

Plug-In

# Power Splitter/Combiner

2 Way-90° 50Ω 14 to 30 MHz

PSCQ-2-26+  
PSCQ-2-26



Generic photo used for illustration purposes only

CASE STYLE: A01

**+RoHS Compliant**

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

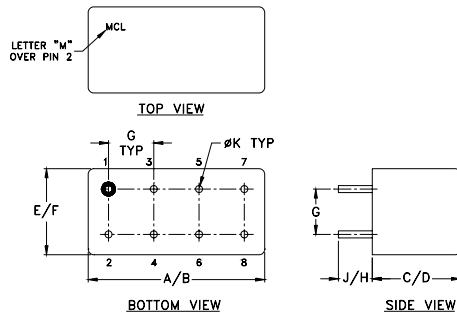
## Maximum Ratings

|                                                                 |                |
|-----------------------------------------------------------------|----------------|
| Operating Temperature                                           | -55°C to 100°C |
| Storage Temperature                                             | -55°C to 100°C |
| Power Input (as a splitter)                                     | 1W max.        |
| Permanent damage may occur if any of these limits are exceeded. |                |

## Pin Connections

|                      |         |
|----------------------|---------|
| SUM PORT             | 1       |
| PORT 1 (+90°)        | 2       |
| PORT 2 (0°)          | 5       |
| GROUND               | 3,4,7,8 |
| CASE GROUND          | 3,4,7,8 |
| 50 OHM TERM EXTERNAL | 6       |

## Outline Drawing



## Outline Dimensions (inch)

| A     | B     | C    | D     | E     | F     |
|-------|-------|------|-------|-------|-------|
| .770  | .800  | .385 | .400  | .370  | .400  |
| 19.56 | 20.32 | 9.78 | 10.16 | 9.40  | 10.16 |
| G     | H     | J    | K     | wt    |       |
| .200  | .20   | .14  | .031  | grams |       |
| 5.08  | 5.08  | 3.56 | 0.79  |       | 5.2   |

## Features

- low insertion loss, 0.4 dB typ.
- good isolation, 25 dB typ.
- excellent VSWR, 1.15:1 typ.
- rugged shielded case

## Applications

- modulators
- balanced amplifiers

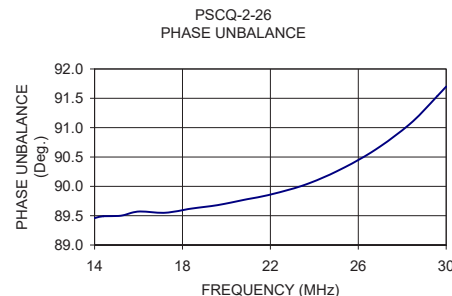
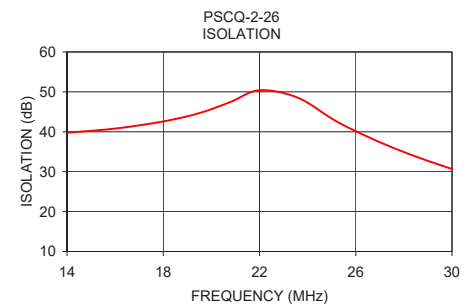
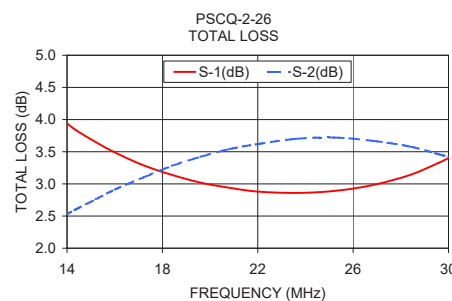
## Electrical Specifications

| FREQ. RANGE (MHz) | ISOLATION (dB) | INSERTION LOSS (dB)<br>Avg. of Coupled Outputs<br>ABOVE 3 dB | PHASE UNBALANCE (Degrees) | AMPLITUDE UNBALANCE (dB) |
|-------------------|----------------|--------------------------------------------------------------|---------------------------|--------------------------|
| $f_L$ - $f_U$     | Typ. Min.      | Typ. Max.                                                    | Max.                      | Max.                     |
| 14-30             | 25 20          | 0.4 0.7                                                      | 3                         | 1.5                      |

