- Low Insertion Loss
- Sharp Skirt Selectivity
- High Attenuation Level
- Extremely Wide Operational Band



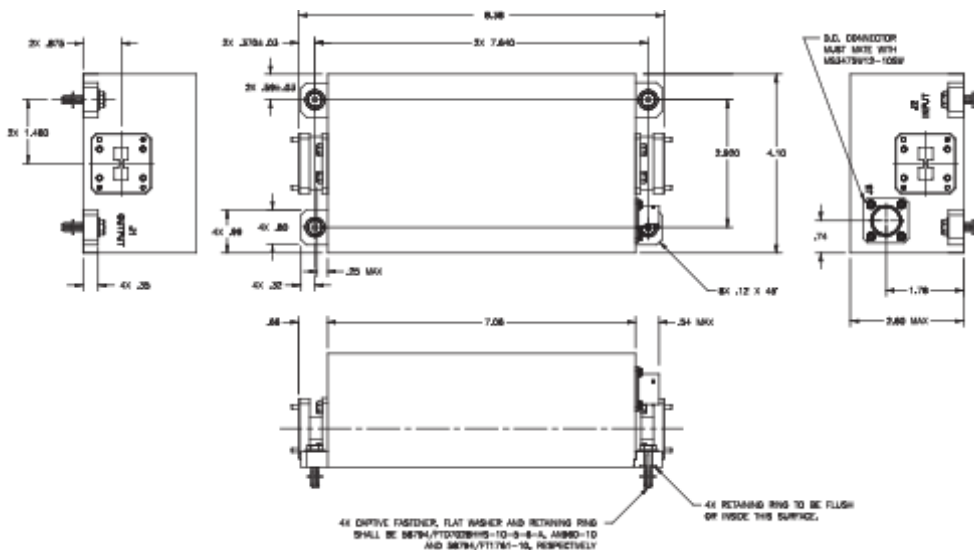
### DESCRIPTION

The unit is a high reliability device used in airborne environments. The Ku-Band Notch Filter design utilizes eight TEM resonators coupled to the Double Ridge Waveguide Transmission Line. Such an approach allows a high rejection level in the specified frequency range with low VSWR high power signal propagation over entire operational band. Switch controlled tuning removes the Notch Filter, allowing for full operational passband capability.

### SPECIFICATIONS

| MODEL NUMBER                | Waveguide Switchable Notch Filter |
|-----------------------------|-----------------------------------|
| Attenuation Band (GHz)      | Tuned inside the Operation Band   |
| Attenuation Level (dB) Min. | 55                                |
| Operational Band (GHz)      | TBD                               |
| VSWR Max.                   | 1.5:1                             |
| Insertion Loss (dB) Max.    | 0.5                               |
| Switching Time (mS) Max.    | 30                                |

### OUTLINE DRAWING



## Microwave Multiplexers

### FEATURES

- DC to 40.0 GHz
- Contiguous or Non-Contiguous Passbands
- Low Insertion Loss
- High Selectivity, Low VSWR
- Accurate and Stable Crossover Frequencies
- Compact Size
- MIL-E-5400/16400 Qualified

### DESCRIPTION

Stellant offers a line of broadband multiplexers that incorporate unique networks for separating and combining signals in the DC to 40 GHz frequency range.

These multiplexers offer accurate crossover selectivity, low insertion loss, low VSWR, and most importantly, reproducibility and cost-effective production achieved by the utilization of Lumped Elements, advanced Suspended Substrate Microwave Integrated Circuit (SSMIC) techniques or combine bandpass filter techniques.

The basic combline filter building block is combined with special junctions to form multiplexers with contiguous (or non-contiguous) passbands, passbands separated by guard bands, or overlapping passbands.

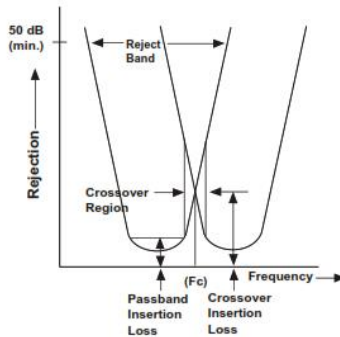
The basic building block of the suspended substrate multiplexers is a diplexer, which consists of a high pass/low pass filter pair connected to a common junction. A triplexer is made up of a cascade of two diplexers, a quadruplexer consists of three cascaded diplexers, etc.

These units have the inherent characteristics of small size, light weight, and extremely stable response in severe environmental conditions. Stellant's multiplexers offer high reliability, consistently reproducible performance, and cost-effective volume production.

### Microwave Diplexer Capabilities

| Frequency Range (GHz) | Model No. | Crossover Frequency Fc (GHz) | Passband Insertions Loss (Db Max) | Crossover Region (Max) | VSWR (Max) | Rejection (50 dB Min) (GHz) |                            |
|-----------------------|-----------|------------------------------|-----------------------------------|------------------------|------------|-----------------------------|----------------------------|
|                       |           |                              |                                   |                        |            | DC-0.808                    | 0.11-0.50                  |
| DC-0.50               | ND-6000   | 0.095                        | 1.2                               | 5.5                    | ±5%        | DC-0.808                    | 0.11-0.50                  |
| DC-8.00               | DPF-119   | 2                            | 1                                 | 4.5                    | ±5%        | DC-1.700                    | 2.30-8.00                  |
| DC-8.00               | DPF-104   | 4                            | 1                                 | 4.5                    | ±5%        | DC-3.400                    | 4.60-8.00                  |
| DC-18.00              | DPF-244   | 6                            | 1                                 | 4.5                    | ±5%        | (±15% from crossover)*      |                            |
| DC-18.00              | DPF-208   | 8                            | 1                                 | 4.5                    | ±5%        | DC-6.800                    | 9.20-18.00*                |
| DC-18.00              | DPF-212   | 12                           | 1                                 | 4.5                    | ±5%        | DC-10.200                   | 13.80-18.00*               |
| DC-26.50              | DPF-291   | 18.5                         | 1.3                               | 5                      | ±5%        | (±15% from crossover)*      |                            |
| DC-40.00              | DPF-541   | 26                           | 1.3                               | 5                      | ±5%        | (±15% from crossover)*      |                            |
| DC-40.00              | DPF-292   | 26.5                         | 1.3                               | 5                      | ±5%        | (±15% from crossover)*      |                            |
| 0.5-1.00              | ND-6001   | 0.7                          | 1.5                               | 5                      | ±4%        | DC-0.310<br>DC-0.490        | 0.75-18.00<br>1.4-18.00    |
| 0.5-8.00              | DPF-144   | 2                            | 1.2                               | 4.5                    | ±5%        | DC-0.425                    | 9.20-18.00                 |
| 0.5-18.00             | ND-6002   | 8                            | 1.2                               | 5                      | ±5%        | DC-0.330<br>DC-6.800        | 9.20-18.00<br>-----        |
| 1.0-18.00             | DPF-156   | 8                            | 1.2                               | 4.5                    | ±5%        | DC-0.500                    | 20.70-26.50                |
| 1.0-2.00              | ND-6003   | 1.4                          | 0.5                               | 5                      | ±3%        | DC-0.680<br>DC-1.060        | 1.53-18.00<br>2.31-18.00   |
| 2.0-4.00              | ND-6004   | 3                            | 1.2                               | 5                      | ±2%        | DC-1.400<br>DC-2.500        | 3.50-10.00<br>4.40-10.00   |
| 2.0-7.50              | ND-6005   | 3.9                          | 1.5                               | 5.5                    | ±3%        | DC-1.600<br>DC-3.500        | 4.30-12.00<br>7.90-12.00   |
| 2.0-18.00             | ND-6009   | 6                            | 1.5                               | 6                      | ±2%        | DC-1.65<br>0.10-5.500       | 6.60-18.00<br>19.50-23.00  |
| 4.0-8.00              | ND-6006   | 6                            | 1                                 | 4.5                    | ±2%        | DC-2.000<br>DC-4.500        | 6.80-12.00<br>9.00-12.00   |
| 7.5-18.00             | ND-6007   | 12                           | 1.8                               | 5.5                    | ±3%        | DC-6.500<br>DC-11.000       | 13.00-20.00<br>19.50-26.00 |

\* Rejection 55 dB minimum.





## S-Band SGLS Diplexer: Model S-204

## FEATURES

- Low Insertion Loss
- Out-of-Band Rejection up to 8 GHz
- Low VSWR
- High Channel-to-Channel Isolation



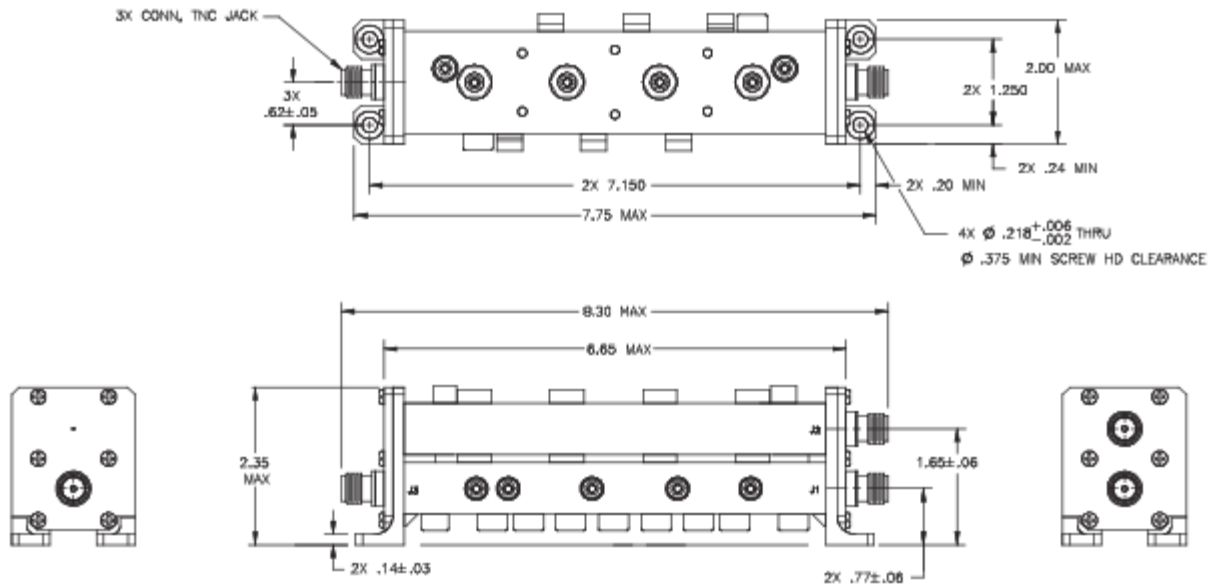
## DESCRIPTION

The S-Band diplexer design utilizes an eight element Interdigital Transmit Filter and four element Combine Receive Filter integrated into common Antenna port. Diplexer features a high channel to channel isolation and operates at up to 16 W power level through the critical altitude.

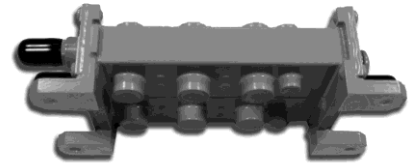
## SPECIFICATIONS

| MODEL NUMBER S-204                    | Specification | Typical       |
|---------------------------------------|---------------|---------------|
| <b>Receive Arm</b>                    |               |               |
| Operating Freq. Band                  | 1750–1850 MHz | Tunable       |
| Passband Bandwidth                    | 10 MHz        | 22 MHz        |
| Passband Insertion Loss               | 0.8 dB Max.   | 0.50 dB       |
| Passband VSWR                         | 1.30 Max.     | 1.10          |
| Stopband Attenuation $F_0 \pm 70$ MHz | 35 dB Min.    | 42 dB         |
| 2200–2300 MHz                         | 90 dB Min.    | >100 dB       |
| Time Delay Variation $F_r \pm 5$ MHz  | 5 nS Max.     | 2.0 nS        |
| <b>Transmit Arm</b>                   |               |               |
| Operating Freq. Band                  | 2200–2300 MHz | 2160–2500 MHz |
| Passband Bandwidth                    | 10 MHz Min.   | 340 MHz       |
| Passband Insertion Loss               | 0.4 dB Max.   | 0.20 dB       |
| Passband VSWR                         | 1.30 Max.     | 1.10          |
| Stopband Attenuation<br>1750–1850 MHz | 70 dB Min.    | 80 dB         |
| Time Delay Variation<br>2200–2300 MHz | 5 nS Max.     | 1.0 nS        |
| Power                                 | 10 Watts Min. | 16 Watts      |

OUTLINE DRAWING



S-Band Diplexer: Model S-217



**DESCRIPTION**

The S-217 Diplexer is a highly efficient, compact unit, designed specifically for missile and space- craft applications where size and weight are considered the prime objectives.

The diplexer consists of a pair of three-element bandpass filters connected together in a unique common junction which forms the antenna port. Two transmitters then operate simultaneously into the same antenna without interaction.

The filters employed in the diplexer utilize special loading techniques, whereby the unloaded-Q of the cavities is maximized; and the first spurious response is limited to approximately five times the passband frequency, or greater than 11 GHz. Thus, an additional lowpass filter is not required, and the passband insertion loss and unit size are minimized. The S-217 Diplexer is factory tunable over the frequency range of 2200–2300 MHz, with a minimum channel separation of 25 MHz. The unit is sealed to meet the environmental extremes of most missile and spacecraft applications.

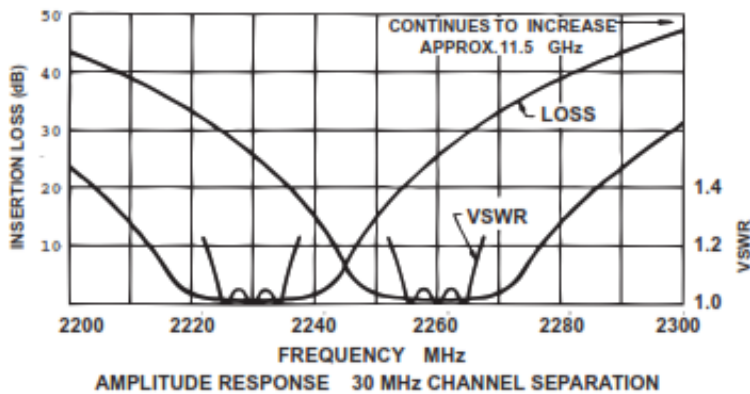
**SPECIFICATIONS**

| Electrical                             | Specification        | Typical             |
|--|----------------------|---------------------|
| Frequency Band*                        | 2200–2300 MHz        | Tunable             |
| Passband Bandwidth                     | 5.0 MHz Max.         | 12 MHz              |
| Passband Insertion Loss                | 1.3 dB Max           | 0.95 dB             |
| Passband VSWR                          | 1.3:1 Max.           | 1.1:1               |
| Interchannel Isolation (at $F_0$ )**   |                      |                     |
| 25 MHz Separation                      | 20 dB Min.           | 23 dB               |
| 30 MHz Separation                      | 25 dB Min.           | 28 dB               |
| 40 MHz Separation                      | 33 dB Min.           | 36 dB               |
| 50 MHz Separation                      | 39 dB Min.           | 42 dB               |
| Power Handling                         | 10 Watts CW/Channel  | 20 Watts CW/Channel |
| Harmonic Rejection (thru 3rd harmonic) | 60 dB Min. to 10 GHz | 60 dB to 11.5 GHz   |
| Passband Time - Delay Variation        | ±5 nsec.             | ±3 nsec.            |
| Connectors                             | SMA Female           | Same                |

| Mechanical |                       |
|------------|-----------------------|
| Size       | 1.20"W x 2"H x 4.20"L |
| Weight     | 5 oz.                 |

\* Can be adapted to cover 1750-1850 MHz.

\*\* Special versions are also available with channel separation as close as 20 MHz.

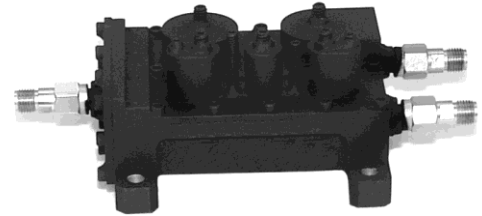


S-Band Diplexer: Model S-266

**DESCRIPTION**

The S-266 is a factory tunable S-Band Diplexer designed for long term spacecraft environments. The receiver and transmitter center frequencies are separated by approximately 178 MHz and are factory tunable in the range of 2025–2120 MHz (receiver) and 2200–2300 MHz (transmitter). The receive bandpass filter employs a combline topology with a special resonator loading technique which results in spurious free performance up to approximately 9 GHz. The transmit bandstop filter is a coaxial design specially configured for high power handling with minimum insertion loss.

