

# Up Converter Frequency Mixer

Level 13 (LO Power +13 dBm) 0.1 to 7400 MHz

ZX05-U742MH-S+

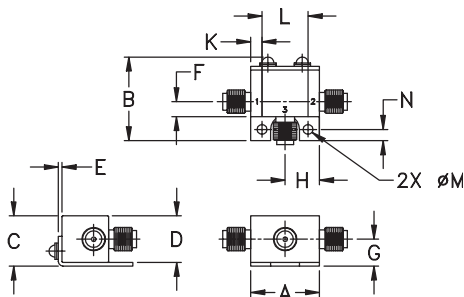
## Maximum Ratings

|                                                                 |                |
|-----------------------------------------------------------------|----------------|
| Operating Temperature                                           | -40°C to 85°C  |
| Storage Temperature                                             | -55°C to 100°C |
| IF Power                                                        | 50mW           |
| Permanent damage may occur if any of these limits are exceeded. |                |

## Coaxial Connections

|          |   |
|----------|---|
| LO       | 2 |
| IF (IN)  | 1 |
| RF (OUT) | 3 |

## Outline Drawing



## Outline Dimensions (inch)

| A     | B     | C     | D     | E    | F    | G     |
|-------|-------|-------|-------|------|------|-------|
| .74   | .90   | .54   | .50   | .04  | .16  | .29   |
| 18.80 | 22.86 | 13.72 | 12.70 | 1.02 | 4.06 | 7.37  |
| H     | J     | K     | L     | M    | N    | wt    |
| .37   | --    | .122  | .496  | .106 | .122 | grams |
| 9.40  | --    | 3.10  | 12.60 | 2.69 | 3.10 | 20.0  |

## Features

- up converter mixer
- low conversion loss, 8.3 dB typ.
- high IP3, 20 dBm typ.
- rugged construction
- small size
- protected by US patents, 6,790,049 and 7,027,795

## Applications

- instrumentation
- wide band receivers
- ISM



Generic photo used for illustration purposes only

CASE STYLE: FL905

| Connectors | Model          |
|------------|----------------|
| SMA        | ZX05-U742MH-S+ |

## +RoHS Compliant

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

## Electrical Specifications

| FREQUENCY (MHz) |           |           | CONVERSION LOSS* (dB) |               |      | LO-IF (IN) ISOLATION (dB) |      | LO-RF (OUT) ISOLATION (dB) |      | IP3 at center band (dBm) |
|-----------------|-----------|-----------|-----------------------|---------------|------|---------------------------|------|----------------------------|------|--------------------------|
| IF (IN)         | LO        | RF (OUT)  | Typ.                  | $\sigma^{**}$ | Max. | Typ.                      | Min. | Typ.                       | Min. | Typ.                     |
| 0.1-3300        | 2300-7400 | 2300-7400 | 8.3                   | 0.2           | 9.9  | 23                        | 10   | 25                         | 11   | 20                       |

1 dB COMPR. +9 dBm typ.

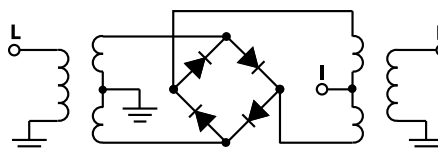
\* Conversion Loss at 4075 MHz RF

\*\*  $\sigma$  is a standard deviation

## Typical Performance Data

| Frequency (MHz) |         |          |           | Conversion Loss (dB) | Freq. (MHz) | Isolation L-I (dB) | Isolation L-R (dB) | VSWR LO Port (:1) | VSWR RF (OUT) Port (:1) |
|-----------------|---------|----------|-----------|----------------------|-------------|--------------------|--------------------|-------------------|-------------------------|
| IF (IN)         | LO      | RF (OUT) | LO +13dBm |                      | LO +13dBm   | LO +13dBm          | LO +13dBm          | LO +13dBm         | LO +13dBm               |
| 10.10           | 4085.10 | 4075.00  | 5.57      | 2300.10              | 21.13       | 38.74              | 2.92               | 2.95              |                         |
| 100.10          | 4175.10 | 4075.00  | 5.36      | 2600.10              | 26.47       | 35.51              | 2.17               | 3.33              |                         |
| 300.10          | 4375.10 | 4075.00  | 5.43      | 2900.10              | 28.02       | 30.76              | 1.89               | 3.40              |                         |
| 500.10          | 4575.10 | 4075.00  | 5.56      | 3200.10              | 26.53       | 27.62              | 1.82               | 3.19              |                         |
| 700.10          | 4775.10 | 4075.00  | 5.99      | 3500.10              | 23.07       | 27.19              | 1.96               | 2.47              |                         |
| 900.10          | 4975.10 | 4075.00  | 6.27      | 3800.10              | 23.29       | 26.81              | 2.17               | 2.35              |                         |
| 1100.10         | 5175.10 | 4075.00  | 7.07      | 4100.10              | 28.75       | 25.94              | 2.69               | 2.47              |                         |
| 1300.10         | 5375.10 | 4075.00  | 7.99      | 4400.10              | 23.50       | 23.80              | 3.31               | 2.61              |                         |
| 1500.10         | 5575.10 | 4075.00  | 8.41      | 4700.10              | 15.33       | 22.60              | 3.80               | 2.51              |                         |
| 1700.10         | 5775.10 | 4075.00  | 8.80      | 5000.10              | 13.50       | 21.09              | 4.23               | 3.21              |                         |
| 1900.10         | 5975.10 | 4075.00  | 8.78      | 5300.10              | 13.95       | 20.80              | 4.70               | 3.40              |                         |
| 2100.10         | 6175.10 | 4075.00  | 8.45      | 5600.10              | 15.79       | 20.24              | 4.55               | 3.49              |                         |
| 2300.10         | 6375.10 | 4075.00  | 7.73      | 5900.10              | 19.40       | 19.04              | 3.76               | 3.29              |                         |
| 2500.10         | 6575.10 | 4075.00  | 7.42      | 6200.10              | 24.99       | 17.57              | 2.67               | 3.31              |                         |
| 2700.10         | 6775.10 | 4075.00  | 7.02      | 6500.10              | 31.86       | 16.35              | 1.87               | 3.10              |                         |
| 2900.10         | 6975.10 | 4075.00  | 6.74      | 6800.10              | 32.02       | 15.61              | 1.88               | 2.67              |                         |
| 3100.10         | 7175.10 | 4075.00  | 6.89      | 7100.10              | 26.63       | 15.09              | 3.00               | 2.72              |                         |
| 3200.10         | 7275.10 | 4075.00  | 7.13      | 7300.10              | 20.91       | 15.81              | 4.08               | 3.21              |                         |
| 3250.10         | 7325.10 | 4075.00  | 7.33      | 7350.10              | 19.57       | 15.70              | 4.32               | 2.68              |                         |
| 3300.10         | 7375.10 | 4075.00  | 7.70      | 7400.10              | 19.47       | 16.10              | 4.73               | 3.67              |                         |