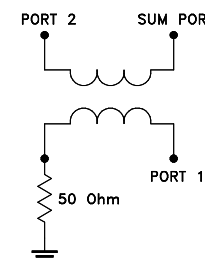
## Typical Performance Data

| Frequency (MHz) | Total Loss <sup>1</sup> (dB) |      | Amplitude Unbalance (dB) | Isolation (dB) | Phase Unbalance (deg.) | VSWR S | VSWR 1 | VSWR 2 |
|-----------------|------------------------------|------|--------------------------|----------------|------------------------|--------|--------|--------|
|                 | S-1                          | S-2  |                          |                |                        |        |        |        |
| 14.00           | 3.94                         | 2.53 | 1.41                     | 39.77          | 89.46                  | 1.03   | 1.04   | 1.02   |
| 14.40           | 3.83                         | 2.61 | 1.22                     | 39.95          | 89.49                  | 1.03   | 1.05   | 1.02   |
| 15.20           | 3.65                         | 2.76 | 0.89                     | 40.33          | 89.50                  | 1.03   | 1.05   | 1.02   |
| 16.00           | 3.49                         | 2.91 | 0.58                     | 40.81          | 89.57                  | 1.04   | 1.05   | 1.02   |
| 17.20           | 3.29                         | 3.10 | 0.19                     | 41.79          | 89.55                  | 1.04   | 1.05   | 1.02   |
| 18.40           | 3.14                         | 3.28 | 0.14                     | 43.06          | 89.62                  | 1.04   | 1.05   | 1.02   |
| 19.60           | 3.02                         | 3.42 | 0.40                     | 44.86          | 89.68                  | 1.04   | 1.06   | 1.02   |
| 20.80           | 2.94                         | 3.54 | 0.60                     | 47.48          | 89.77                  | 1.05   | 1.06   | 1.02   |
| 22.00           | 2.88                         | 3.62 | 0.74                     | 50.42          | 89.86                  | 1.05   | 1.06   | 1.03   |
| 23.60           | 2.86                         | 3.70 | 0.84                     | 48.51          | 90.03                  | 1.06   | 1.07   | 1.03   |
| 25.20           | 2.89                         | 3.72 | 0.83                     | 42.61          | 90.29                  | 1.07   | 1.08   | 1.04   |
| 26.80           | 2.98                         | 3.67 | 0.69                     | 37.92          | 90.63                  | 1.08   | 1.09   | 1.05   |
| 28.40           | 3.14                         | 3.58 | 0.43                     | 34.01          | 91.08                  | 1.10   | 1.10   | 1.06   |
| 29.60           | 3.33                         | 3.46 | 0.13                     | 31.47          | 91.54                  | 1.12   | 1.11   | 1.07   |
| 30.00           | 3.40                         | 3.42 | 0.02                     | 30.67          | 91.70                  | 1.13   | 1.12   | 1.07   |

1. Total Loss = Insertion Loss + 3dB splitter loss.



## electrical schematic



## Notes

- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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REV. C  
M151107  
PSCQ-2-26  
HY/TD/CP/AM  
200402