Although vented for long-term space applications, the transmitter channel operates at 10 Watts minimum, through critical pressure when terminated into a 5:1 mismatch at any phase. The design and construction provide a high performance diplexing function in a compact, lightweight package.

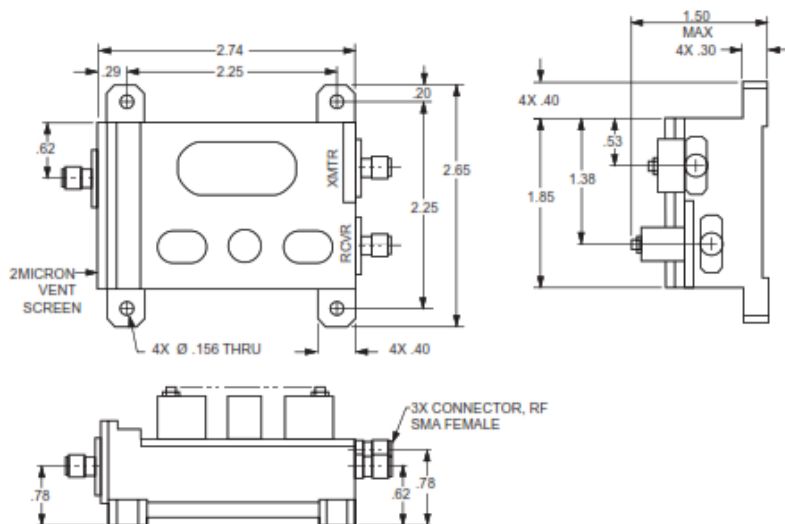


**SPECIFICATIONS**

| Parameter               | Receive Channel                   | Transmit Channel              |
|-------------------------|-----------------------------------|-------------------------------|
| Center Frequency        | 2025–2120 MHz                     | 2200–2300 MHz                 |
| Bandwidth               | 10 MHz Min.                       | 10 MHz Min.                   |
| Passband Insertion Loss | 0.6 dB Max.                       | 0.4 dB                        |
| Passband VSWR           | 1.3:1 Max.                        | 1.3:1 Max.                    |
| Rejection & Spurious    | 40 dB Min. @ 10 to $F_0 - 174$ &  | 40 dB Min. @                  |
| Time Delay Variation    | 2.5 nsec. Max., $F_0 \pm 1.2$ MHz | 1.0 nsec. Max., over passband |
| Power Handling          | ---                               | 10 Watts Max.                 |

| Mechanical |                     |
|------------|---------------------|
| Size       | 2.75" L x 2.65" W x |
| Weight     | 8 oz.               |

**OUTLINE DRAWING**



## S-Band SGLS Diplexer: Model S-270

### High Power COAXIAL Diplexer

#### FEATURES

- Low Insertion Loss
- Out-of-Band Rejection up to 8 GHz
- Low VSWR
- High Channel-to-Channel Isolation



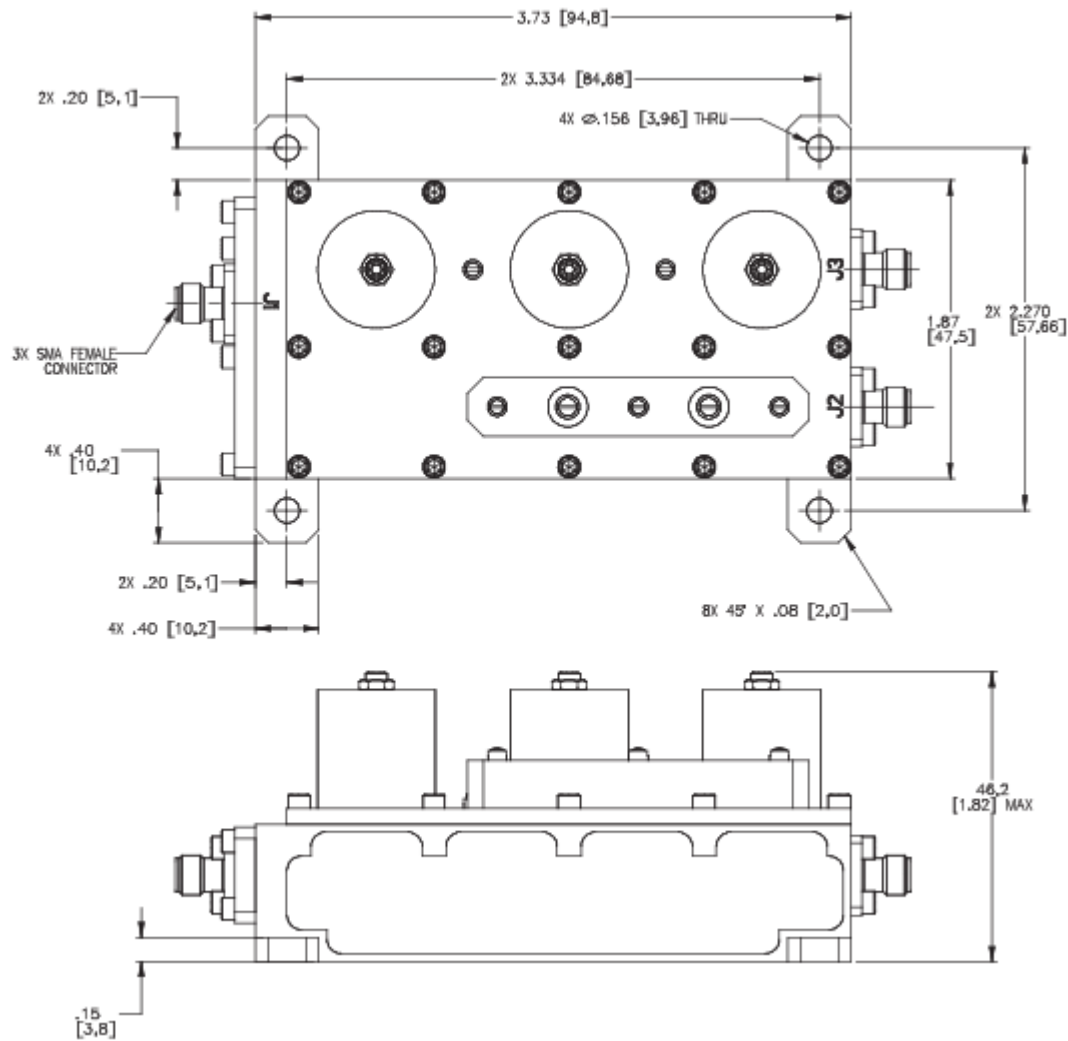
#### DESCRIPTION

The S-band coaxial diplexer design utilizes a three element combine Transmit Filter and three element Combine Receive Filter integrated to common Antenna port. Diplexer features a high channel to channel isolation and operates at up to 20 W power level through the critical altitude.

#### SPECIFICATIONS

| MODEL NUMBER                                  | S-270         |
|---|---------------|
| <b>Receive Arm</b>                            |               |
| Operating Frequency Band (MHz)                | 1789.8–1809.8 |
| VSWR max                                      | 1.2:1         |
| Insertion Loss (dB Max.)                      | 0.5           |
| Time Delay Variation<br>(1798.56–1800.96 MHz) | <0.1 nS       |
| Rejection (dB Min.) at (MHz)                  |               |
| 1479.76                                       | 60            |
| 1869.76                                       | 60            |
| 2242.5–2252.5                                 | 35            |
| 2300–8000                                     | 80            |
| <b>Transmit Arm</b>                           |               |
| Operating Freq. Band (MHz)                    | 2233.5–2261.5 |
| VSWR max                                      | 1.2:1         |
| Insertion Loss (dB Max.)                      | 0.55          |
| Time Delay Variation<br>(2242.5–2252.5 MHz)   | 1.0 nS        |
| Rejection (dB Min.) at (MHz)                  |               |
| 1794.76–1804.76                               | 75            |
| 1869.76                                       | 70            |
| 2600–8000                                     | 55            |
| Power (W) Max.                                | 20            |

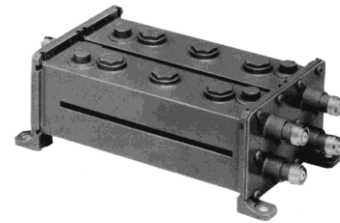
OUTLINE DRAWING



## S-Band Multicoupler/ Multiplexer

### FEATURES

- Low Insertion Loss
- High Isolation
- High Power Handling
- High Harmonic Rejection
- Small, Lightweight, Rugged
- One to Four Channels



### DESCRIPTION

The S-X01 series of S-Band Multi-couplers are built to meet the high quality and reliability standards of the Aerospace Industry. Intended to couple multiple transmitters or receivers into (or from) a single antenna, the multi-couplers make possible simultaneous operation without interference or interaction.

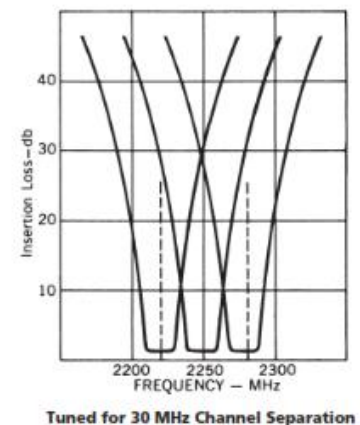
Three high-Q cavity resonators are employed in each channel which are combined through efficient circuitry to provide lowest insertion loss and high inter-channel isolation.

All multi-couplers are fabricated from aluminum and dip-brazed into a single, rugged light-weight unit capable of withstanding the most severe aerospace environments.

### SPECIFICATIONS

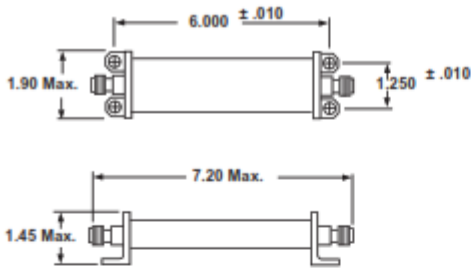
| Electrical                             | Specification       | Typical          |
|--|---------------------|------------------|
| Frequency Band*                        | 2200–2300 MHz       | Tunable          |
| Passband Bandwidth                     | 5.0 Mhz Min.        | 13 MHz           |
| Passband Insertion Loss                | 0.8 dB              | 0.60 dB          |
| Passband VSWR                          | 1.3:1               | 1.1:1            |
| Interchannel Isolation**               |                     |                  |
| 25 MHz Separation                      | 20 dB               | 22–24 dB         |
| 30 MHz Separation                      | 25 dB               | 27–29 dB         |
| 40 MHz Separation                      | 33 dB               | 35–37 dB         |
| 50 MHz Separation                      | 39 dB               | 41–43 dB         |
| 60 MHz Separation                      | 44 dB Min.          | 46–48 dB         |
| Power Handling                         | 40 Watts CW/Channel | 50 Watts         |
| Harmonic Rejection (thru 3rd harmonic) | 60 dB Min.          | 60 dB to 8.0 GHz |
| Time Delay Variation                   | ±5                  | ±3 nsec.         |
| Connectors ***                         | TNC                 |                  |

| Environmental           |                             |
|-------------------------|-----------------------------|
| Temperature Range       | -65° to +200°F              |
| Altitude                | Unlimited (sealed)          |
| Humidity and Salt Spray | 240 hrs. continuous cycling |

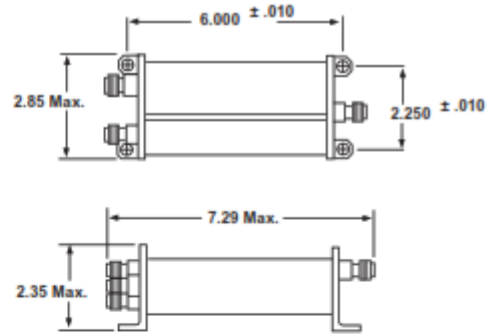


|                                     |  |
|-------------------------------------|--|
| Shock                               | 50 g's (8 millisecon. duration)<br>200 g's (1 millisecon. duration)  |
| Acceleration                        | 50 g's   |
| Vibration<br>Sinusoidal<br>Random   | 5–14 cps - .5" Double Amplitude<br>14–400 cps - 10 g zero to peak<br>400–2000 cps - 20 g zero to peak<br>20–400 cps - .08g <sup>2</sup> /cps 18.7 grms |
| Electro-Magnetic Interference (EMI) | MIL-I-6181   |

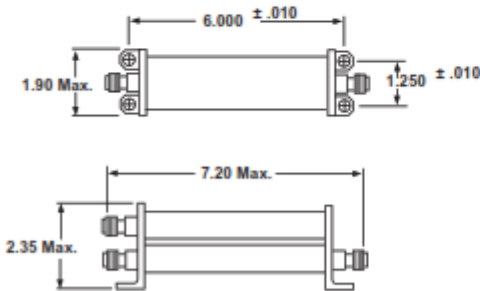
**OUTLINE DRAWING**



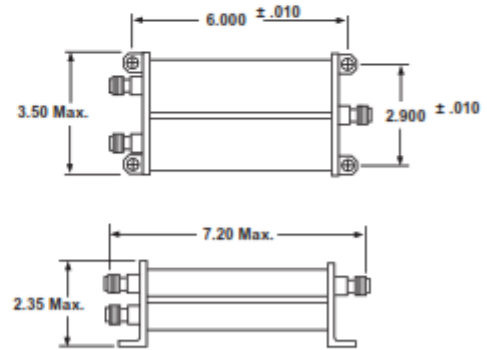
MODEL S-101 WT = .35 LB. MAX.



MODEL S-301 WT = 1.0 LB. MAX.



MODEL S-201 WT = .65 LB. MAX.



MODEL S-401 WT = 1.3 LB. MAX.

CONNECTORS -- TNC FEMALE

MOUNTING HOLES -- .187 <sup>+0.006</sup>/<sub>-.002</sub> Dia.



## Ku-/ X-Band Diplexer

**FEATURES**

- Low Insertion Loss
- High Isolation
- High Power Handling
- High Harmonic Rejection
- Small, Lightweight, Rugged
- One to Four Channels

**DESCRIPTION**

The X-/Ku-Band Waveguide Diplexer design utilizes two Band Pass and three Low Pass filters integrated into the X-206 Diplexer. The WR-75 E-plane Common Junction provides a perfect matching to both Transmit (Ku-Band) and Receive (X-Band) channels which assures minimum passband Insertion Loss while simultaneously providing out-of-band rejection over the specified frequency bands.

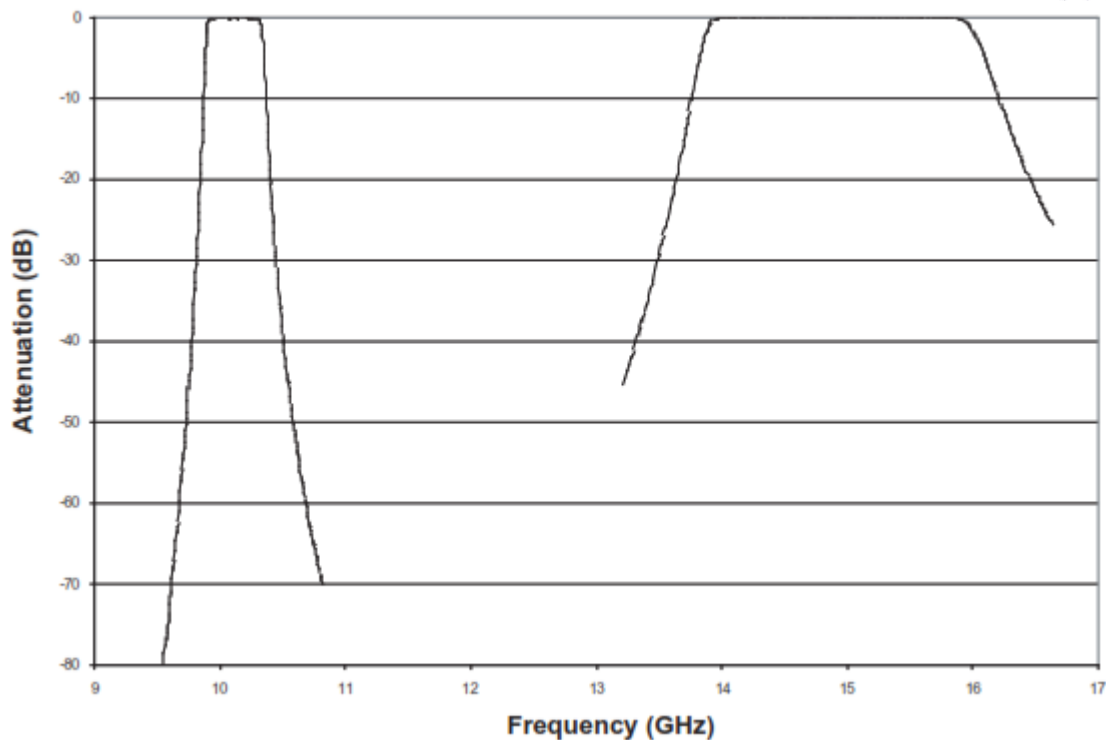
The transmit (Ku-Band) Channel utilizes a 7 element, WR-62 Cavity Coupled Band Pass Filter, cascaded with a Waffle Iron Low Pass Filter. This approach allows a broad band low loss signal path with high out-of-band rejection levels.