## 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.
- The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)

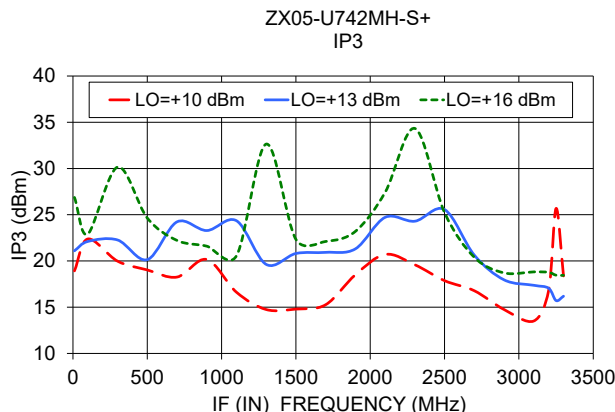
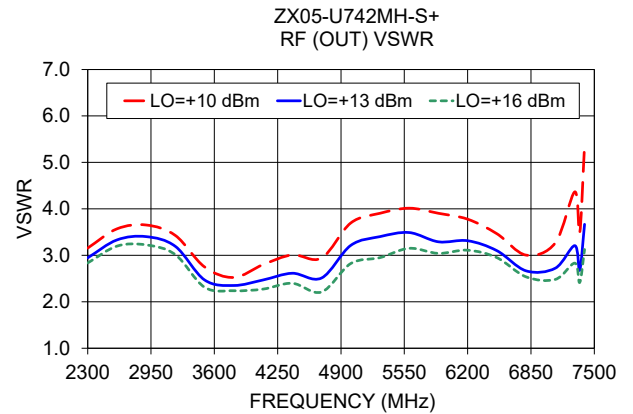
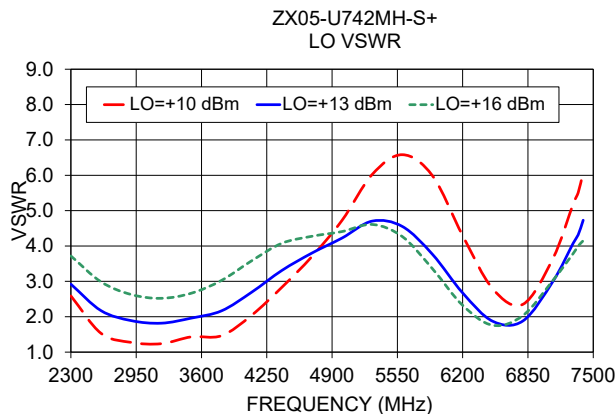
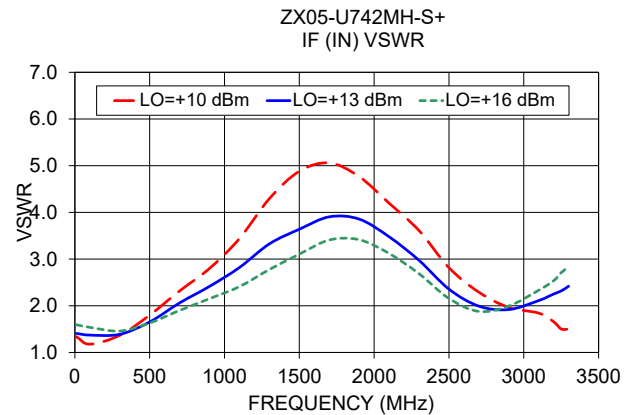
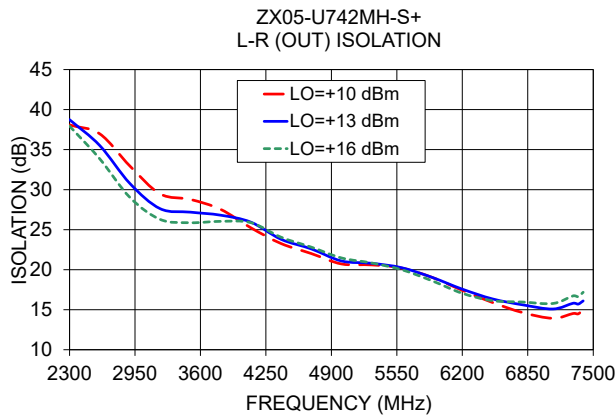
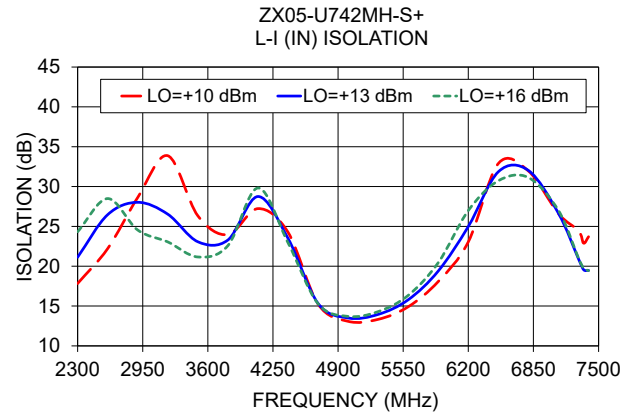
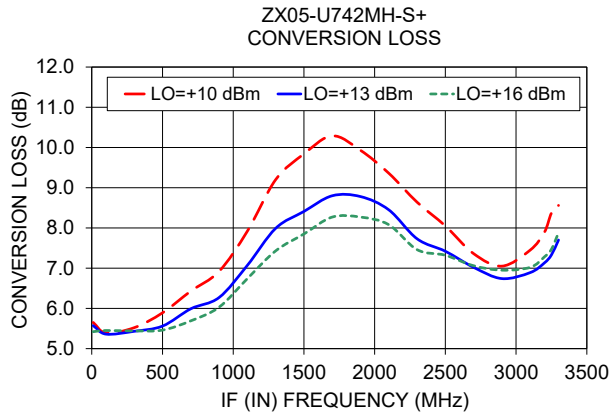