# 2 Way-90° Power Splitter/Combiner

PSCQ-2-26

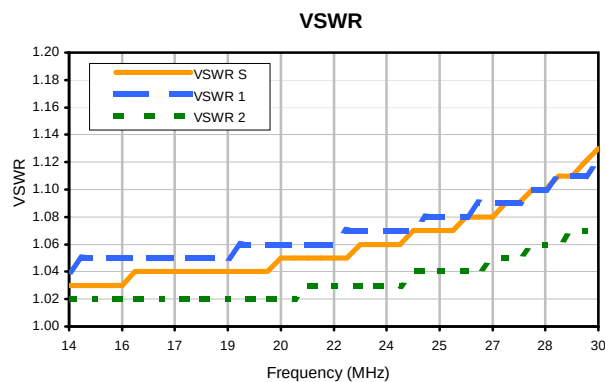
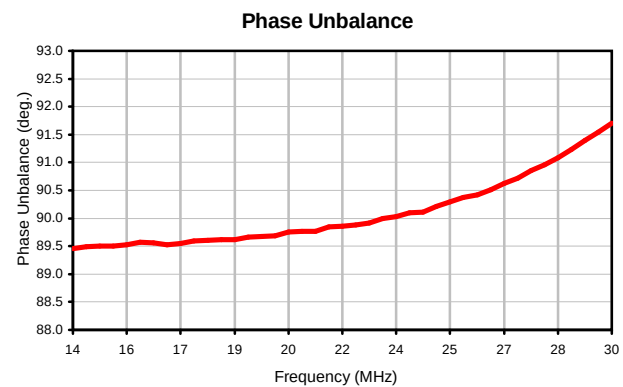
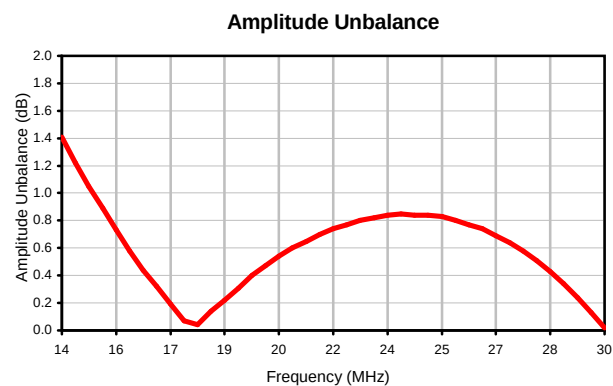
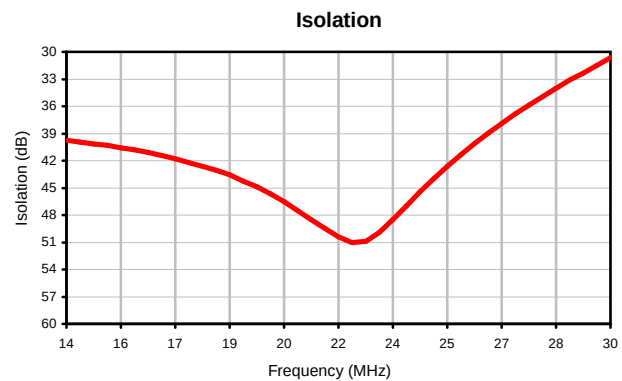
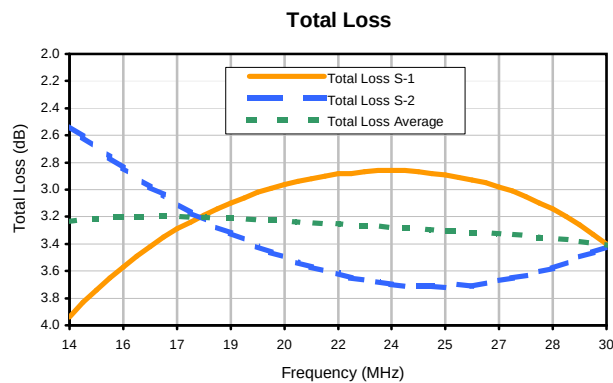
## Typical Performance Data