Receive (X-Band) Channel is realized by cascading a 6 section Corrugated Low Pass Filter with a 7 element WR-75 Cavity Coupled Band Pass and a Waffle Iron Low Pass Filter. Since the second pass band and higher order modes occur at the frequency range around 15–16 GHz, a Corrugated Low Pass Filter is attached directly to the Common Junction, in front of the band pass filter to provide the required rejection level of 115 dB at 14.5–15.3 GHz while maintaining a broad band match for the transmit channel. The waffle iron low pass filter delivers the necessary rejection level over the frequency band from 20 to 30.6 GHz.

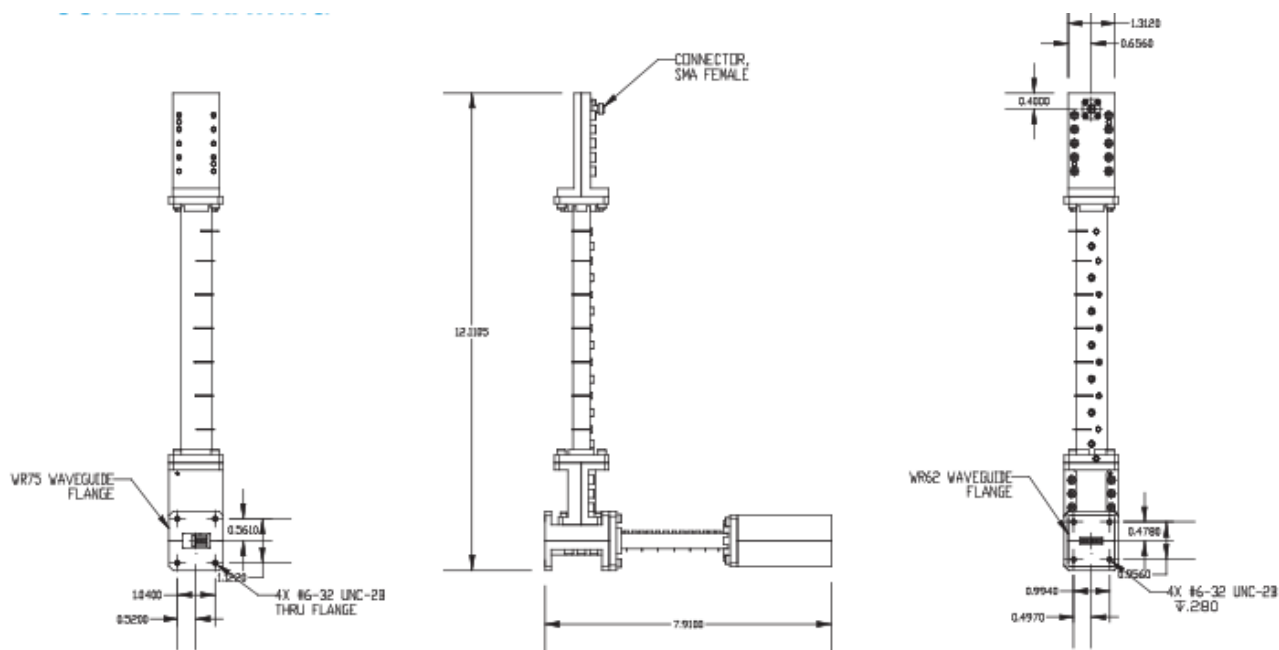
**SPECIFICATIONS**

| MODEL NUMBER                                   | X-206-01      |
|--|---------------|
| Transmit Channel (Ku-Band) Frequency Range GHz | 13.940–15.800 |
| Return Loss (dB)                               | <16 dB        |
| Insertion Loss (dB)                            | >0.3 dB       |
| Out-of-Band Rejection (dB)                     |               |
| 9.75–10.1 GHz                                  | >120          |
| 29–45.7 GHz                                    | >55           |
| CW power (W)                                   | 125           |
| Receive Channel (X-Band) Frequency Range GHz   | 9.920–10.280  |
| VSWR   | <1.35:1       |
| Insertion Loss                                 | <0.7 dB       |
| Out-of-Band Rejection (dB)                     |               |
| Below 9.5 GHz                                  | >70           |
| 11.7–14 GHz                                    | >70           |
| 14.5–15.3 GHz                                  | >115          |
| 20.0–30.6 GHz                                  | >65           |

TYPICAL MEASURED DATA



OUTLINE DRAWING

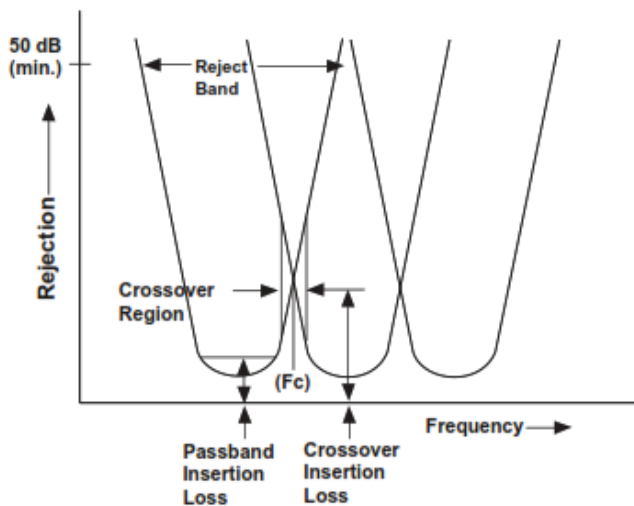


### Microwave Triplexer Capabilities

| Frequency Range (GHz) | Model No. | Crossover Frequency Fc (GHz) |      | Passband Insertion Loss (dB Max) | Crossover Insertion Loss (dB Max) | Crossover Region (Max) | VSWR (Max) | Rejection (50 dB Min) (GHz)  |
|-----------------------|-----------|------------------------------|------|----------------------------------|-----------------------------------|------------------------|------------|--|
| DC-6.0                | TXF-544   | 1                            | 2    | 1                                | 4.5                               | ±5%                    | 1.5:1      | 55 dB ±15% from crossover  |
| DC-8.0                | TPF-1044  | 2                            | 4    | 1                                | 4.5                               | ±5%                    | 2.0:1      | 55 dB ±15% from crossover  |
| 0.02-0.5              | NT-7000   | 0.12                         | 0.25 | 1.5                              | 5                                 | ±5%<br>±5%<br>±5%      | 2.0:1      | DC-0.017 0.138-0.50<br>DC-0.102 0.288-0.50<br>DC-0.212 0.575-1.00          |
| 0.50-18.0             | NT-7001   | 2                            | 8    | 1.5                              | 5.5                               | ±5%<br>±5%<br>±5%      | 2.2:1      | DC-0.430 2.300-18.00<br>DC-1.700 9.200-18.00<br>DC-6.800 -----             |
| 2.00-18.0             | TPF-564   | 4                            | 8    | 1.0                              | 4.5                               | ±5%                    | 2.0:1      | 55 dB ±15% from crossover  |
| 4.00-18.0**           | TPF-192   | 8                            | 12   | 1.2                              | 4.5                               | ±5%                    | 2.0:1      | 55 dB ±15% from crossover  |
| 5.20-10.0             | NT-7003   | 6.8                          | 8.4  | 1.5                              | 5                                 | ±2%                    | 2.0:1      | 2.8-4.78 7.200-10.00<br>4.4-6.380 8.800-11.60<br>6.0-7.980 10.400-13.20    |
| 7.70-16.9             | NT-7005   | 10.77                        | 14.3 | 1                                | 5.5                               | ±2%                    | 2.0:1      | DC-6.730 11.050-18.50<br>DC-10.500 13.700-18.50<br>DC-15.220 17.500-18.50  |
| 12.00-18.0            | NT-7006   | 14                           | 16   | 1                                | 5                                 | ±2%                    | 1.6:1      | DC-10.400 15.000-20.00<br>DC-12.700 17.000-20.00<br>DC-14.500 19.300-20.00 |
| DC-18.0               | TPF-243   | 2                            | 8    | 1                                | 4.5                               | ±5%                    | 2.0:1      | 60 dB ±15% from crossover  |
| DC-40.0               | TPF-542   | 18.5                         | 26.5 | 1.3                              | 5                                 | ±5%                    | 2.4:1      | ±15% from crossover  |

\* Rejection is 35 dB for band stated.

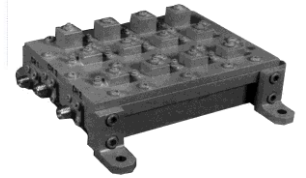
\*\* Has low and high skirts.



## S-Band Triplexer: Model S-311

### DESCRIPTION

The S-Band diplexer design utilizes an eight element Interdigital Transmit Filter and four element Combine Receive Filter integrated into common Antenna port. Diplexer features a high channel to channel isolation and operates at up to 16 W power level through the critical altitude.

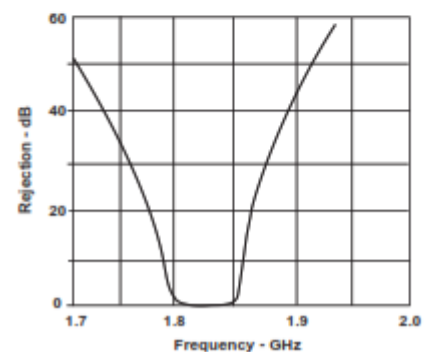
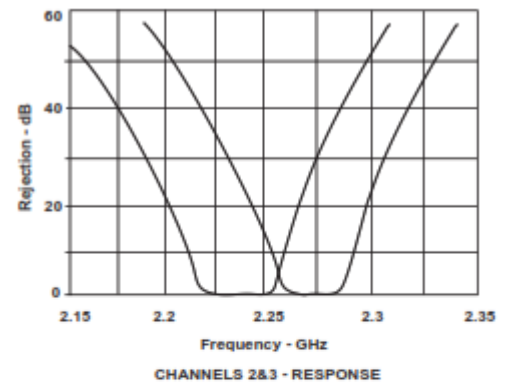


### SPECIFICATIONS

| Channel 1                          | Specification | Typical   |
|------------------------------------|---------------|-----------|
| Center Frequency                   | 1820 MHz      | ---       |
| Insertion Loss ( $F_0 \pm 25$ MHz) | 0.5 dB Max.   | 0.45 dB   |
| VSWR ( $F_0 \pm 25$ MHz)           | 1.2:1 Max.    | 1.15:1    |
| Isolation CH1 to CH2/CH3           | 80 dB Min.    | >90 dB    |
| Channel 2                          | Specification | Typical   |
| Center Frequency                   | 2230 MHz      | ---       |
| Insertion Loss ( $F_0 \pm 5$ MHz)  | 1.3 dB Max.   | 0.65 dB   |
| VSWR ( $F_0 \pm 5$ MHz)            | 1.2:1 Max.    | 1.15:1    |
| Isolation                          | 30 dB Min.    | 35 dB     |
| CH2 to CH3                         | 80 dB Min.    | >90 dB    |
| Power                              | 16 Watts CW   | >20 Watts |
| Channel 3                          | Specification | Typical   |
| Center Frequency                   | 2270 MHz      | ---       |
| Insertion Loss ( $F_0 \pm 25$ MHz) | 1.3 dB Max.   | 0.75 dB   |
| VSWR ( $F_0 \pm 25$ MHz)           | 1.2:1 Max.    | 1.15:1    |
| Isolation                          | 30 dB Min.    | 35 dB     |
| CH3 to CH2                         | 80 dB Min.    | 87 dB     |
| Power                              | 10 Watts CW   | >10 Watts |

| Environmental |               |
|---------------|---------------|
| Altitude      | 12,000 ft.    |
| Temperature   | -32° to +70°C |
| Humidity      | 95%           |

| Mechanical |                        |
|------------|------------------------|
| Size       | 3.2"W x 5.0" H x 1.6"L |
| Weight     | 1 lbs.                 |
| Connectors | SMA Female             |

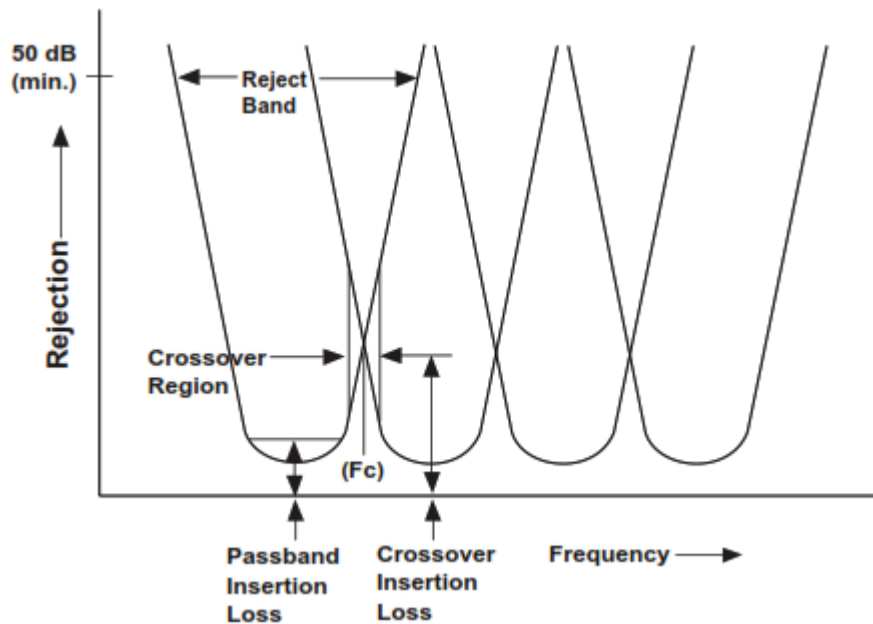


## Microwave Quadraplexer Capabilities

| Frequency Range (GHz) | Model No. | Crossover Frequency Fc (GHz) |       |       | Passband Insertion Loss (dB Max) Crossover | Insertion Loss (dB Max) Crossover Region | Crossover Region (Max) | VSWR (Max) | Rejection (50 dB Min) (GHz)                  |   |
|-----------------------|-----------|------------------------------|-------|-------|--|--|------------------------|------------|--|---|
|                       |           | 1                            | 2     | 3     |  |  |                        |            |  |   |
| 0.20–1.00             | QPF-158   | 0.17                         | 0.30  | 0.60  | 1.5  | 5  | ±5%                    | 2.0:1      | ±15% from crossover                          |   |
| 1.00–18.00            | NQD-8002  | 4.30                         | 6.90  | 11.10 | 1.5  | 6  | ±5%                    | 2.0:1      | DC–0.080<br>DC–3.440<br>DC–5.520<br>DC–8.880 | 5.160–18.00<br>8.280–18.00<br>13.320–18.00  |
| DC–18.00              | QPF-122A  | 2.00                         | 4.00  | 8.00  | 1  | 5  | ±5%                    | 2.0:1      | 55 dB ±15% from crossover                    |   |
| DC–18.00              | QPF-152   | 2.00                         | 8.00  | 12.00 | 1  | 4.5                                      | ±5%                    | 2.2:1      | 55 dB ±15% from crossover                    |   |
| 2.00–18.00            | QPF-106   | 6.00                         | 10.00 | 14.00 | 1  | 5  | ±5%                    | 2.0:1      | 55 dB ±15% from crossover                    |   |
| 2.00–18.00            | NQD-8003  | 6.00                         | 10.00 | 13.00 | 1.8  | 5.5                                      | ±200MHz                | 2.0:1      | DC–1.500<br>DC–0.100<br>DC–8.500<br>DC–      | 6.900–18.00<br>11.500–18.00<br>16.000–18.00 |
| 2.00–18.00            | QPF-189   | 4.00                         | 8.00  | 12.00 | 1.2  | 5  | ±5%                    | 2.0:1      | 55 dB ±15% from crossover**                  |   |

\* Unit has a low skirt at 2 GHz.