[www.minicircuits.com](http://www.minicircuits.com) P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 sales@minicircuits.com

REV. B  
M171494  
ZX05-U742MH-S+  
ED-12902/19  
DJ/CP/AM  
200811  
Page 1 of 2

# Performance Charts

# ZX05-U742MH-S+



## 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.
- The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)



# Frequency Mixer (Upconverter)

ZX05-U742MH-S+

## Typical Performance Data

| IF<br>INPUT<br>(MHz) | LO<br>INPUT<br>(MHz) | RF<br>OUTPUT<br>(MHz) | CONVERSION LOSS<br>(dB) |      |      | IP-3 INPUT<br>(dBm) |       |       | LO<br>INPUT<br>(MHz) | LO-IF ISOLATION<br>(dB) |       |       | LO-RF ISOLATION<br>(dB) |       |       |
|----------------------|----------------------|-----------------------|-------------------------|------|------|---------------------|-------|-------|----------------------|-------------------------|-------|-------|-------------------------|-------|-------|
|                      |                      |                       | @LO (dBm)               |      |      | @LO (dBm)           |       |       |                      | @LO (dBm)               |       |       | @LO (dBm)               |       |       |
|                      |                      |                       | +10                     | +13  | +16  | +10                 | +13   | +16   |                      | +10                     | +13   | +16   | +10                     | +13   | +16   |
| 10                   | 4085                 | 4075                  | 5.65                    | 5.57 | 5.42 | 18.93               | 21.10 | 26.87 | 2300                 | 17.83                   | 21.13 | 24.33 | 38.08                   | 38.74 | 37.94 |
| 20                   | 4095                 | 4075                  | 5.29                    | 5.09 | 5.23 | 18.77               | 20.26 | 25.68 | 2325                 | 18.15                   | 21.53 | 24.74 | 38.01                   | 38.47 | 37.37 |
| 30                   | 4105                 | 4075                  | 5.13                    | 5.00 | 5.01 | 19.76               | 20.18 | 23.61 | 2350                 | 18.29                   | 21.73 | 24.87 | 39.89                   | 39.30 | 37.36 |
| 40                   | 4115                 | 4075                  | 5.25                    | 5.11 | 5.17 | 21.08               | 20.63 | 23.13 | 2375                 | 18.80                   | 22.33 | 25.50 | 41.12                   | 40.13 | 37.70 |
| 50                   | 4125                 | 4075                  | 5.25                    | 5.21 | 5.23 | 21.26               | 21.39 | 22.66 | 2400                 | 19.13                   | 22.72 | 25.92 | 40.77                   | 39.78 | 37.38 |
| 60                   | 4135                 | 4075                  | 5.25                    | 5.21 | 5.31 | 22.12               | 21.23 | 22.19 | 2450                 | 19.46                   | 23.13 | 26.31 | 41.39                   | 39.18 | 36.20 |
| 70                   | 4145                 | 4075                  | 5.29                    | 5.27 | 5.34 | 22.51               | 21.82 | 22.31 | 2500                 | 20.54                   | 24.29 | 27.30 | 40.51                   | 39.02 | 36.37 |
| 80                   | 4155                 | 4075                  | 5.30                    | 5.29 | 5.35 | 21.86               | 21.90 | 22.10 | 2600                 | 22.21                   | 26.47 | 28.49 | 36.97                   | 35.51 | 33.85 |
| 90                   | 4165                 | 4075                  | 5.44                    | 5.35 | 5.47 | 22.08               | 22.28 | 22.18 | 2700                 | 24.29                   | 28.38 | 27.80 | 35.26                   | 33.07 | 31.70 |
| 100                  | 4175                 | 4075                  | 5.39                    | 5.36 | 5.45 | 22.38               | 22.11 | 22.92 | 2800                 | 26.73                   | 28.59 | 25.76 | 34.09                   | 31.60 | 29.90 |
| 125                  | 4200                 | 4075                  | 5.35                    | 5.24 | 5.26 | 21.24               | 23.65 | 22.05 | 2900                 | 28.63                   | 28.02 | 24.54 | 32.94                   | 30.76 | 29.02 |
| 150                  | 4225                 | 4075                  | 5.38                    | 5.29 | 5.29 | 22.46               | 25.92 | 23.23 | 3000                 | 30.49                   | 27.96 | 24.16 | 31.22                   | 29.29 | 27.84 |
| 175                  | 4250                 | 4075                  | 5.46                    | 5.42 | 5.44 | 23.32               | 29.58 | 26.53 | 3100                 | 34.06                   | 28.06 | 23.65 | 30.18                   | 28.28 | 26.96 |
| 200                  | 4275                 | 4075                  | 5.57                    | 5.52 | 5.57 | 23.31               | 31.35 | 27.87 | 3200                 | 33.87                   | 26.53 | 23.05 | 29.47                   | 27.62 | 26.28 |
| 225                  | 4300                 | 4075                  | 5.50                    | 5.42 | 5.43 | 21.77               | 31.68 | 28.71 | 3300                 | 30.50                   | 25.19 | 22.44 | 28.95                   | 27.36 | 26.07 |
| 250                  | 4325                 | 4075                  | 5.47                    | 5.39 | 5.40 | 20.85               | 26.16 | 27.54 | 3400                 | 28.15                   | 24.11 | 21.77 | 28.68                   | 27.21 | 25.94 |
| 275                  | 4350                 | 4075                  | 5.52                    | 5.45 | 5.47 | 20.01               | 23.08 | 28.64 | 3500                 | 26.33                   | 23.07 | 21.16 | 28.78                   | 27.19 | 25.87 |
| 300                  | 4375                 | 4075                  | 5.52                    | 5.43 | 5.44 | 19.98               | 22.27 | 30.15 | 3600                 | 25.08                   | 22.79 | 21.28 | 28.50                   | 27.00 | 25.84 |
| 325                  | 4400                 | 4075                  | 5.50                    | 5.37 | 5.35 | 19.67               | 21.46 | 31.79 | 3700                 | 24.36                   | 22.92 | 21.78 | 27.92                   | 26.77 | 25.79 |
| 350                  | 4425                 | 4075                  | 5.52                    | 5.34 | 5.32 | 19.15               | 20.50 | 27.71 | 3800                 | 23.96                   | 23.29 | 22.58 | 27.54                   | 26.81 | 26.04 |
| 400                  | 4475                 | 4075                  | 5.62                    | 5.39 | 5.34 | 19.45               | 19.89 | 26.36 | 3900                 | 24.41                   | 24.36 | 24.02 | 27.19                   | 26.83 | 26.24 |
| 450                  | 4525                 | 4075                  | 5.70                    | 5.42 | 5.33 | 19.64               | 20.04 | 24.04 | 4000                 | 25.46                   | 26.09 | 26.25 | 26.40                   | 26.51 | 26.12 |
| 500                  | 4575                 | 4075                  | 5.89                    | 5.56 | 5.46 | 19.03               | 20.14 | 24.64 | 4100                 | 27.23                   | 28.75 | 29.82 | 25.24                   | 25.94 | 25.88 |
| 550                  | 4625                 | 4075                  | 5.99                    | 5.58 | 5.43 | 18.83               | 19.51 | 23.69 | 4200                 | 29.54                   | 31.17 | 32.74 | 23.95                   | 24.77 | 25.09 |
| 600                  | 4675                 | 4075                  | 6.11                    | 5.57 | 5.41 | 18.48               | 20.22 | 22.29 | 4300                 | 29.10                   | 28.34 | 27.87 | 23.47                   | 24.12 | 24.45 |