| FREQ.<br>(MHz) | TOTAL LOSS <sup>1</sup> |      |      | AMP.<br>UNBAL.<br>(dB) | ISOLATION<br>(dB) | PHASE<br>UNBAL.<br>(deg.) | FREQ.<br>(MHz) | VSWR |           |      |
|----------------|-------------------------|------|------|------------------------|-------------------|---------------------------|----------------|------|-----------|------|
|                | S-1                     | S-2  | AVG. |                        |                   |                           |                | S    | (:1)<br>1 | 2    |
| 14.0           | 3.94                    | 2.53 | 3.24 | 1.41                   | 39.77             | 89.46                     | 14.0           | 1.03 | 1.04      | 1.02 |
| 14.4           | 3.83                    | 2.61 | 3.22 | 1.22                   | 39.95             | 89.49                     | 14.4           | 1.03 | 1.05      | 1.02 |
| 14.8           | 3.74                    | 2.69 | 3.22 | 1.05                   | 40.13             | 89.50                     | 14.8           | 1.03 | 1.05      | 1.02 |
| 15.2           | 3.65                    | 2.76 | 3.21 | 0.89                   | 40.33             | 89.50                     | 15.2           | 1.03 | 1.05      | 1.02 |
| 15.6           | 3.57                    | 2.84 | 3.21 | 0.73                   | 40.56             | 89.53                     | 15.6           | 1.03 | 1.05      | 1.02 |
| 16.0           | 3.49                    | 2.91 | 3.20 | 0.58                   | 40.81             | 89.57                     | 16.0           | 1.04 | 1.05      | 1.02 |
| 16.4           | 3.42                    | 2.98 | 3.20 | 0.44                   | 41.07             | 89.56                     | 16.4           | 1.04 | 1.05      | 1.02 |
| 16.8           | 3.35                    | 3.04 | 3.20 | 0.32                   | 41.44             | 89.52                     | 16.8           | 1.04 | 1.05      | 1.02 |
| 17.2           | 3.29                    | 3.10 | 3.20 | 0.19                   | 41.79             | 89.55                     | 17.2           | 1.04 | 1.05      | 1.02 |
| 17.6           | 3.24                    | 3.17 | 3.21 | 0.07                   | 42.18             | 89.59                     | 17.6           | 1.04 | 1.05      | 1.02 |
| 18.0           | 3.19                    | 3.22 | 3.21 | 0.04                   | 42.60             | 89.60                     | 18.0           | 1.04 | 1.05      | 1.02 |
| 18.4           | 3.14                    | 3.28 | 3.21 | 0.14                   | 43.06             | 89.62                     | 18.4           | 1.04 | 1.05      | 1.02 |
| 18.8           | 3.10                    | 3.32 | 3.21 | 0.22                   | 43.53             | 89.62                     | 18.8           | 1.04 | 1.05      | 1.02 |
| 19.2           | 3.06                    | 3.37 | 3.22 | 0.31                   | 44.25             | 89.66                     | 19.2           | 1.04 | 1.06      | 1.02 |
| 19.6           | 3.02                    | 3.42 | 3.22 | 0.40                   | 44.86             | 89.68                     | 19.6           | 1.04 | 1.06      | 1.02 |
| 20.0           | 2.99                    | 3.46 | 3.23 | 0.47                   | 45.64             | 89.69                     | 20.0           | 1.04 | 1.06      | 1.02 |
| 20.4           | 2.96                    | 3.50 | 3.23 | 0.54                   | 46.51             | 89.75                     | 20.4           | 1.05 | 1.06      | 1.02 |
| 20.8           | 2.94                    | 3.54 | 3.24 | 0.60                   | 47.48             | 89.77                     | 20.8           | 1.05 | 1.06      | 1.02 |
| 21.2           | 2.92                    | 3.57 | 3.25 | 0.65                   | 48.48             | 89.77                     | 21.2           | 1.05 | 1.06      | 1.03 |