\*\* Unit has high and low skirts at 2 and 18 GHz

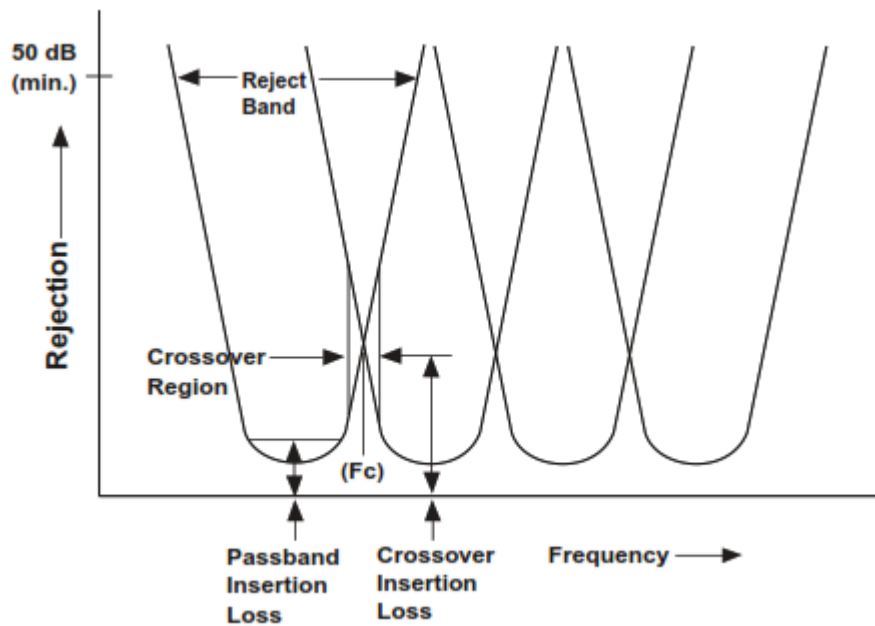


### Microwave Quintuplexer Capabilities

| Frequency Range (GHz) | Model No. | Crossover Frequency Fc (GHz) |       |       |       | Passband Insertion Loss (dB Max) | Crossover Insertion Loss (dB Max) | Crossover Region (Max) | VSWR (Max) | Rejection (50 dB Min) (GHz)                                 |  |
|-----------------------|-----------|------------------------------|-------|-------|-------|----------------------------------|-----------------------------------|------------------------|------------|---|--|
|                       |           | 1                            | 2     | 3     | 4     |                                  |                                   |                        |            |   |  |
| 0.02–1.00             | NQT-9000  | 0.06                         | 0.09  | 0.25  | 0.5   | 1.50                             | 5.00                              | ±5%                    | 2.0:1      | DC–0.026<br>DC–0.051<br>DC–0.076<br>DC–0.213<br>DC–0.425    | 0.069–1.50<br>0.103–1.50<br>0.287–1.50<br>0.575–1.50<br>1.200–1.50             |
| 1.00–18.00            | RPF-153   | 2.00                         | 4.00  | 8.00  | 12.00 | 4.00                             | 5.00                              | ±5%                    | 2.2:1      | 55 dB ±15% from crossover**                                 |  |
| 8.00–18.00            | NQT-9001  | 10.00                        | 12.00 | 14.00 | 16.15 | 12.00                            | 5.00                              | ±150 MHz               | 2.0:1      | DC–6.500<br>DC–8.500<br>DC–10.500<br>DC–12.500<br>DC–14.650 | 11.500–18.00**<br>13.500–18.00<br>15.500–18.00<br>17.650–20.00<br>19.500–24.00 |

\* Rejection is 40 dB for band stated.

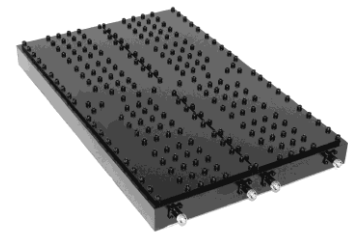
\*\* Unit has high and low skirts at 1 and 18 GHz



## 4x4 Hybrid Matrix

### FEATURES

- High Power Beam-Forming Application
- Low Insertion Loss
- High Power Handling
- High Isolation



### DESCRIPTION

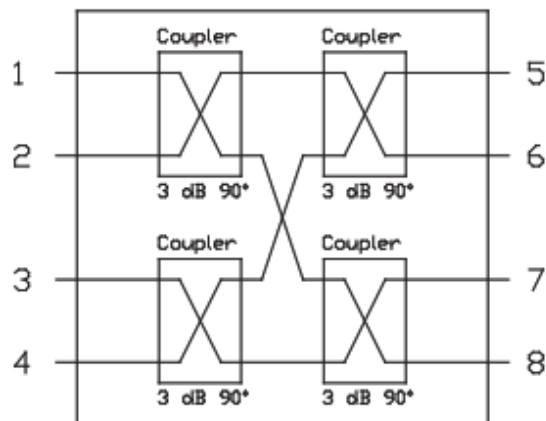
Designed for high power transmit systems, Stellant's 4 X 4 Hybrid Matrix will equally distribute or combine four high power signals. 3-stub Branch Line Couplers are used to assure a broad band, low loss, high isolation response.

All four couplers are realized using a slab line construction, placed between two dielectric layers; interconnections are made internally with 50 Ohm slab lines and vertical vias. A dielectric gel is used to fill any air gaps at the connector launches and around the slab line circuit, to prevent the voltage breakdown, corona or multipaction.

### SPECIFICATIONS

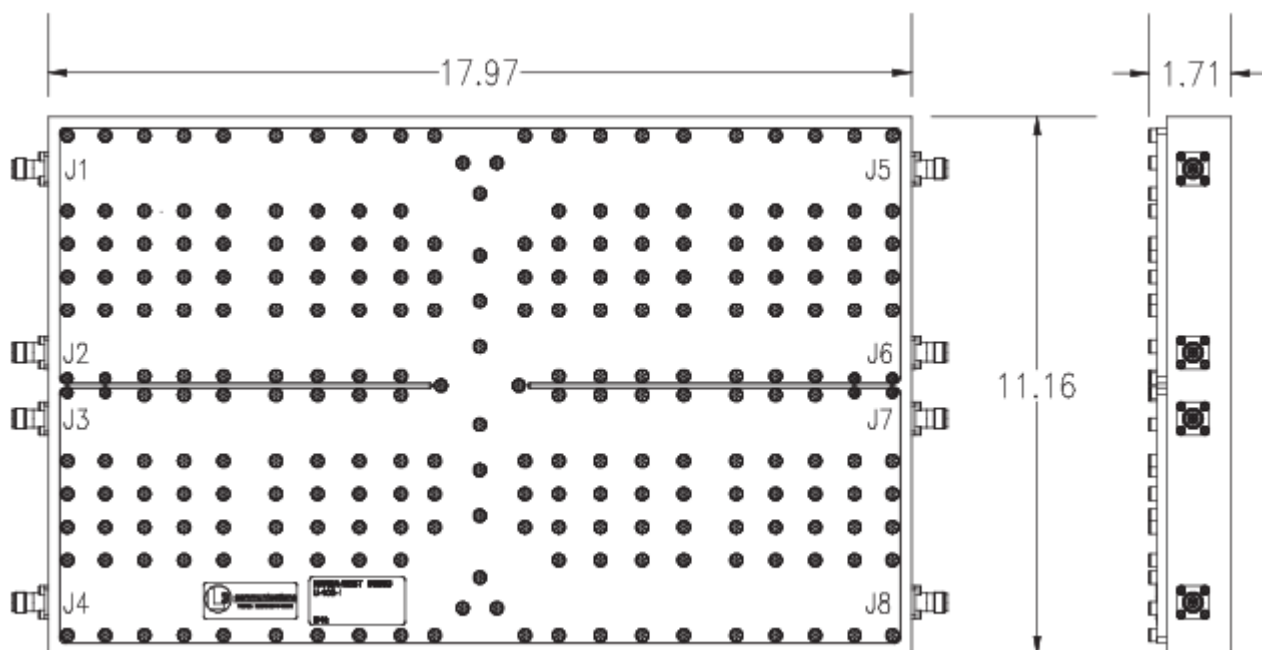
| MODEL NUMBER                | U-403-1/-2                |
|-----------------------------|---------------------------|
| Passband                    | 360–380 MHz               |
| Passband Insertion Loss     | 0.2 dB Max.               |
| Passband Loss Variation     | <0.05 dB Max.             |
| Passband Loss Tracking      | 0.15 dB Max.              |
| Passband Return Loss        | 23 dB Min.                |
| Isolation                   | 23 dB Min.                |
| Input to Output Phase       | ±3° Max.                  |
| Power Handling <sup>1</sup> | 340 W                     |
| CW (Per Channel)            | 1090 W                    |
| Peak (Per Channel)          |                           |
| Operating Temperature       | -45° to +95°C             |
| Storage Temperature         | -54° to +100°C            |
| Altitude                    | Sea Level and Hard Vacuum |
| Connectors U-403-1          | TNC Female                |
| U-403-2                     | TNC Wedge Female          |
| Size                        | 17.97" x 11.19" x 1.71"   |
| Weight                      | 32.0 lbs [14.5 kg.]       |

**BLOCK DIAGRAM**



| PATH | PHASE |
|------|-------|
| 1-5  | 0°    |
| 2-5  | -90°  |
| 3-5  | -90°  |
| 4-5  | -180° |
| 1-6  | -90°  |
| 2-6  | -180° |
| 3-6  | 0°    |
| 4-6  | -90°  |
| 1-7  | -90°  |
| 2-7  | 0°    |
| 3-7  | -180° |
| 4-7  | -90°  |
| 1-8  | -180° |
| 2-8  | -90°  |
| 3-8  | -90°  |
| 4-8  | 0°    |

**OUTLINE DRAWING**





## Power Dividers/ Hybrid Couplers

MODELS: S-718-1, C-720-1, X-711 / MODEL P-706-1

### DESCRIPTION

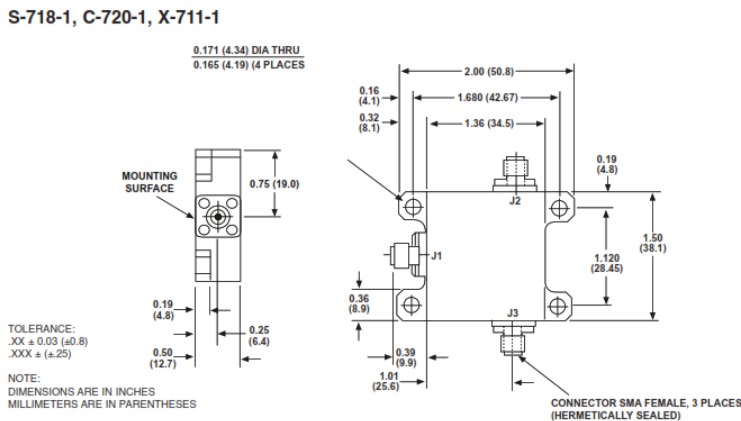
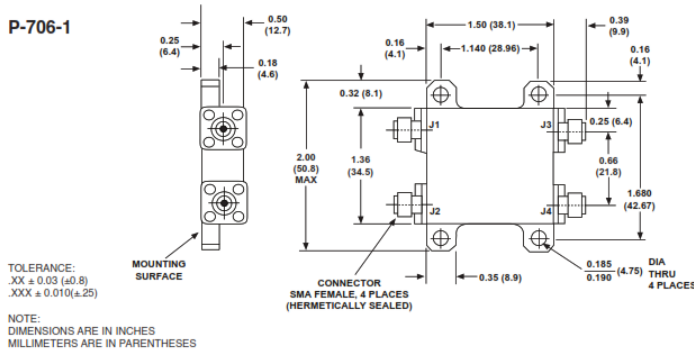
Stellant manufactures a series of power dividers/combiners based on both stripline and lumped element technology. All units are hermetically sealed for the harsh environment of missile or space.

### ELECTRICAL SPECIFICATIONS

|                       | HYBRID COUPLER |                | POWER DIVIDERS |                |
|-----------------------|----------------|----------------|----------------|----------------|
|                       | P-706-1        | S-718-1        | C-720-1        | X-711-1        |
| Frequency Range       | 404–414 MHz    | 2200–2300 MHz  | 5300–6000 MHz  | 8500–11000 MHz |
| VSWR                  | 1.20:1 Max.    | 1.20:1 Max.    | 1.50:1 Max.    | 1.20:1 Max.    |
| Insertion Loss        | 0.30 dB Max.   | 0.40 dB Max.   | 0.50 dB Max.   | 0.60 dB Max.   |
| Amplitude Unbalance   | ±0.30 dB Max.  | ±0.20 dB Max.  | ±0.20 dB Max.  | ±0.50 dB Max.  |
| Phase Balance         |                | ±5.0 degrees   | ±5.0 degrees   | ±5.0 degrees   |
| Isolation             | 20.0 dB Min.   | 20.0 dB Min.   | 20.0 dB Min.   | 20.0 dB Min.   |
| Input Power           | 20 W CW        | 20 W CW        | 20 W CW        | 20 W CW        |
| Operating Temperature | -10° to +82°C  | -40° to +125°C | -40° to +125°C | -40° to +125°C |
| Weight                | 2.50 oz.       | 2.50 oz.       | 2.50 oz.       | 2.50 oz.       |

Environment: Missile and Space ( Launch Vehicles)

### OUTLINE DRAWINGS



## Circulators/ Isolators

### Features

- P- through Ka-Band Designs
- Low Insertion Loss
- Typical Return Loss > 2
- Typical Isolation > 20 dB
- High Power Options Available
- Coaxial & Drop-In Connectors

### Military, Commercial, Instrumentation

#### COAXIAL ISOLATORS AND CIRCULATORS

- 400 MHz to 26.5 GHz
- 3 and 4 Port
- Full Performance Military Models
- Low Cost Commercial Versions

#### DROP-IN ISOLATORS AND CIRCULATORS

- Products to 18 GHz
- Industry Standard Packages
- Military and Commercial Versions



### DESCRIPTION

Stellant, a proven leader in the design and production of microwave components, provides quality isolators and circulators for military, space, and commercial applications.

Our engineering and technical capabilities allow us to offer catalog and custom coaxial devices as well as a complete line of drop-in components perfect for both microstrip and stripline applications.

Custom designs are available where specific applications require higher isolation, lower insertion loss, improved VSWR, non-standard frequency bands, higher power handling (both peak and average), wider operating temperature ranges, stringent environmental operating conditions, specialized package sizes, or any combination of the above.

Stellant's engineering staff is backed by extensive in-house manufacturing capability. This assures rapid response to prototype development requests and continuous delivery of production orders. Our production capacity is one of the highest in the industry, yet our system supports both large and small orders with the same attention.

As always, quality, workmanship, technology, and customer satisfaction remain trademarks of all Stellant products.