| 650                  | 4725                 | 4075                  | 6.26                    | 5.80 | 5.49 | 17.51               | 21.43 | 20.89 | 4400                 | 24.27                   | 23.50 | 22.95 | 23.27                   | 23.80 | 24.06 |
| 700                  | 4775                 | 4075                  | 6.43                    | 5.99 | 5.69 | 18.26               | 24.23 | 22.22 | 4500                 | 20.10                   | 19.74 | 19.40 | 22.85                   | 23.31 | 23.49 |
| 750                  | 4825                 | 4075                  | 6.49                    | 6.05 | 5.87 | 18.66               | 24.89 | 21.82 | 4600                 | 17.10                   | 16.99 | 16.80 | 22.58                   | 23.05 | 23.14 |
| 800                  | 4875                 | 4075                  | 6.61                    | 6.10 | 5.93 | 18.85               | 22.24 | 21.30 | 4700                 | 15.25                   | 15.33 | 15.29 | 22.02                   | 22.60 | 22.82 |
| 850                  | 4925                 | 4075                  | 6.84                    | 6.25 | 5.97 | 20.39               | 22.38 | 21.77 | 4800                 | 14.23                   | 14.43 | 14.48 | 21.48                   | 22.08 | 22.39 |
| 900                  | 4975                 | 4075                  | 6.92                    | 6.27 | 6.03 | 20.16               | 23.29 | 21.60 | 4900                 | 13.52                   | 13.83 | 13.95 | 20.99                   | 21.52 | 21.94 |
| 950                  | 5025                 | 4075                  | 7.15                    | 6.47 | 6.29 | 19.57               | 23.54 | 21.15 | 5000                 | 13.08                   | 13.50 | 13.70 | 20.72                   | 21.09 | 21.47 |
| 1000                 | 5075                 | 4075                  | 7.32                    | 6.58 | 6.35 | 18.57               | 24.00 | 21.59 | 5100                 | 13.10                   | 13.59 | 13.86 | 20.77                   | 21.10 | 21.29 |
| 1100                 | 5175                 | 4075                  | 7.92                    | 7.07 | 6.74 | 16.62               | 24.35 | 20.56 | 5200                 | 13.17                   | 13.74 | 14.05 | 20.71                   | 21.00 | 21.14 |
| 1200                 | 5275                 | 4075                  | 8.53                    | 7.59 | 7.14 | 15.73               | 21.27 | 21.73 | 5300                 | 13.33                   | 13.95 | 14.30 | 20.60                   | 20.80 | 20.84 |
| 1300                 | 5375                 | 4075                  | 9.20                    | 7.99 | 7.43 | 14.75               | 19.63 | 32.64 | 5400                 | 13.82                   | 14.51 | 14.91 | 20.57                   | 20.70 | 20.61 |
| 1400                 | 5475                 | 4075                  | 9.61                    | 8.20 | 7.69 | 14.13               | 20.42 | 21.68 | 5500                 | 14.30                   | 15.08 | 15.55 | 20.47                   | 20.58 | 20.39 |
| 1500                 | 5575                 | 4075                  | 9.84                    | 8.41 | 7.85 | 14.80               | 20.81 | 22.33 | 5600                 | 14.91                   | 15.79 | 16.34 | 20.20                   | 20.24 | 19.99 |
| 1600                 | 5675                 | 4075                  | 10.12                   | 8.67 | 8.10 | 15.03               | 20.47 | 21.41 | 5700                 | 16.00                   | 16.99 | 17.66 | 19.91                   | 19.95 | 19.61 |
| 1700                 | 5775                 | 4075                  | 10.29                   | 8.80 | 8.27 | 15.27               | 20.93 | 22.11 | 5800                 | 16.95                   | 18.10 | 18.93 | 19.56                   | 19.57 | 19.16 |
| 1800                 | 5875                 | 4075                  | 10.16                   | 8.87 | 8.38 | 16.80               | 20.76 | 22.07 | 5900                 | 18.08                   | 19.40 | 20.45 | 19.04                   | 19.04 | 18.61 |
| 1900                 | 5975                 | 4075                  | 9.93                    | 8.78 | 8.27 | 18.51               | 21.31 | 23.20 | 6000                 | 19.70                   | 21.19 | 22.47 | 18.50                   | 18.51 | 17.99 |
| 2000                 | 6075                 | 4075                  | 9.74                    | 8.73 | 8.27 | 18.53               | 22.53 | 23.52 | 6100                 | 21.17                   | 22.88 | 24.50 | 17.98                   | 18.05 | 17.52 |
| 2100                 | 6175                 | 4075                  | 9.36                    | 8.45 | 8.08 | 20.71               | 24.72 | 27.42 | 6200                 | 23.06                   | 24.99 | 26.99 | 17.42                   | 17.57 | 17.05 |
| 2200                 | 6275                 | 4075                  | 8.90                    | 8.06 | 7.72 | 22.30               | 24.62 | 29.92 | 6300                 | 25.96                   | 28.25 | 30.90 | 16.90                   | 17.12 | 16.66 |
| 2300                 | 6375                 | 4075                  | 8.64                    | 7.73 | 7.46 | 19.59               | 24.30 | 34.33 | 6400                 | 29.32                   | 31.21 | 32.73 | 16.38                   | 16.74 | 16.40 |
| 2400                 | 6475                 | 4075                  | 8.27                    | 7.50 | 7.30 | 18.09               | 24.96 | 27.40 | 6500                 | 32.90                   | 31.86 | 30.73 | 15.90                   | 16.35 | 16.13 |
| 2500                 | 6575                 | 4075                  | 8.05                    | 7.42 | 7.32 | 17.87               | 25.56 | 25.22 | 6600                 | 35.86                   | 32.28 | 30.32 | 15.48                   | 16.05 | 15.96 |
| 2600                 | 6675                 | 4075                  | 7.67                    | 7.19 | 7.15 | 17.46               | 22.74 | 22.02 | 6700                 | 34.31                   | 31.75 | 30.03 | 15.08                   | 15.84 | 15.91 |
| 2700                 | 6775                 | 4075                  | 7.36                    | 7.02 | 7.06 | 16.78               | 20.63 | 20.40 | 6800                 | 31.95                   | 32.02 | 31.13 | 14.64                   | 15.61 | 15.96 |
| 2800                 | 6875                 | 4075                  | 7.24                    | 6.91 | 7.04 | 15.71               | 19.44 | 19.15 | 6900                 | 29.86                   | 31.41 | 32.41 | 14.34                   | 15.44 | 15.99 |
| 2900                 | 6975                 | 4075                  | 7.05                    | 6.74 | 6.95 | 14.75               | 17.96 | 18.71 | 7000                 | 28.13                   | 28.95 | 29.52 | 14.00                   | 15.17 | 15.85 |
| 3000                 | 7075                 | 4075                  | 7.13                    | 6.77 | 6.90 | 13.91               | 17.85 | 19.06 | 7100                 | 26.58                   | 26.63 | 26.99 | 13.93                   | 15.09 | 15.78 |
| 3100                 | 7175                 | 4075                  | 7.45                    | 6.89 | 7.02 | 13.51               | 17.37 | 18.82 | 7200                 | 25.35                   | 23.69 | 23.86 | 14.15                   | 15.43 | 16.16 |
| 3200                 | 7275                 | 4075                  | 7.89                    | 7.13 | 7.28 | 16.81               | 17.05 | 18.77 | 7300                 | 24.46                   | 20.91 | 20.99 | 14.53                   | 15.81 | 16.73 |
| 3300                 | 7375                 | 4075                  | 8.56                    | 7.70 | 7.88 | 18.38               | 16.19 | 18.45 | 7400                 | 23.70                   | 19.47 | 19.44 | 15.02                   | 16.10 | 17.18 |