| 21.6           | 2.90                    | 3.60 | 3.25 | 0.70                   | 49.51             | 89.85                     | 21.6           | 1.05 | 1.06      | 1.03 |
| 22.0           | 2.88                    | 3.62 | 3.25 | 0.74                   | 50.42             | 89.86                     | 22.0           | 1.05 | 1.06      | 1.03 |
| 22.4           | 2.88                    | 3.65 | 3.27 | 0.77                   | 51.00             | 89.88                     | 22.4           | 1.05 | 1.07      | 1.03 |
| 22.8           | 2.87                    | 3.67 | 3.27 | 0.80                   | 50.86             | 89.91                     | 22.8           | 1.06 | 1.07      | 1.03 |
| 23.2           | 2.86                    | 3.68 | 3.27 | 0.82                   | 49.90             | 90.00                     | 23.2           | 1.06 | 1.07      | 1.03 |
| 23.6           | 2.86                    | 3.70 | 3.28 | 0.84                   | 48.51             | 90.03                     | 23.6           | 1.06 | 1.07      | 1.03 |
| 24.0           | 2.86                    | 3.71 | 3.29 | 0.85                   | 46.99             | 90.10                     | 24.0           | 1.06 | 1.07      | 1.03 |
| 24.4           | 2.87                    | 3.71 | 3.29 | 0.84                   | 45.49             | 90.11                     | 24.4           | 1.07 | 1.07      | 1.04 |
| 24.8           | 2.88                    | 3.71 | 3.30 | 0.84                   | 43.96             | 90.21                     | 24.8           | 1.07 | 1.08      | 1.04 |
| 25.2           | 2.89                    | 3.72 | 3.31 | 0.83                   | 42.61             | 90.29                     | 25.2           | 1.07 | 1.08      | 1.04 |
| 25.6           | 2.91                    | 3.70 | 3.31 | 0.80                   | 41.35             | 90.37                     | 25.6           | 1.07 | 1.08      | 1.04 |
| 26.0           | 2.93                    | 3.71 | 3.32 | 0.77                   | 40.08             | 90.42                     | 26.0           | 1.08 | 1.08      | 1.04 |
| 26.4           | 2.95                    | 3.69 | 3.32 | 0.74                   | 38.96             | 90.51                     | 26.4           | 1.08 | 1.09      | 1.04 |
| 26.8           | 2.98                    | 3.67 | 3.33 | 0.69                   | 37.92             | 90.63                     | 26.8           | 1.08 | 1.09      | 1.05 |
| 27.2           | 3.01                    | 3.65 | 3.33 | 0.64                   | 36.86             | 90.72                     | 27.2           | 1.09 | 1.09      | 1.05 |
| 27.6           | 3.05                    | 3.63 | 3.34 | 0.58                   | 35.86             | 90.85                     | 27.6           | 1.09 | 1.09      | 1.05 |
| 28.0           | 3.10                    | 3.61 | 3.36 | 0.51                   | 34.91             | 90.96                     | 28.0           | 1.10 | 1.10      | 1.06 |
| 28.4           | 3.14                    | 3.58 | 3.36 | 0.43                   | 34.01             | 91.08                     | 28.4           | 1.10 | 1.10      | 1.06 |
| 28.8           | 3.20                    | 3.54 | 3.37 | 0.34                   | 33.13             | 91.23                     | 28.8           | 1.11 | 1.11      | 1.06 |
| 29.2           | 3.26                    | 3.50 | 3.38 | 0.24                   | 32.30             | 91.39                     | 29.2           | 1.11 | 1.11      | 1.07 |
| 29.6           | 3.33                    | 3.46 | 3.40 | 0.13                   | 31.47             | 91.54                     | 29.6           | 1.12 | 1.11      | 1.07 |
| 30.0           | 3.40                    | 3.42 | 3.41 | 0.02                   | 30.67             | 91.70                     | 30.0           | 1.13 | 1.12      | 1.07 |