## 3 Port Narrow Band

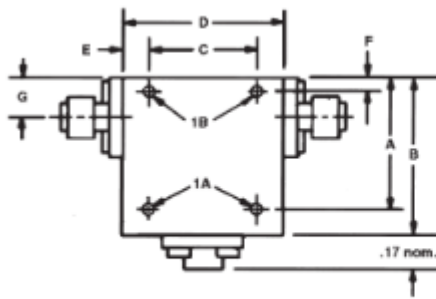
| Frequency (MHz) | Model No. Isolator | Model No. Circulator | Isolation (dB Min.) | Insertion Loss (dB Max.) | VSWR   | Temp Range (°C) | Outline Drawing |
|-----------------|--------------------|----------------------|---------------------|--------------------------|--------|-----------------|-----------------|
| 400–475         | INA-0448           | CNA-0448             | 20                  | 0.5                      | 1.25:1 | -20 to +65      | E               |
| 475–550         | INA-0555           | CNA-0555             | 20                  | 0.5                      | 1.25:1 | -20 to +65      | D               |
| 500–600         | INA-0560           | CNA-0560             | 20                  | 0.5                      | 1.25:1 | -20 to +65      | F               |
| 600–750         | INA-0675           | CNA-0675             | 20                  | 0.4                      | 1.25:1 | -20 to +65      | F               |
| 700–900         | INA-0790           | CNA-0790             | 20                  | 0.4                      | 1.25:1 | -20 to +65      | A               |
| 850–1050        | INA-0911           | CNA-0911             | 20                  | 0.4                      | 1.25:1 | -20 to +65      | A               |
| 950–1225        | INA-0913           | CNA-0913             | 20                  | 0.4                      | 1.25:1 | -20 to +65      | A               |
| 1200–1400       | INA-1214           | CNA-1214             | 20                  | 0.4                      | 1.25:1 | -20 to +65      | A               |
| 1400–1600       | INA-1416           | CNA-1416             | 20                  | 0.4                      | 1.25:1 | -20 to +65      | A               |
| 1650–1900       | INA-1719           | CNA-1719             | 20                  | 0.4                      | 1.25:1 | -20 to +65      | A               |
| 1700–2000       | INA-1720           | CNA-1720             | 20                  | 0.4                      | 1.25:1 | -20 to +65      | A               |
| 1700–2300       | INA-1723           | CNA-1723             | 22                  | 0.4                      | 1.15:1 | 0 to +65        | A               |
| 2000–2300       | INA-2023           | CNA-2023             | 20                  | 0.4                      | 1.25:1 | -20 to +65      | A               |
| 2300–2500       | INA-2325           | CNA-2325             | 20                  | 0.5                      | 1.25:1 | -20 to +65      | E               |
| 2500–2700       | INA-2527           | CNA-2527             | 20                  | 0.5                      | 1.25:1 | -20 to +65      | E               |
| 2700–3300       | INA-2733           | CNA-2733             | 20                  | 0.5                      | 1.25:1 | -20 to +65      | A               |
| 3300–3700       | INA-2733           | CNA-3337             | 20                  | 0.4                      | 1.25:1 | -20 to +65      | A               |
| 3400–4200       | INA-3442           | CNA-3442             | 20                  | 0.4                      | 1.25:1 | -20 to +65      | A               |
| 3600–4400       | INA-3644           | CNA-3644             | 20                  | 0.4                      | 1.25:1 | -20 to +65      | A               |
| 3700–4200       | INA-3742           | CNA-3742             | 23                  | 0.3                      | 1.15:1 | -20 to +65      | A               |
| 4200–4400       | INA-4244           | CNA-4244             | 23                  | 0.3                      | 1.15:1 | -20 to +65      | A               |
| 4300–5300       | INA-4353           | CNA-4353             | 20                  | 0.4                      | 1.25:1 | -20 to +65      | B               |
| 4400–5000       | INA-4450           | CNA-4450             | 23                  | 0.3                      | 1.15:1 | -20 to +65      | B               |
| 5300–6500       | INA-5365           | CNA-5365             | 20                  | 0.4                      | 1.25:1 | -20 to +65      | B               |
| 5400–5900       | INA-5459           | CNA-5459             | 23                  | 0.3                      | 1.15:1 | -20 to +65      | B               |
| 5900–6400       | INA-5964           | CNA-5964             | 23                  | 0.3                      | 1.15:1 | -20 to +65      | B               |
| 6000–7500       | INA-6075           | CNA-6075             | 20                  | 0.4                      | 1.25:1 | -20 to +65      | B               |
| 7000–10000      | INA-7010           | CNA-7010             | 20                  | 0.4                      | 1.25:1 | -20 to +65      | C               |
| 8000–10000      | INA-8010           | CNA-8010             | 23                  | 0.3                      | 1.15:1 | -20 to +65      | C               |
| 8500–9600       | INA-8596           | CNA-8596             | 23                  | 0.3                      | 1.15:1 | -20 to +65      | C               |
| 9000–12000      | INA-9012           | CNA-9012             | 20                  | 0.4                      | 1.25:1 | -54 to +85      | C               |
| 10900–12800     | INA-1013           | CNA-1013             | 23                  | 0.5                      | 1.15:1 | -20 to +65      | C               |
| 11000–14000     | INA-1114           | CNA-1114             | 20                  | 0.5                      | 1.25:1 | -20 to +65      | C               |
| 13000–16000     | INA-1316           | CNA-1316             | 20                  | 0.4                      | 1.25:1 | -54 to +85      | C               |
| 14000–14500     | INA-1415           | CNA-1415             | 23                  | 0.3                      | 1.15:1 | -54 to +85      | C               |
| 15000–18000     | INA-1518           | CNA-1518             | 20                  | 0.4                      | 1.25:1 | -54 to +85      | C               |
| 18000–22000     | INA-1822           | CNA-1822             | 17                  | 0.6                      | 1.35:1 | -54 to +85      | C               |
| 22000–26500     | INA-2226           | CNA-2226             | 17                  | 0.6                      | 1.35:1 | -54 to +85      | C               |

| Model No. Isolator | Model No. Circulator | Size (Inches) |      |      | MTG. Holes |       | A    | B    | C     | D    | E     | F   | G   |
|--------------------|----------------------|---------------|------|------|------------|-------|------|------|-------|------|-------|-----|-----|
|                    |                      | W             | L    | T    | Min.Depth  | Size* |      |      |       |      |       |     |     |
| INA-0448           | CNA-0448             | 3.00          | 3.00 | 1.00 | .25        | b     | 2.35 | 3.00 | 2.000 | 3.00 | .50   | .15 | .40 |
| INA-0555           | CNA-0555             | 2.00          | 2.00 | 0.80 | .15        | b     | 1.45 | 2.00 | 1.850 | 2.00 | .07   | .48 | .48 |
| INA-0560           | CNA-0560             | 2.00          | 2.00 | 0.75 | .18        | b     | 1.59 | 2.00 | 1.600 | 2.00 | .20   | .16 | .32 |
| INA-0675           | CNA-0675             | 2.00          | 2.00 | 0.75 | .18        | b     | 1.55 | 2.00 | 1.600 | 2.00 | .20   | .20 | .39 |
| INA-0790           | CNA-0790             | 1.50          | 1.50 | 0.75 | .24        | c     | 0.75 | 1.50 | 1.250 | 1.50 | .13   | --  | .27 |
| INA-0911           | CNA-0911             | 1.50          | 1.50 | 0.75 | .15        | c     | 0.75 | 1.50 | 1.200 | 1.50 | .15   | --  | .27 |
| INA-0913           | CNA-0913             | 1.50          | 1.50 | 0.75 | .24        | c     | 0.75 | 1.50 | 1.250 | 1.50 | .13   | --  | .27 |
| INA-1214           | CNA-1214             | 1.25          | 1.25 | 0.75 | .24        | c     | 1.00 | 1.25 | 1.000 | 1.25 | .13   | --  | .25 |
| INA-1416           | CNA-1416             | 1.25          | 1.25 | 0.75 | .24        | c     | 1.00 | 1.25 | 1.000 | 1.25 | .13   | --  | .28 |
| INA-1719           | CNA-1719             | 1.00          | 1.00 | 0.50 | .15        | b     | 0.75 | 1.00 | .750  | 1.00 | .13   | --  | .25 |
| INA-1720           | CNA-1720             | 1.00          | 1.00 | 0.50 | .15        | b     | 0.75 | 1.00 | .750  | 1.00 | .13   | --  | .25 |
| INA-1723           | CNA-1723             | 2.00          | 2.00 | 0.75 | .18        | c     | 1.50 | 2.00 | 1.500 | 2.00 | .25   | .25 | .25 |
| INA-2023           | CNA-2023             | 1.00          | 1.00 | 0.50 | .15        | b     | 0.75 | 1.00 | .750  | 1.00 | .13   | --  | .25 |
| INA-2325           | CNA-2325             | 1.00          | 1.00 | 0.50 | .17        | b     | 0.65 | 1.00 | .750+ | 1.00 | .13++ | .09 | .25 |
| INA-2527           | CNA-2527             | 1.00          | 1.00 | 0.50 | .17        | b     | 0.65 | 1.00 | .750+ | 1.00 | .13++ | .09 | .25 |
| INA-2733           | CNA-2733             | 1.25          | 1.25 | 0.63 | .19        | b     | 1.12 | 1.25 | 1.000 | 1.25 | .13   | --  | .25 |
| INA-3442           | CNA-3422             | 1.25          | 1.25 | 0.63 | .19        | b     | 1.12 | 1.25 | 1.000 | 1.25 | .13   | --  | .25 |
| INA-3644           | CNA-3644             | 1.00          | 1.00 | 0.50 | .12        | b     | 0.85 | 1.00 | .800  | 1.00 | .10   | --  | .25 |
| INA-3742           | CNA-3742             | 1.00          | 1.00 | 0.50 | .12        | b     | 0.85 | 1.00 | .800  | 1.00 | .10   | --  | .25 |
| INA-4244           | CNA-4244             | 1.00          | 1.00 | 0.50 | .12        | b     | 0.85 | 1.00 | .800  | 1.00 | .10   | --  | .25 |
| INA-4353           | CNA-4353             | 1.00          | 1.00 | 0.50 | .12        | b     | 0.85 | 1.00 | .800  | 1.00 | .10   | --  | .25 |
| INA-4450           | CNA-4450             | 0.75          | 0.75 | 0.50 | .13        | b     | --   | 0.75 | .600  | 0.75 | .08   | .25 | .25 |
| INA-5365           | CNA-5365             | 0.75          | 0.75 | 0.50 | .13        | b     | --   | 0.75 | .600  | 0.75 | .08   | .25 | .25 |
| INA-5459           | CNA-5459             | 0.75          | 0.75 | 0.50 | .13        | b     | --   | 0.75 | .600  | 0.75 | .08   | .25 | .25 |
| INA-5964           | CNA-5964             | 0.75          | 0.75 | 0.50 | .13        | b     | --   | 0.75 | .600  | 0.75 | .08   | .25 | .25 |
| INA-6075           | CNA-6075             | 0.75          | 0.75 | 0.50 | .13        | b     | --   | 0.75 | .600  | 0.75 | .08   | .25 | .25 |
| INA-7010           | CNA-7010             | 0.75          | 0.75 | 0.50 | .13        | b     | --   | 0.75 | .600  | 0.75 | .08   | .25 | .25 |
| INA-8010           | CNA-8010             | 0.50          | 0.63 | 0.50 | .13        | b     | --   | 0.63 | .375  | 0.50 | .06   | .16 | .25 |
| INA-8596           | CNA-8596             | 0.63          | 0.80 | 0.50 | .13        | b     | --   | 0.75 | .500  | 0.63 | .07   | .25 | .25 |
| INA-9012           | CNA-9012             | 0.50          | 0.63 | 0.50 | .13        | b     | --   | 0.63 | .375  | 0.50 | .06   | .16 | .25 |
| INA-1013           | CNA-1013             | 0.50          | 0.63 | 0.50 | .13        | b     | --   | 0.63 | .375  | 0.50 | .06   | .16 | .25 |
| INA-1114           | CNA-1114             | 0.50          | 0.63 | 0.50 | .13        | b     | --   | 0.63 | .375  | 0.50 | .06   | .16 | .25 |
| INA-1316           | CNA-1316             | 0.50          | 0.63 | 0.50 | .13        | b     | --   | 0.63 | .375  | 0.50 | .06   | .16 | .25 |
| INA-1415           | CNA-1415             | 0.50          | 0.63 | 0.50 | .13        | b     | --   | 0.63 | .375  | 0.50 | .06   | .16 | .25 |
| INA-1518           | CNA-1518             | 0.63          | 0.80 | 0.55 | .13        | b     | --   | 0.80 | .500  | 0.63 | .07   | .25 | .25 |
| INA-1822           | CNA-1822             | 0.50          | 0.63 | 0.50 | .13        | b     | --   | 0.63 | .375  | 0.50 | .06   | .16 | .25 |
| INA-2226           | CNA-2226             | 0.50          | 0.66 | 0.50 | .15        | b     | --   | 0.66 | .380  | 0.50 | .06   | .18 | .25 |

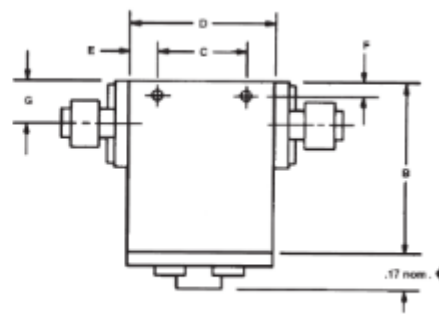
## 3 PORT BROADBAND, OCTAVE AND GREATER

| Frequency (MHz) | Model No. Isolator | Model No. Circulator | Isolation (dB Min.) | Loss (dB Max.) | VSWR   | Temp Range (°C) | Outline Drawing |
|-----------------|--------------------|----------------------|---------------------|----------------|--------|-----------------|-----------------|
| 1000–2000       | IOS-1020           | COS-1020             | 18                  | 0.5            | 1.35:1 | +10 to +40      | D               |
| 1500–3000       | IOS-1530           | COS-1530             | 18                  | 0.5            | 1.30:1 | +10 to +40      | D               |
| 1700–2700       | IBS-1727           | CBS-1727             | 20                  | 0.4            | 1.25:1 | 0 to +55        | D               |
| 2000–4000       | IOS-2040           | COS-2040             | 18                  | 0.5            | 1.30:1 | 0 to +55        | D               |
| 2050–4250       | IGS-2143           | CGS-2143             | 17                  | 0.5            | 1.45:1 | +10 to +40      | D               |
| 2600–5200       | IOS-2652           | COS-2652             | 18                  | 0.5            | 1.30:1 | 0 to +55        | D               |
| 3500–7000       | IOS-3570           | COS-3570             | 18                  | 0.5            | 1.30:1 | -40 to +85      | D               |
| 3700–8300       | IGS-3783           | CGS-3750             | 17                  | 0.5            | 1.35:1 | -40 to +85      | D               |
| 4000–8000       | IOS-4080           | COS-4080             | 18                  | 0.5            | 1.30:1 | -40 to +85      | D               |
| 4000–10000      | IGS-4010           | CGS-4010             | 16                  | 0.6            | 1.40:1 | -20 to +65      | D               |
| 4000–11000      | IGS-4011           | CGS-4011             | 14                  | 1.0            | 1.50:1 | -20 to +80      | D               |
| 4500–10000      | IGS-4510           | CGS-4510             | 17                  | 0.5            | 1.35:1 | -20 to +65      | D               |
| 5000–10000      | IOS-5010           | COS-5010             | 18                  | 0.5            | 1.30:1 | -20 to +65      | C               |
| 5900–12400      | IGS-5912           | CGS-5912             | 18                  | 0.5            | 1.30:1 | -20 to +65      | C               |
| 5900–13000      | IGS-5913           | CGS-5913             | 14                  | 0.9            | 1.50:1 | -54 to +85      | C               |
| 6500–18000      | IGS-6518           | CGS-6518             | 14                  | 1.0            | 1.60:1 | -54 to +85      | D               |
| 7000–12400      | IBS-7012           | CBS-7012             | 20                  | 0.4            | 1.25:1 | -20 to +65      | D               |
| 7000–17000      | IGS-7017           | CGS-7017             | 16                  | 0.6            | 1.45:1 | -20 to +65      | C               |
| 7600–18000      | IGS-7618           | CGS-7618             | 16                  | 0.8            | 1.50:1 | -54 to +85      | C               |
| 8000–16000      | IOS-8016           | COS-8018             | 18                  | 0.5            | 1.35:1 | -20 to +65      | C               |
| 8000–18000      | IGS-8018           | CGS-8018             | 16                  | 0.6            | 1.45:1 | -20 to +65      | C               |
| 10000–20000     | IOS-2000           | COS-2000             | 15                  | 0.7            | 1.50:1 | -20 to +65      | C               |
| 11000–18000     | IBS-1118           | CBS-1118             | 20                  | 0.5            | 1.25:1 | -20 to +65      | C               |
| 11000–19000     | IBS-1119           | CBS-1119             | 18                  | 0.6            | 1.35:1 | -20 to +65      | C               |
| 18000–26500     | IBS-1826           | CBS-1826             | 17                  | 0.6            | 1.40:1 | -54 to +85      | C               |

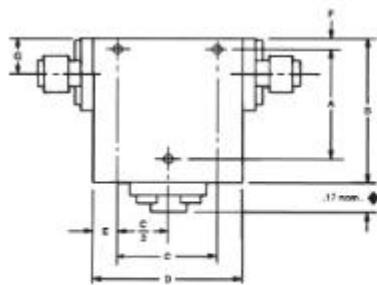
3 PORT ISOLATOR & CIRCULATOR OUTLINE DRAWINGS