# Frequency Mixer (Upconverter)

ZX05-U742MH-S+

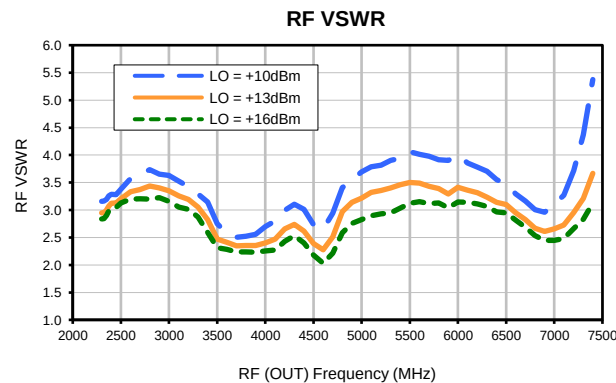
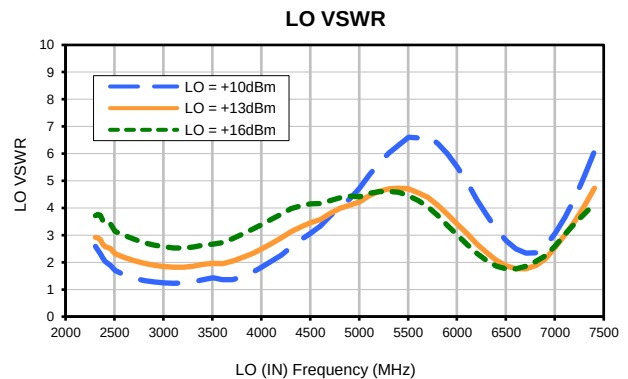
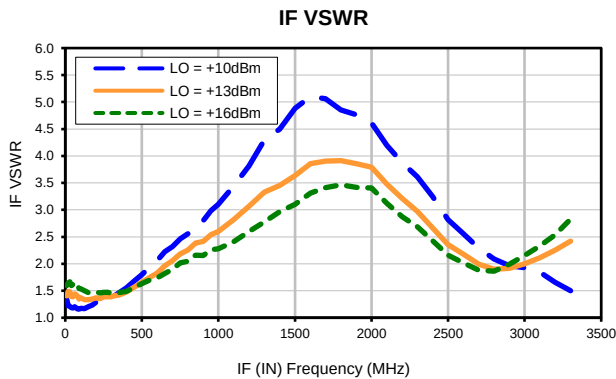
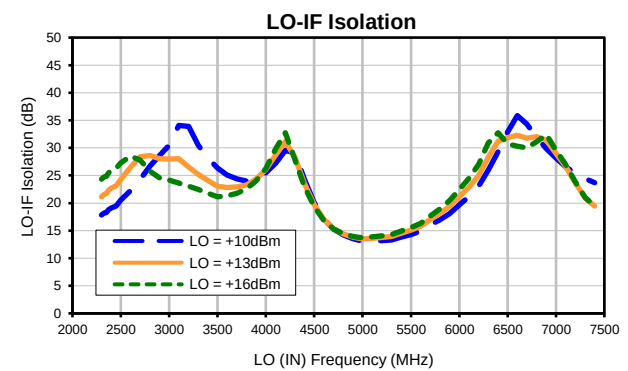
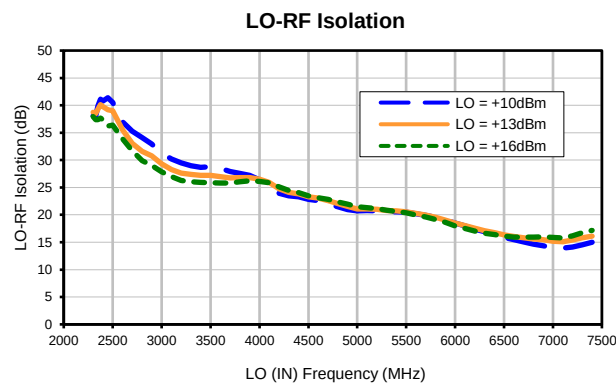
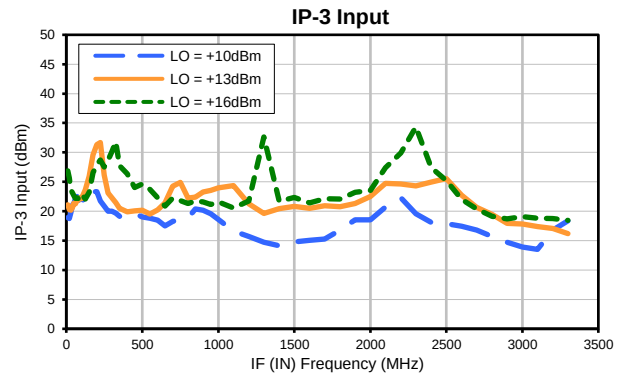
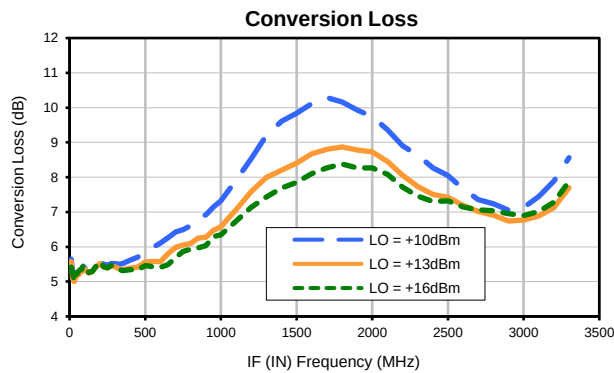
## Typical Performance Data