<sup>1</sup> Total Loss = Insertion Loss+ 3dB Splitter Loss

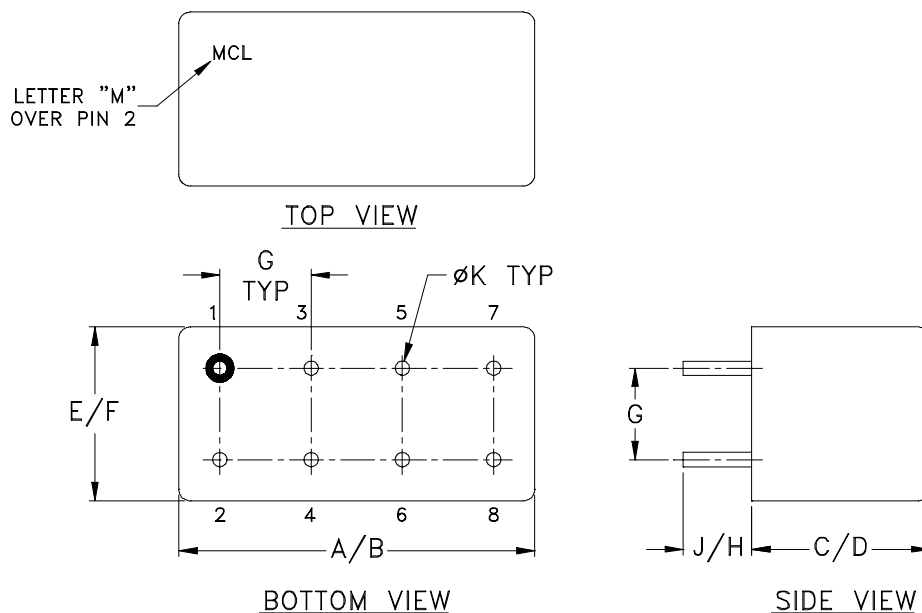


## Typical Performance Curves



A01  
A04  
A05  
A06

## Outline Dimensions



| CASE# | A               | B               | C              | D               | E              | F               | G              | H             | J             | K             | WT,<br>GRAM |
|-------|-----------------|-----------------|----------------|-----------------|----------------|-----------------|----------------|---------------|---------------|---------------|-------------|
| A01   | .770<br>(19.56) | .800<br>(20.32) | .385<br>(9.78) | .400<br>(10.16) | .370<br>(9.40) | .400<br>(10.16) | .200<br>(5.08) | .20<br>(5.08) | .14<br>(3.56) | .031<br>(.79) | 5.2         |
| A04   |                 |                 | .200<br>(5.08) | .210<br>(5.33)  |                |                 |                |               |               |               | 3.7         |
| A05   |                 |                 | .240<br>(6.10) | .250<br>(6.35)  |                |                 |                |               |               |               | 3.7         |
| A06   |                 |                 | .285<br>(7.24) | .310<br>(7.87)  |                |                 |                |               |               |               | 5.2         |

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

### Notes:

- Header material: C.R.S.  
Pin material: #52 alloy.  
Cover material: Cupro-Nickel.
- Pin finish: Electro Tin-Silver.
- Insulated spacer available. Request P/N B14-045-01.
- Tolerance on pin diameter  $\pm .005$  inch.
- Glass meniscus 0.015 inch max.
- Blue bead indicates Pin 1. Pin numbers do not appear on unit, for reference only.

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P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661



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| Specification                  | Test/Inspection Condition                                                                                                                                       | Reference/Spec                                                                                       |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Operating Temperature          | -55° to 100° C<br>Ambient Environment                                                                                                                           | Individual Model Data Sheet                                                                          |
| Storage Temperature            | -55° to 100° C<br>Ambient Environment                                                                                                                           | Individual Model Data Sheet                                                                          |
| Thermal Shock                  | -55° to 100°C, 100 cycles                                                                                                                                       | MIL-STD-202, Method 107, Condition A-3, except +100°C                                                |
| Vibration (High Frequency)     | 20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)                                                                             | MIL-STD-202, Method 204, Condition D                                                                 |
| Mechanical Shock               | 50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes                                                                                               | MIL-STD-202, Method 213, Condition A                                                                 |
| Moisture Resistance            | 10 cycles, 24 hours per cycle                                                                                                                                   | MIL-STD-202, Method 106, Condition A, except 50°C and end point electrical test done within 12 hours |
| Solderability                  | 10X Magnification                                                                                                                                               | J-STD-002, 95% Coverage                                                                              |
| Resistance to Solder Heat      | 260°C for 10 seconds                                                                                                                                            | MIL-STD-202, Method 210, Condition B                                                                 |
| Marking Resistance to Solvents | Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C;<br>distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C | MIL-STD-202, Method 215                                                                              |
| Terminal Strength              | 4 1/2 Pound Pull                                                                                                                                                | MIL-STD-202, Method 211, Condition A                                                                 |



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| Specification       | Test/Inspection Condition | Reference/Spec                       |
|---------------------|---------------------------|--------------------------------------|
| Gross Leak          | 125°C Bubble Test         | MIL-STD-202, Method 112, Condition D |
| Barometric Pressure | 100,000 Feet              | MIL-STD-202, Method 105, Condition D |