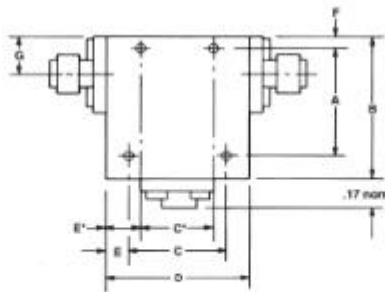
OUTLINE A & B



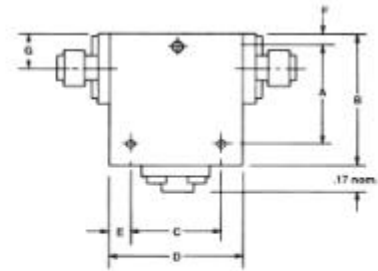
OUTLINE C



OUTLINE D



OUTLINE E



OUTLINE F

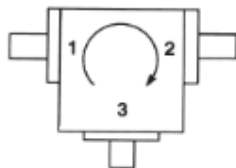
## 3 PORT BROADBAND, OCTAVE AND GREATER

| Model No.<br>Isolator | Model No.<br>Circulator | Size (Inches) |      |      | MTG. Holes |       | A    | B    | C     | D    | E   | F   | G   |
|-----------------------|-------------------------|---------------|------|------|------------|-------|------|------|-------|------|-----|-----|-----|
|                       |                         | W             | L    | T    | Min.Depth  | Size* |      |      |       |      |     |     |     |
| IOS-1020              | COS-1020                | 2.60          | 2.75 | 1.00 | .20        | c     | 1.75 | 2.75 | 2.000 | 2.60 | .30 | .50 | .50 |
| IOS-1530              | COS-1530                | 2.00          | 2.00 | 0.75 | .21        | c     | 1.50 | 2.00 | 1.500 | 2.00 | .25 | .25 | .25 |
| IBS-1727              | CBS-1727                | 2.00          | 2.00 | 0.75 | .21        | c     | 1.50 | 2.00 | 1.500 | 2.00 | .25 | .25 | .25 |
| IOS-2040              | COS-2040                | 1.60          | 1.65 | 0.75 | .18        | c     | 1.10 | 1.65 | 1.000 | 1.60 | .30 | .25 | .25 |
| IGS-2143              | CGS-2143                | 1.60          | 1.65 | 0.64 | .18        | c     | 1.10 | 1.65 | 1.000 | 1.60 | .30 | .25 | .25 |
| IOS-2652              | COS-2652                | 1.25          | 1.38 | 0.75 | .20        | b     | 1.00 | 1.38 | 1.000 | 1.25 | .13 | .25 | .25 |
| IOS-3570              | COS-3570                | 1.00          | 1.00 | 0.60 | .15        | b     | 0.60 | 1.00 | 0.750 | 1.00 | .13 | .25 | .25 |
| IGS-3783              | CGS-3783                | 1.00          | 1.00 | 0.60 | .15        | b     | 0.60 | 1.00 | 0.750 | 1.00 | .13 | .25 | .25 |
| IOS-4080              | COS-4080                | 1.00          | 1.00 | 0.60 | .15        | b     | 0.60 | 1.00 | 0.750 | 1.00 | .13 | .25 | .25 |
| IGS-4010              | CGS-4010                | 1.00          | 1.00 | 0.60 | .15        | b     | 0.60 | 1.00 | 0.750 | 1.00 | .13 | .25 | .25 |
| IGS-4011              | CGS-4011                | 1.00          | 1.00 | 0.60 | .15        | b     | 0.67 | 1.00 | 0.750 | 1.00 | .13 | .25 | .25 |
| IGS-4510              | CGS-4510                | 1.00          | 1.00 | 0.60 | .15        | b     | 0.60 | 1.00 | 0.750 | 1.00 | .13 | .25 | .25 |
| IOS-5010              | COS-5010                | 1.00          | 1.00 | 0.60 | .15        | b     | --   | 1.00 | 0.350 | 1.00 | .13 | .25 | .25 |
| IGS-5912              | CGS-5912                | 0.63          | 0.80 | 0.55 | .13        | b     | --   | 0.80 | 0.500 | 0.63 | .07 | .25 | .25 |
| IGS-5913              | CGS-5913                | 0.63          | 0.80 | 0.55 | .15        | b     | --   | 0.81 | 0.470 | 0.63 | .08 | .12 | .29 |
| IGS-6518              | CGS-6518                | 0.63          | 0.80 | 0.55 | .13        | b     | --   | 0.80 | 0.500 | 0.63 | .07 | .25 | .25 |
| IBS-7012              | CBS-7012                | 0.85          | 1.00 | 0.63 | .15        | b     | 0.60 | 1.00 | 0.600 | 0.85 | .13 | .25 | .25 |
| IGS-7017              | CGS-7017                | 0.63          | 0.74 | 0.55 | .13        | b     | --   | 0.74 | 0.375 | 0.63 | .13 | .25 | .25 |
| IGS-7618              | CGS-7618                | 0.63          | 0.80 | 0.63 | .15        | b     | 0.80 | 0.80 | 0.500 | 0.63 | .07 | .25 | .25 |
| IOS-8016              | COS-8016                | 0.63          | 0.80 | 0.55 | .13        | b     | --   | 0.80 | 0.500 | 0.63 | .07 | .25 | .25 |
| IGS-8018              | CGS-8018                | 0.63          | 0.80 | 0.55 | .13        | b     | --   | 0.80 | 0.500 | 0.63 | .07 | .25 | .25 |
| IOS-2000              | COS-2000                | 0.63          | 0.80 | 0.55 | .13        | b     | --   | 0.80 | 0.500 | 0.63 | .07 | .25 | .25 |
| IBS-1118              | CBS-1118                | 0.63          | 0.80 | 0.55 | .13        | b     | --   | 0.80 | 0.500 | 0.63 | .07 | .25 | .25 |
| IBS-1826              | CBS-1826                | 0.50          | 0.66 | 0.50 | .18        | b     | --   | 0.66 | 0.380 | .50  | .06 | .18 | .25 |

All dimensions in inches. \*b = 2-56 UNC-2B c = 4-40 UNC-2B

## 3 Port Connector Configurations

### Isolator

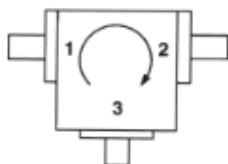


| PORT | STD | -1 | -2 | -3 | -4 | -5 | -6 | -7 | -8 | -9 | -10 | -11 |
|------|-----|----|----|----|----|----|----|----|----|----|-----|-----|
| 1    | F   | F  | M  | M  | T  | T  | T  | T  | F  | F  | M   | M   |
| 2    | F   | M  | F  | M  | M  | F  | M  | F  | T  | T  | T   | T   |
| 3    | T   | T  | T  | T  | F  | M  | M  | F  | F  | M  | F   | M   |

SMA Female connectors are standard.

For connectors configured to your specifications, please add the appropriate suffix to the model you wish to order.

### Circulator



| PORT | STD | -1 | -2 | -3 | -4 | -5 | -6 | -7 |
|------|-----|----|----|----|----|----|----|----|
| 1    | F   | F  | M  | M  | F  | F  | M  | M  |
| 2    | F   | M  | F  | M  | F  | M  | F  | M  |
| 3    | F   | F  | F  | F  | M  | M  | M  | M  |

Isolation on 3 port circulator models is measured with the third port terminated with a 50 Ohm load having a maximum VSWR of 1.1:1.

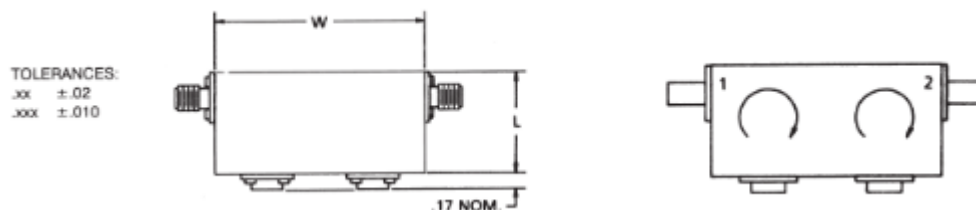
M = Male SMA Connector    F = Female SMA Connector    T = Termination    Other connector types may be available upon request.



## 4 PORT NARROWBAND ISOLATORS

| Frequency (MHz) | Model No. | Isolation (dB Min.) | Insertion Loss (dB Max.) | VSWR   | Size (Inches) |      |      | Temp Range (°C) |
|-----------------|-----------|---------------------|--------------------------|--------|---------------|------|------|-----------------|
|                 |           |                     |                          |        | W             | L    | T    |                 |
| 950–1225        | INH-0913  | 40                  | 0.8                      | 1.25:1 | 3.00          | 1.50 | 0.75 | -20 to +65      |
| 1200–1400       | INH-1215  | 40                  | 0.8                      | 1.25:1 | 2.50          | 1.25 | 0.75 | -20 to +65      |
| 1400–1600       | INH-1416  | 40                  | 0.8                      | 1.25:1 | 2.50          | 1.25 | 0.75 | -20 to +65      |
| 1650–1900       | INH-1719  | 40                  | 0.8                      | 1.25:1 | 2.00          | 1.00 | 0.50 | -20 to +65      |
| 1700–2000       | INH-1720  | 40                  | 0.8                      | 1.25:1 | 2.00          | 1.00 | 0.50 | -20 to +65      |
| 2000–2300       | INH-2023  | 40                  | 0.8                      | 1.25:1 | 2.00          | 1.00 | 0.50 | -20 to +65      |
| 2500–2700       | INH-2527  | 40                  | 1.0                      | 1.25:1 | 2.00          | 1.00 | 0.50 | -20 to +65      |
| 2700–3300       | INH-2733  | 40                  | 0.8                      | 1.25:1 | 2.50          | 1.25 | 0.63 | -20 to +65      |
| 3300–3700       | INH-3337  | 40                  | 0.8                      | 1.25:1 | 2.00          | 1.00 | 0.50 | -20 to +65      |
| 3600–4400       | INH-3644  | 40                  | 0.8                      | 1.25:1 | 2.00          | 1.00 | 0.50 | -20 to +65      |
| 3700–4200       | INH-3742  | 46                  | 0.4                      | 1.20:1 | 2.00          | 1.00 | 0.50 | -20 to +65      |
| 4300–5300       | INH-4353  | 40                  | 0.8                      | 1.25:1 | 1.50          | 0.75 | 0.50 | -20 to +65      |
| 5300–6500       | INH-5365  | 40                  | 0.8                      | 1.25:1 | 1.50          | 0.75 | 0.50 | -20 to +65      |
| 6000–7500       | INH-6075  | 40                  | 0.8                      | 1.25:1 | 1.50          | 0.75 | 0.50 | -20 to +65      |
| 7000–10000      | INH-7010  | 40                  | 0.8                      | 1.25:1 | 1.00          | 0.63 | 0.50 | -20 to +65      |
| 9000–12000      | INH-9012  | 40                  | 0.8                      | 1.25:1 | 1.00          | 0.63 | 0.50 | -54 to +85      |
| 12000–14000     | INH-1214  | 40                  | 0.8                      | 1.25:1 | 1.26          | 0.80 | 0.55 | -54 to +85      |
| 14000–14500     | INH-1415  | 46                  | 0.6                      | 1.20:1 | 1.26          | 0.80 | 0.55 | -54 to +85      |
| 14000–18000     | INH-1418  | 40                  | 0.8                      | 1.25:1 | 1.26          | 0.80 | 0.55 | -54 to +85      |
| 22000–26500     | INH-2226  | 34                  | 1.2                      | 1.35:1 | 1.00          | 0.66 | 0.50 | -54 to +85      |

### 4 PORT ISOLATOR OUTLINE DRAWING AND CONNECTOR CONFIGURATION



SMA Female connectors are standard.  
 For non-standard connectors, please contact us.

#### 4 PORT BROADBAND ISOLATORS, OCTAVE AND GREATER

| Frequency (MHz) | Model No. | Isolation (dB Min.) | Insertion Loss (dB Max.) | VSWR   | Size (Inches) |      |      | Temp Range (°C) |
|-----------------|-----------|---------------------|--------------------------|--------|---------------|------|------|-----------------|
|                 |           |                     |                          |        | W             | L    | T    |                 |
| 1500–3000       | IOH-1530  | 36                  | 1.0                      | 1.30:1 | 4.00          | 2.00 | 0.75 | +10 to +40      |
| 2000–4000       | IOH-2040  | 36                  | 1.0                      | 1.30:1 | 3.20          | 1.65 | 0.75 | -10 to +70      |
| 2050–4250       | IGH-2143  | 34                  | 1.2                      | 1.45:1 | 3.20          | 1.65 | 0.75 | +10 to +40      |
| 2600–5200       | IOH-2652  | 36                  | 1.0                      | 1.30:1 | 2.50          | 1.38 | 0.75 | 0 to +55        |
| 3500–7000       | IOH-3570  | 36                  | 1.0                      | 1.30:1 | 2.00          | 1.00 | 0.60 | -40 to +75      |
| 3700–7000       | IGH-3783  | 34                  | 1.0                      | 1.35:1 | 2.00          | 1.00 | 0.60 | -40 to +85      |
| 3700–8300       | IOH-4080  | 36                  | 1.0                      | 1.30:1 | 2.00          | 1.00 | 0.60 | -40 to +85      |
| 4000–8000       | IGH-4010  | 32                  | 1.2                      | 1.40:1 | 2.00          | 1.00 | 0.60 | -20 to +80      |
| 4000–10000      | IGH-4510  | 36                  | 1.0                      | 1.30:1 | 2.00          | 1.00 | 0.60 | -20 to +65      |
| 4500–10000      | IGH-5912  | 36                  | 1.0                      | 1.30:1 | 1.26          | 0.80 | 0.55 | -20 to +65      |
| 5900–12400      | IBH-7012  | 40                  | 0.8                      | 1.25:1 | 1.70          | 1.00 | 0.63 | -20 to +65      |
| 7000–17000      | IGH-7017  | 30                  | 1.4                      | 1.50:1 | 1.26          | 0.74 | 0.55 | -20 to +65      |
| 8000–16000      | IOH-8016  | 36                  | 1.0                      | 1.35:1 | 1.26          | 0.80 | 0.55 | -20 to +65      |
| 8000–18000      | IGH-8018  | 32                  | 1.2                      | 1.45:1 | 1.26          | 0.80 | 0.55 | -54 to +85      |
| 12000–18000     | IBH-1218  | 40                  | 0.8                      | 1.25:1 | 1.26          | 0.80 | 0.55 | -20 to +65      |
| 18000–26500     | IBH-1826  | 34                  | 1.2                      | 1.40:1 | 1.00          | 0.66 | 0.50 | -54 to +85      |

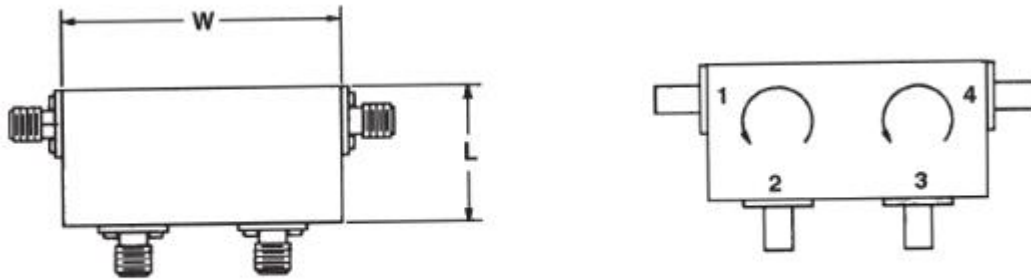
#### 4 PORT NARROW BAND CIRCULATORS

| Frequency (GHz) | Model No. | Isolation (dB Min) |     | Insertion Loss (dB Max.) |     | VSWR   | Size (Inches) |      |      | Temp Range (°C) |
|-----------------|-----------|--------------------|-----|--------------------------|-----|--------|---------------|------|------|-----------------|
|                 |           | 2-1                | 1-4 | 1-2                      | 2-3 |        | W             | L    | T    |                 |
|                 |           | 4-3                | 3-2 | 3-4                      | 4-1 |        |               |      |      |                 |
| 2.7–3.3         | CNF-2733  | 20                 | 40  | 0.4                      | 0.8 | 1.25:1 | 2.50          | 1.25 | 0.63 | -20 to +65      |
| 3.3–3.7         | CNF-3337  | 20                 | 40  | 0.4                      | 0.8 | 1.25:1 | 2.50          | 1.25 | 0.63 | -20 to +65      |
| 3.6–4.4         | CNF-3644  | 20                 | 40  | 0.4                      | 0.8 | 1.25:1 | 2.00          | 1.00 | 0.50 | -20 to +65      |
| 4.3–5.3         | CNF-4353  | 20                 | 40  | 0.4                      | 0.8 | 1.25:1 | 1.50          | 0.75 | 0.50 | -20 to +65      |
| 5.3–6.5         | CNF-5365  | 20                 | 40  | 0.4                      | 0.8 | 1.25:1 | 1.50          | 0.75 | 0.50 | -20 to +65      |
| 7.0–10.0        | CNF-7010  | 20                 | 40  | 0.4                      | 0.8 | 1.25:1 | 1.00          | 0.63 | 0.50 | -20 to +65      |
| 9.0–12.0        | CNF-9012  | 20                 | 40  | 0.4                      | 0.8 | 1.25:1 | 1.00          | 0.63 | 0.50 | -20 to +65      |
| 12.0–18.0       | CNF-1218  | 20                 | 40  | 0.4                      | 0.8 | 1.25:1 | 1.26          | 0.80 | 0.50 | -20 to +65      |