| IF<br>INPUT<br>(MHz) | LO<br>INPUT<br>(MHz) | IF VSWR<br>(:1) |      |      | LO<br>INPUT<br>(MHz) | LO VSWR<br>(:1) |      |      | RF<br>OUTPUT<br>(MHz) | RF VSWR<br>(:1) |      |      |
|----------------------|----------------------|-----------------|------|------|----------------------|-----------------|------|------|-----------------------|-----------------|------|------|
|                      |                      | @LO (dBm)       |      |      |                      | @LO (dBm)       |      |      |                       | @LO (dBm)       |      |      |
|                      |                      | +10             | +13  | +16  |                      | +10             | +13  | +16  |                       | +10             | +13  | +16  |
| 10                   | 4085                 | 1.34            | 1.41 | 1.59 | 2305                 | 2.59            | 2.92 | 3.72 | 2300                  | 3.16            | 2.95 | 2.84 |
| 20                   | 4095                 | 1.22            | 1.49 | 1.64 | 2330                 | 2.45            | 2.90 | 3.76 | 2325                  | 3.16            | 2.95 | 2.84 |
| 30                   | 4105                 | 1.21            | 1.48 | 1.67 | 2355                 | 2.31            | 2.83 | 3.73 | 2350                  | 3.19            | 3.00 | 2.90 |
| 40                   | 4115                 | 1.18            | 1.40 | 1.59 | 2380                 | 2.15            | 2.66 | 3.52 | 2375                  | 3.26            | 3.07 | 2.98 |
| 50                   | 4125                 | 1.18            | 1.39 | 1.62 | 2405                 | 2.03            | 2.57 | 3.42 | 2400                  | 3.29            | 3.12 | 3.03 |
| 60                   | 4135                 | 1.21            | 1.44 | 1.66 | 2455                 | 1.89            | 2.52 | 3.43 | 2450                  | 3.28            | 3.13 | 3.05 |
| 70                   | 4145                 | 1.18            | 1.43 | 1.65 | 2505                 | 1.70            | 2.31 | 3.14 | 2500                  | 3.38            | 3.20 | 3.13 |
| 80                   | 4155                 | 1.16            | 1.40 | 1.59 | 2605                 | 1.53            | 2.17 | 2.99 | 2600                  | 3.57            | 3.33 | 3.20 |
| 90                   | 4165                 | 1.16            | 1.35 | 1.55 | 2705                 | 1.41            | 2.05 | 2.84 | 2700                  | 3.65            | 3.37 | 3.20 |
| 100                  | 4175                 | 1.18            | 1.37 | 1.54 | 2805                 | 1.33            | 1.96 | 2.72 | 2800                  | 3.73            | 3.44 | 3.20 |
| 125                  | 4200                 | 1.17            | 1.33 | 1.50 | 2905                 | 1.27            | 1.89 | 2.63 | 2900                  | 3.65            | 3.40 | 3.22 |
| 150                  | 4225                 | 1.21            | 1.34 | 1.47 | 3005                 | 1.24            | 1.84 | 2.57 | 3000                  | 3.63            | 3.35 | 3.16 |
| 175                  | 4250                 | 1.23            | 1.35 | 1.46 | 3105                 | 1.23            | 1.81 | 2.52 | 3100                  | 3.52            | 3.26 | 3.05 |
| 200                  | 4275                 | 1.29            | 1.37 | 1.48 | 3205                 | 1.24            | 1.82 | 2.52 | 3200                  | 3.43            | 3.19 | 3.01 |
| 225                  | 4300                 | 1.28            | 1.35 | 1.46 | 3305                 | 1.28            | 1.86 | 2.56 | 3300                  | 3.29            | 3.05 | 2.87 |
| 250                  | 4325                 | 1.32            | 1.39 | 1.47 | 3405                 | 1.36            | 1.93 | 2.63 | 3400                  | 3.15            | 2.83 | 2.59 |
| 275                  | 4350                 | 1.35            | 1.39 | 1.47 | 3505                 | 1.43            | 1.96 | 2.67 | 3500                  | 2.75            | 2.47 | 2.31 |
| 300                  | 4375                 | 1.37            | 1.39 | 1.46 | 3605                 | 1.36            | 1.95 | 2.72 | 3600                  | 2.57            | 2.41 | 2.28 |
| 325                  | 4400                 | 1.41            | 1.41 | 1.48 | 3705                 | 1.36            | 2.04 | 2.86 | 3700                  | 2.50            | 2.35 | 2.24 |
| 350                  | 4425                 | 1.46            | 1.42 | 1.46 | 3805                 | 1.46            | 2.17 | 3.03 | 3800                  | 2.52            | 2.35 | 2.24 |
| 400                  | 4475                 | 1.56            | 1.48 | 1.49 | 3905                 | 1.62            | 2.32 | 3.21 | 3900                  | 2.56            | 2.36 | 2.23 |
| 450                  | 4525                 | 1.68            | 1.56 | 1.56 | 4005                 | 1.82            | 2.49 | 3.39 | 4000                  | 2.69            | 2.40 | 2.25 |
| 500                  | 4575                 | 1.80            | 1.65 | 1.63 | 4105                 | 2.04            | 2.69 | 3.58 | 4100                  | 2.80            | 2.47 | 2.27 |
| 550                  | 4625                 | 1.94            | 1.75 | 1.70 | 4205                 | 2.26            | 2.90 | 3.77 | 4200                  | 3.00            | 2.66 | 2.43 |
| 600                  | 4675                 | 2.06            | 1.83 | 1.74 | 4305                 | 2.56            | 3.13 | 3.97 | 4300                  | 3.11            | 2.74 | 2.53 |
| 650                  | 4725                 | 2.22            | 1.96 | 1.82 | 4405                 | 2.83            | 3.31 | 4.08 | 4400                  | 3.01            | 2.61 | 2.40 |
| 700                  | 4775                 | 2.32            | 2.06 | 1.90 | 4505                 | 3.07            | 3.45 | 4.15 | 4500                  | 2.73            | 2.39 | 2.18 |
| 750                  | 4825                 | 2.46            | 2.18 | 2.02 | 4605                 | 3.34            | 3.57 | 4.17 | 4600                  | 2.65            | 2.28 | 2.03 |
| 800                  | 4875                 | 2.56            | 2.25 | 2.05 | 4705                 | 3.70            | 3.80 | 4.28 | 4700                  | 2.94            | 2.51 | 2.21 |
| 850                  | 4925                 | 2.72            | 2.38 | 2.16 | 4805                 | 4.03            | 3.99 | 4.38 | 4800                  | 3.41            | 2.97 | 2.59 |
| 900                  | 4975                 | 2.80            | 2.42 | 2.15 | 4905                 | 4.34            | 4.10 | 4.43 | 4900                  | 3.55            | 3.14 | 2.75 |
| 950                  | 5025                 | 2.99            | 2.54 | 2.26 | 5005                 | 4.73            | 4.23 | 4.41 | 5000                  | 3.70            | 3.21 | 2.82 |
| 1000                 | 5075                 | 3.11            | 2.60 | 2.28 | 5105                 | 5.22            | 4.46 | 4.54 | 5100                  | 3.79            | 3.32 | 2.89 |
| 1100                 | 5175                 | 3.44            | 2.82 | 2.41 | 5205                 | 5.65            | 4.61 | 4.60 | 5200                  | 3.82            | 3.35 | 2.93 |
| 1200                 | 5275                 | 3.82            | 3.07 | 2.60 | 5305                 | 6.03            | 4.70 | 4.61 | 5300                  | 3.90            | 3.40 | 2.95 |
| 1300                 | 5375                 | 4.30            | 3.33 | 2.78 | 5405                 | 6.32            | 4.73 | 4.57 | 5400                  | 3.95            | 3.46 | 3.04 |
| 1400                 | 5475                 | 4.50            | 3.45 | 2.97 | 5505                 | 6.61            | 4.70 | 4.45 | 5500                  | 4.06            | 3.50 | 3.12 |
| 1500                 | 5575                 | 4.88            | 3.64 | 3.11 | 5605                 | 6.58            | 4.55 | 4.27 | 5600                  | 4.01            | 3.49 | 3.15 |
| 1600                 | 5675                 | 5.10            | 3.86 | 3.31 | 5705                 | 6.66            | 4.39 | 4.03 | 5700                  | 3.98            | 3.43 | 3.12 |
| 1700                 | 5775                 | 5.06            | 3.90 | 3.41 | 5805                 | 6.37            | 4.09 | 3.71 | 5800                  | 3.91            | 3.39 | 3.13 |
| 1800                 | 5875                 | 4.86            | 3.91 | 3.47 | 5905                 | 5.99            | 3.76 | 3.35 | 5900                  | 3.90            | 3.29 | 3.04 |
| 1900                 | 5975                 | 4.77            | 3.86 | 3.42 | 6005                 | 5.49            | 3.40 | 3.00 | 6000                  | 4.01            | 3.42 | 3.15 |
| 2000                 | 6075                 | 4.61            | 3.79 | 3.40 | 6105                 | 4.93            | 3.04 | 2.65 | 6100                  | 3.86            | 3.36 | 3.14 |
| 2100                 | 6175                 | 4.20            | 3.48 | 3.12 | 6205                 | 4.30            | 2.67 | 2.32 | 6200                  | 3.78            | 3.31 | 3.11 |
| 2200                 | 6275                 | 3.87            | 3.21 | 2.87 | 6305                 | 3.73            | 2.35 | 2.06 | 6300                  | 3.70            | 3.24 | 3.07 |
| 2300                 | 6375                 | 3.61            | 2.97 | 2.69 | 6405                 | 3.21            | 2.07 | 1.85 | 6400                  | 3.56            | 3.14 | 2.96 |
| 2400                 | 6475                 | 3.25            | 2.67 | 2.42 | 6505                 | 2.79            | 1.87 | 1.76 | 6500                  | 3.47            | 3.10 | 2.95 |
| 2500                 | 6575                 | 2.82            | 2.36 | 2.16 | 6605                 | 2.49            | 1.76 | 1.76 | 6600                  | 3.29            | 2.95 | 2.81 |
| 2600                 | 6675                 | 2.56            | 2.18 | 2.02 | 6705                 | 2.34            | 1.76 | 1.86 | 6700                  | 3.16            | 2.82 | 2.69 |
| 2700                 | 6775                 | 2.29            | 1.99 | 1.88 | 6805                 | 2.35            | 1.88 | 2.03 | 6800                  | 3.00            | 2.67 | 2.54 |
| 2800                 | 6875                 | 2.09            | 1.90 | 1.86 | 6905                 | 2.60            | 2.12 | 2.25 | 6900                  | 2.96            | 2.61 | 2.44 |
| 2900                 | 6975                 | 1.96            | 1.92 | 1.99 | 7005                 | 3.09            | 2.56 | 2.61 | 7000                  | 3.11            | 2.66 | 2.44 |
| 3000                 | 7075                 | 1.93            | 2.00 | 2.15 | 7105                 | 3.65            | 3.00 | 3.03 | 7100                  | 3.27            | 2.72 | 2.48 |
| 3100                 | 7175                 | 1.84            | 2.11 | 2.33 | 7205                 | 4.37            | 3.52 | 3.43 | 7200                  | 3.72            | 2.95 | 2.66 |
| 3200                 | 7275                 | 1.66            | 2.25 | 2.54 | 7305                 | 5.19            | 4.08 | 3.79 | 7300                  | 4.37            | 3.21 | 2.83 |
| 3300                 | 7375                 | 1.50            | 2.42 | 2.83 | 7405                 | 6.09            | 4.73 | 4.15 | 7400                  | 5.38            | 3.67 | 3.13 |