#### 4 PORT BROADBAND CIRCULATORS, OCTAVE & GREATER

| Frequency (GHz) | Model No. | Isolation (dB Min.) |     | Insertion Loss (dB Max.) |     | VSWR   | Size (Inches) |      |      | Temp. Range (°C) |
|-----------------|-----------|---------------------|-----|--------------------------|-----|--------|---------------|------|------|------------------|
|                 |           | 2-1                 | 1-4 | 1-2                      | 2-3 |        | W             | L    | T    |                  |
|                 |           | 4-3                 | 3-2 | 3-4                      | 4-1 |        |               |      |      |                  |
| 2.0–4.0         | COF-2040  | 17                  | 35  | 0.5                      | 1.0 | 1.30:1 | 3.20          | 1.65 | 0.75 | 0 to +55         |
| 4.0–8.0         | COF-4080  | 17                  | 35  | 0.4                      | 0.8 | 1.25:1 | 2.00          | 1.00 | 0.63 | -20 to +65       |
| 5.0–10.0        | COF-5010  | 17                  | 35  | 0.5                      | 1.0 | 1.30:1 | 2.00          | 1.0  | 0.63 | -20 to +65       |
| 7.0–12.4        | CBF-7012  | 17                  | 35  | 0.4                      | 0.8 | 1.25:1 | 1.70          | 1.0  | 0.63 | -20 to +65       |
| 8.0–16.0        | COF-8016  | 18                  | 36  | 0.5                      | 1.0 | 1.35:1 | 1.26          | 0.8  | 0.55 | -20 to +65       |
| 8.0–18.0        | CGF-8018  | 16                  | 32  | 0.6                      | 1.2 | 1.45:1 | 1.26          | 0.8  | 0.56 | -20 to +65       |

#### 4 PORT CIRCULATOR OUTLINE DRAWING AND CONNECTOR CONFIGURATION



Isolation on 4 port circulator models is measured with the third and fourth ports terminated with a 50 Ohm load having a maximum VSWR of 1.1:1.

DROP-IN NARROWBAND ISOLATORS / CIRCULATORS

| Frequency (GHz) | Isolator Model No. | Circulator Model No. | Isolation (dB) |      | Insertion Loss (dB) |      | VSWR   |        | Temp. Range (°C) | Circulator (1) Power Rating |                 | Heat Sink Temp. (°C) | Outline Dwg. |
|-----------------|--------------------|----------------------|----------------|------|---------------------|------|--------|--------|------------------|-----------------------------|-----------------|----------------------|--------------|
|                 |                    |                      | Typ.           | Min. | Typ.                | Max. | Typ.   | Max.   |                  | Peak Pwr. Watts             | Avg. Pwr. Watts |                      |              |
| 1.000–1.100     | NDI-0111           | NDC-0111             | 23             | 20   | 0.3                 | 0.5  | 1.15:1 | 1.25:1 | -55 to +85       | 150                         | 2               | +85                  | E            |
| 1.300–1.400     | NDI-0114           | NDC-0114             | 23             | 20   | 0.3                 | 0.4  | 1.15:1 | 1.25:1 | -55 to +85       | 125                         | 2               | +85                  | B-1          |
| 1.710–1.850     | NDI-0118           | NDC-0118             | 23             | 20   | 0.3                 | 0.5  | 1.15:1 | 1.25:1 | -55 to +85       | 100                         | 2               | +85                  | B-1          |
| 2.200–2.400     | NDI-2224           | NDC-2224             | 23             | 20   | 0.3                 | 0.5  | 1.15:1 | 1.25:1 | -55 to +85       | 100                         | 2               | +85                  | B-1          |
| 2.700–2.900     | NDI-2729           | NDC-2729             | 23             | 20   | 0.25                | 0.3  | 1.15:1 | 1.25:1 | 0 to +55         | 5                           | 2               | +85                  | A            |
| 2.850–3.150     | NDI-2831           | NDC-2831             | 23             | 20   | 0.3                 | 0.4  | 1.15:1 | 1.25:1 | -55 to +85       | 5                           | 2               | +85                  | B-2          |
| 3.600–4.200     | NDI-3642           | NDC-3642             | 23             | 20   | 0.3                 | 0.4  | 1.15:1 | 1.25:1 | -55 to +85       | 5                           | 2               | +85                  | B-1          |
| 4.200–4.400     | NDI-4244           | NDC-4244             | 23             | 20   | 0.3                 | 0.4  | 1.15:1 | 1.25:1 | -55 to +85       | 10                          | 2               | +85                  | C-1          |
| 4.400–5.100     | NDI-4451           | NDC-4451             | 23             | 20   | 0.3                 | 0.5  | 1.15:1 | 1.25:1 | -55 to +85       | 15                          | 2               | +85                  | C-1          |
| 5.850–6.425     | NDI-5864           | NDC-5864             | 23             | 20   | 0.3                 | 0.5  | 1.15:1 | 1.25:1 | -55 to +85       | 10                          | 2               | +85                  | C-1          |
| 6.300–7.500     | NDI-6375           | NDC-6375             | 22             | 18   | 0.4                 | 0.6  | 1.22:1 | 1.25:1 | -55 to +85       | 15                          | 2               | +85                  | C-1          |
| 8.000–10.00     | NDI-8010           | NDC-8010             | 23             | 20   | 0.3                 | 0.5  | 1.15:1 | 1.25:1 | -55 to +85       | 5                           | 2               | +85                  | C-2          |
| 10.00–11.00     | NDI-1011           | NDC-1011             | 23             | 20   | 0.3                 | 0.5  | 1.15:1 | 1.25:1 | -55 to +85       | 10                          | 2               | +85                  | C-2          |
| 10.95–11.70     | NRI-1100           | N/A                  | 23             | 20   | 0.3                 | 0.4  | 1.15:1 | 1.25:1 | -55 to +85       | N/A                         | N/A             | +85                  | F            |
| 11.70–12.20     | NRI-1112           | N/A                  | 23             | 20   | 0.3                 | 0.4  | 1.15:1 | 1.25:1 | -55 to +85       | N/A                         | N/A             | +85                  | F            |
| 14.00–14.50     | NRI-1415           | N/A                  | 23             | 20   | 0.3                 | 0.5  | 1.15:1 | 1.25:1 | -55 to +85       | N/A                         | N/A             | +85                  | F            |
| 14.00–14.50     | NDI-1415           | N/A                  | 23             | 20   | 0.3                 | 0.5  | 1.15:1 | 1.25:1 | -55 to +85       | 10                          | 2               | +85                  | D            |

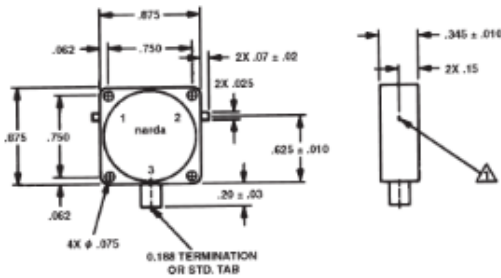
DROP-IN NARROWBAND ISOLATORS / CIRCULATORS

| Frequency (GHz) | Isolator Model No. | Circulator Model No. | Isolation (dB) |      | Insertion Loss (dB) |      | VSWR   |        | Temp. Range (°C) | Circulator (1) Power Rating |                 | Heat Sink Temp. (°C) | Outline Dwg. |
|-----------------|--------------------|----------------------|----------------|------|---------------------|------|--------|--------|------------------|-----------------------------|-----------------|----------------------|--------------|
|                 |                    |                      | Typ.           | Min. | Typ.                | Max. | Typ.   | Max.   |                  | Peak Pwr. Watts             | Avg. Pwr. Watts |                      |              |
| 2.0–4.0         | NDI-2040           | NDC-2040             | 20             | 17   | 0.4                 | 0.5  | 1.25:1 | 1.35:1 | -10 to +70       | 15                          | 2               | +70                  | A            |
| 4.0–8.0         | NDI-4080           | NDC-4080             | 20             | 17   | 0.4                 | 0.5  | 1.25:1 | 1.35:1 | -55 to +85       | 30                          | 2               | +85                  | B-2          |
| 6.0–12.0        | NDI-6012           | NDC-6012             | 17             | 15   | 0.5                 | 0.7  | 1.35:1 | 1.50:1 | -55 to +85       | 5                           | 2               | +85                  | C-2          |
| 8.0–16.0        | NDI-8016           | NDC-8016             | 16             | 14   | 0.5                 | 0.7  | 1.35:1 | 1.50:1 | -55 to +85       | 3                           | 2               | +85                  | C-2          |

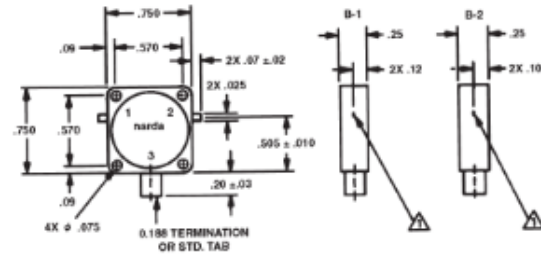
**NOTES ON DROP-IN ISOLATORS / CIRCULATORS:**

1. Drop-in isolators utilize 1 Watt termination. Peak reverse power above 1 Watt can cause damage.
1. Optional higher power terminations are available on most models.
2. On drop-in circulators, port 3 has tab similar to that of ports 1 and 2 of isolator versions.
3. Isolation on 3 port circulator models is measured with the third port terminated with a 50 Ohm load having a maximum VSWR of 1.1:1.

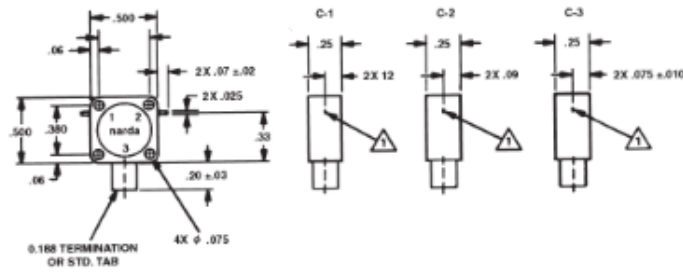
Drop-In Outline Drawings



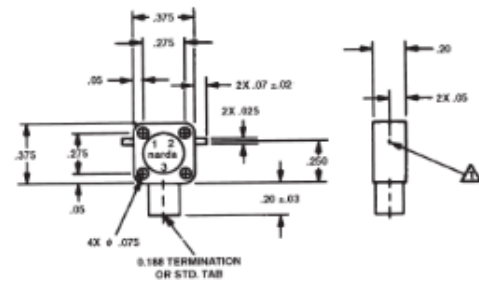
OUTLINE A



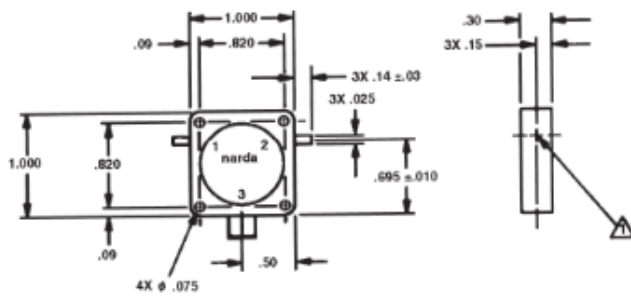
OUTLINE B



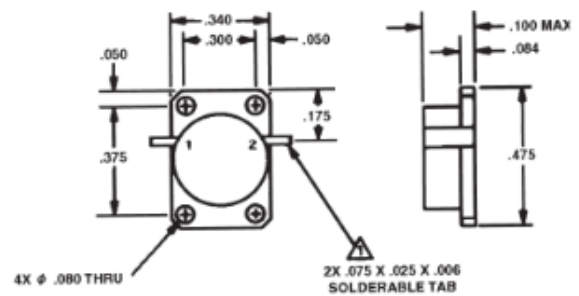
OUTLINE C



OUTLINE D



OUTLINE E

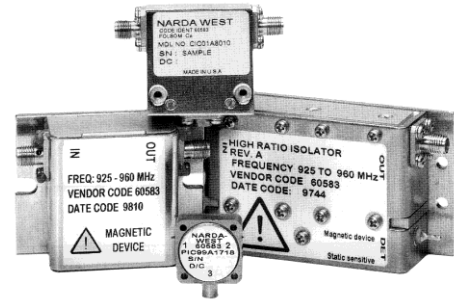


OUTLINE F

## Wireless Circulators/ Isolators

Products List: existing product only

- 700–900 MHz
- 800–1000 MHz
- 1700–2000 MHz
- 2000–2300 MHz
- Cost Effective Designs for High Volume Needs



### Single Junction Wireless Circulators

#### FEATURES

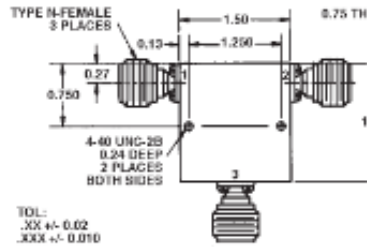
- High Power Handling
- Connectorized and Drop-In Models
- Low Insertion Loss - Typically Less Than 0.3 dB
- Broad Range of Products Covering Multiple Bands



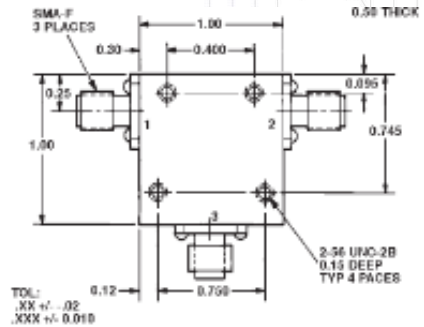
| Model Number | Frequency Coverage (MHz) | Minimum Isolation (dB Min.) | Maximum Insertion Loss (dB Max.) | Maximum VSWR | Operating Temperature | Power* (Maximum Watts CW) |         |
|--------------|--------------------------|-----------------------------|----------------------------------|--------------|-----------------------|---------------------------|---------|
|              |                          |                             |                                  |              |                       | Forward                   | Reverse |
| CCC-21A-7090 | 700–900                  | 20                          | 0.4                              | 1.25:1       | -20° to +65°C         | 200                       | 200     |
| CCC-01A-8010 | 800–1000                 | 20                          | 0.4                              | 1.25:1       | -20° to +65°C         | 100                       | 100     |
| CCC-01A-1720 | 1700–2000                | 20                          | 0.4                              | 1.25:1       | -20° to +65°C         | 100                       | 100     |
| CCC-21A-1720 | 1700–2000                | 20                          | 0.4                              | 1.25:1       | -20° to +65°C         | 100                       | 100     |
| CCC-01A-1723 | 1700–2300                | 22                          | 0.3                              | 1.15:1       | 0° to +55°C           | 25                        | 25      |
| PCC-99A-1819 | 1800–1900                | 20                          | 0.5                              | 1.25:1       | -20° to +65°C         | 100                       | 100     |
| SCC-01A-2023 | 2000–2300                | 20                          | 0.4                              | 1.25:1       | -20° to +65°C         | 100                       | 100     |

\* When approaching forward power handling maximums, heatsinking should be provided. All reverse power ratings are based upon proper heatsinking

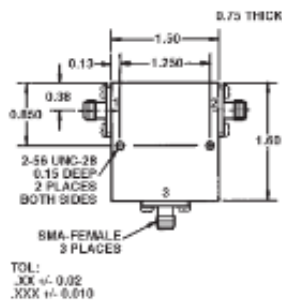
OUTLINE DRAWING



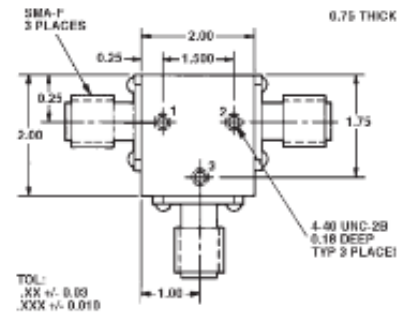
CCC-21A-7090



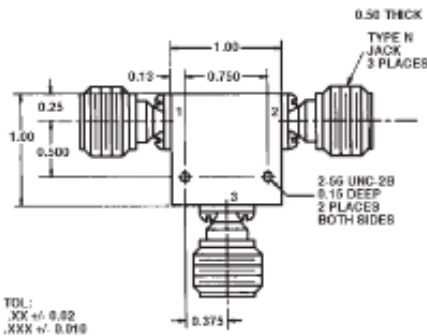
CCC-01A-1720



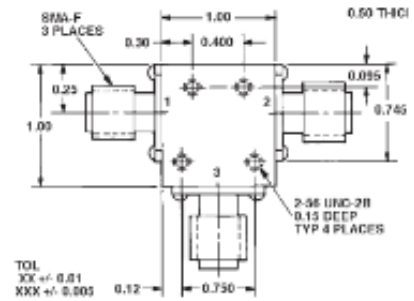
CCC-01A-8010



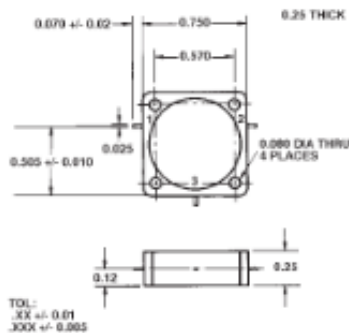
CCC-01A-1723



CCC-21A-1720



SCC-01A-2023



PCC-99A-1819

## Single Junction Wireless Isolators

### FEATURES

- High Isolation - up to 25 dB Minimum
- Low Insertion Loss - 0.3 dB Maximum on many models
- High Power Handling - Forward and Reverse
- Broadband and Optimized High Performance Designs Available



### SPECIFICATIONS

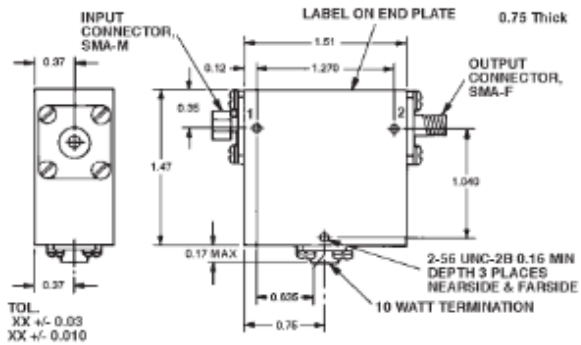
| Model Number | Frequency Coverage (MHz) | Minimum Isolation (dB Min.) | Maximum Insertion Loss (dB Max.) | Maximum VSWR | Operating Temperature | Power* (Maximum Watts CW) |         |
|--------------|--------------------------|-----------------------------|----------------------------------|--------------|-----------------------|---------------------------|---------|
|              |                          |                             |                                  |              |                       | Forward                   | Reverse |
| CIC-01A-8010 | 800–1000                 | 20                          | 0.40                             | 1.25:1       | -20° to +65°C         | 100                       | 1       |
| AIC-01C-8284 | 824–849                  | 25                          | 0.30                             | 1.15:1       | 0° to +50°C           | 100                       | 1       |
| AIC-21B-8689 | 869–894                  | 23                          | 0.30                             | 1.15:1       | 0° to +50°C           | 100                       | 1       |
| GIS-99A-9297 | 925–970                  | 25                          | 0.30                             | 1.15:1       | -10° to +60°C         | 50                        | 30      |
| CIC-01B-1720 | 1700–2000                | 20                          | 0.40                             | 1.25:1       | -20° to +65°C         | 100                       | 1       |
| CIC-01A-1723 | 1700–2300                | 22                          | 0.30                             | 1.15:1       | -20° to +65°C         | 25                        | 1       |
| SIC-01B-2023 | 2000–2300                | 20                          | 0.40                             | 1.25:1       | -20° to +65°C         | 100                       | 1       |

\* When approaching forward power handling limits, heatsinking should be provided. All reverse power ratings are based upon proper heatsinking.

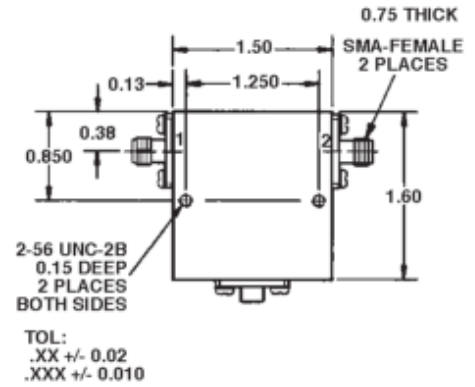
NOTE: Higher reverse power handling ratings available. Call factory for information.



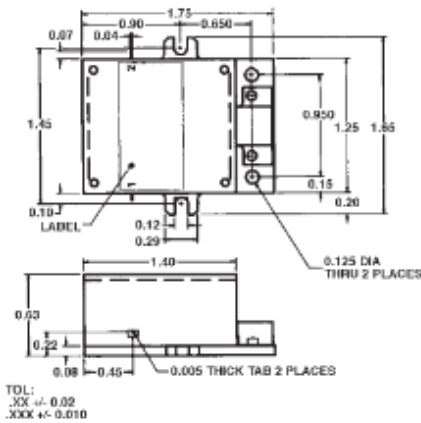
OUTLINE DRAWINGS



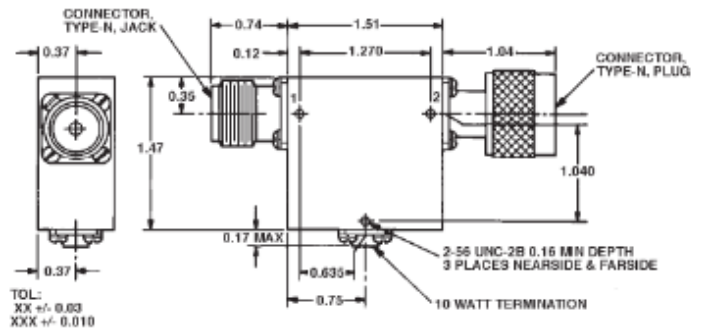
AIC-01C-8284



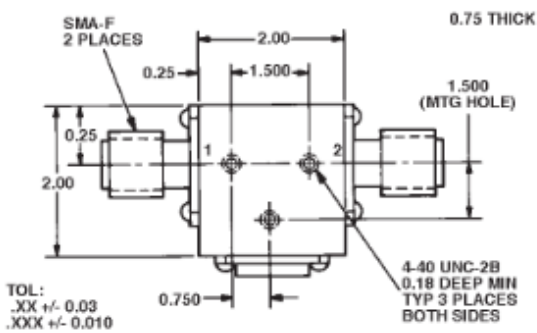
CIC-01A-8010



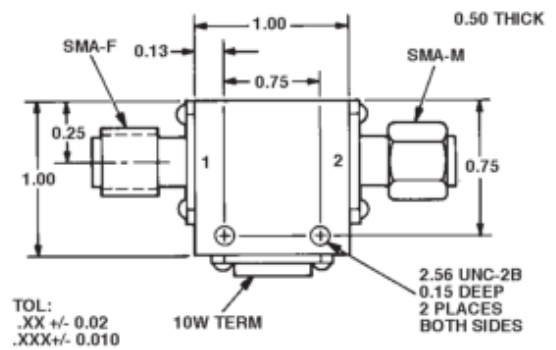
GIS-99A-9297



AIC-21B-8689



CIC-01A-1723

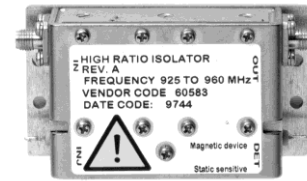


CIC-01B-1720  
 SIC-01B-2023

## Dual Junction Wireless Circulators

### FEATURES

- Very High Isolation - to 70 dB Minimum
- High Power Handling - to 80 Watts Reverse
- Broad Frequency Coverage
- Power Detectors, DC Blocks and Injection
- Ports Available



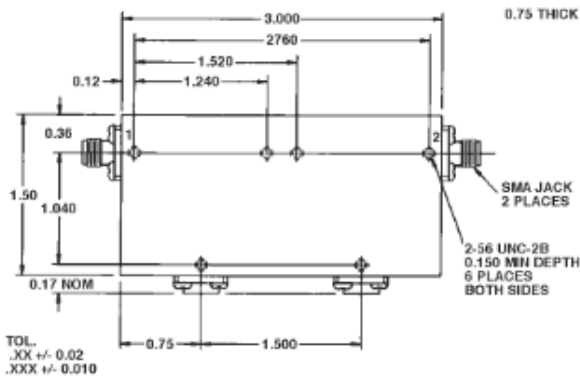
### SPECIFICATIONS

| Model Number | Frequency Coverage (MHz) | Minimum Isolation (dB Min.) | Maximum Insertion Loss (dB Max.) | Maximum VSWR | Operating Temperature | Power* (Maximum Watts CW) |         |
|--------------|--------------------------|-----------------------------|----------------------------------|--------------|-----------------------|---------------------------|---------|
|              |                          |                             |                                  |              |                       | forward                   | Reverse |
| CIH-01A-8290 | 820–900                  | 40                          | 0.80                             | 1.15:1       | 0° to +50°C           | 100                       | 10      |
| CIH-01A-8697 | 860–970                  | 40                          | 0.80                             | 1.15:1       | 0° to +50°C           | 100                       | 10      |
| GIH-01A-9396 | 935–960                  | 70                          | 0.50                             | 1.25:1       | 0° to +85°C           | 100                       | 80      |
| CIH-01A-1720 | 935–960                  | 40                          | 0.80                             | 1.25:1       | -20° to +65°C         | 100                       | 1       |
| PIH-01A-1800 | 1700–2000                | 60                          | 0.50                             | 1.25:1       | 0° to +65°            | 100                       | 30      |
| SIH-01A-2023 | 2000–2300                | 40                          | 0.80                             | 1.25:1       | -20° to +65°C         | 100                       | 1       |

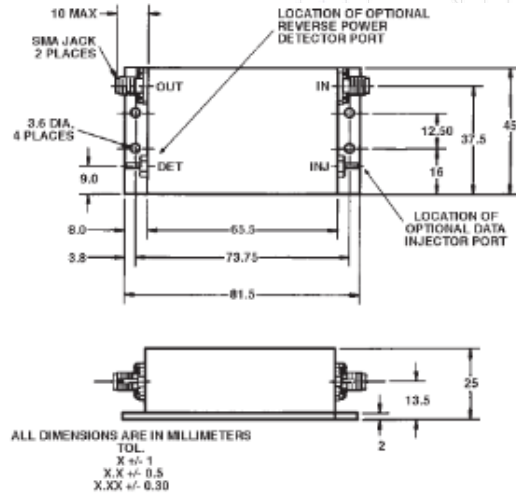
\* When approaching forward power handling limits, heatsinking should be provided. All reverse power ratings are based upon proper heatsinking.

NOTE: Higher reverse power handling ratings available. Call factory for information.

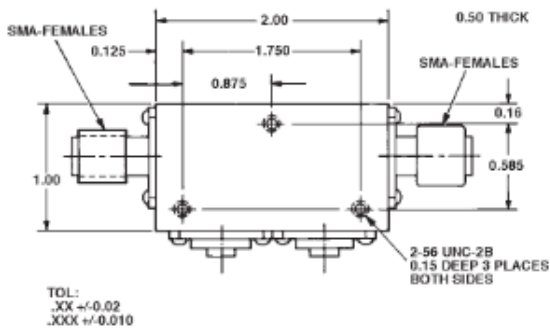
OUTLINE DRAWINGS



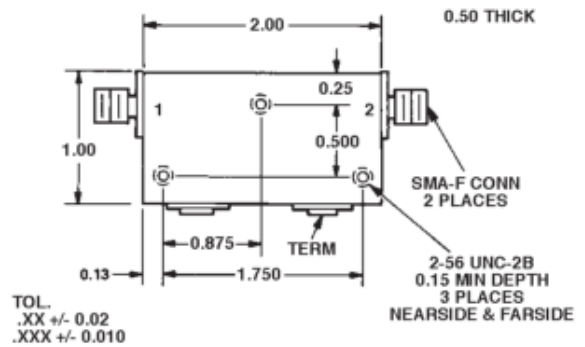
CIH-01A-8697  
CIH-01A-8290



GIH-01A-9396  
PIH-01A-1800



CIH-01A-1720



## Low Cost SATCOM Isolators

C-, X- and Ku- Bands – RX & TX Applications



### FEATURES

- High Isolation - up to 25 dB Minimum
- Low Insertion Loss - as low as 0.3 dB Maximum
- High Power Handling - Forward and Reverse

### SPECIFICATIONS

| Frequency Coverage (GHz) | Model Number            | Satcom Band           | Isolation (dB Min.) | Insertion Loss (dB Max.) | Maximum VSWR | Outline Config. | Temperature Range | Power* (Watts CW) |                  |
|--------------------------|-------------------------|-----------------------|---------------------|--------------------------|--------------|-----------------|-------------------|-------------------|------------------|
|                          |                         |                       |                     |                          |              |                 |                   | Fwd               | Rev <sup>1</sup> |
| 3.4–4.2                  | INA3442                 | C-RX                  | 23                  | 0.4                      | 1.20:1       | A               | -20° to +65°C     | 25                | 1                |
| 5.85–7.10                | INA5871                 | C-TX                  | 23                  | 0.4                      | 1.20:1       | A               | -20° to +65°C     | 25                | 1                |
| 5.85–7.10                | INA5872,5               | C-TX                  | 18                  | 0.5                      | 1.20:1       | B               | -20° to +65°C     | 25                | 1                |
| 7.25–8.4                 | INA7284 <sup>5</sup>    | X-RX & TX             | 25                  | 0.3                      | 1.15:1       | B               | -20° to +65°C     | 25                | 1                |
| 11.95–14.5               | INA1215 <sup>5</sup>    | Ku-RX & TX            | 25                  | 0.3                      | 1.15:1       | C               | -20° to +65°C     | 25                | 1                |
| 5.8–14.5                 | INA5814                 | Tri-Band              | 14                  | 0.9                      | 1.50:1       | D               | -54° to +85°C     | 25                | 1                |
| 5.8–14.5                 | IGS5814A <sup>3,5</sup> | Tri-Band <sup>4</sup> | 14                  | 0.9                      | 1.50:1       | B               | -54° to +85°C     | 25                | 1                |

\* When approaching forward power handling limits, heatsinking should be provided. All reverse power ratings are based upon proper heatsinking.

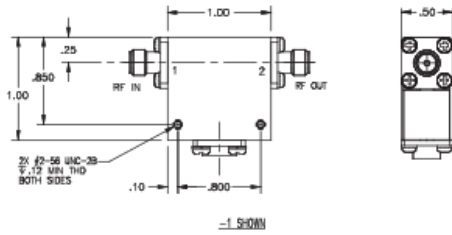
### CONNECTOR CONFIGURATIONS

| DASH No. | RF IN | RF OUT |
|----------|-------|--------|
| NONE     | SMA-F | SMA-F  |
| -1       | SMA-F | SMA-M  |
| -2       | SMA-M | SMA-F  |
| -3       | SMA-M | SMA-M  |

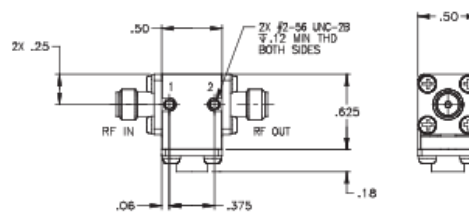
1. Higher reverse power handling ratings available. Call factory for information.
2. Smaller package size than INA5871.
3. Smaller package size than INA5814.
4. Sub. Bands 5.8–6.45 GHz, 7.9–8.4 GHz, 14.0–14.5 GHz.
5. Available from stock

OUTLINE DRAWINGS

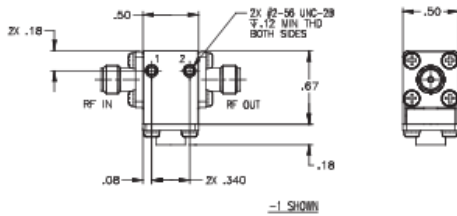
CONFIGURATION "A"



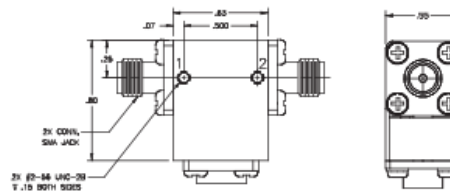
CONFIGURATION "B"



CONFIGURATION "C"



CONFIGURATION "D"





# PASSIVE COMPONENTS CATALOG



## STELLANT SYSTEMS

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