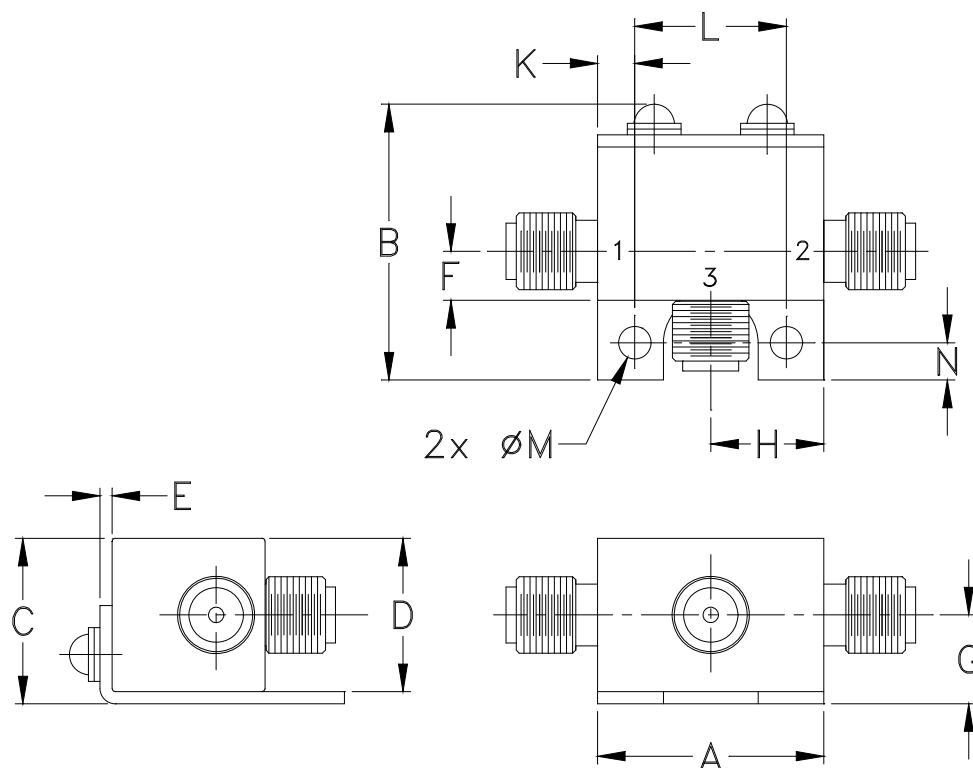
# Frequency Mixer (Upconverter)

ZX05-U742MH-S+

## Typical Performance Curves



### Outline Dimensions



| CASE #. | A              | B              | C              | D              | E             | F             | G             | H             | J      | K              | L               | M              | N              | WT,<br>GRAM |
|---------|----------------|----------------|----------------|----------------|---------------|---------------|---------------|---------------|--------|----------------|-----------------|----------------|----------------|-------------|
| FL905   | .74<br>(18.80) | .90<br>(22.86) | .54<br>(13.72) | .50<br>(12.70) | .04<br>(1.02) | .16<br>(4.06) | .29<br>(7.37) | .37<br>(9.40) | -<br>- | .122<br>(3.10) | .496<br>(12.60) | .106<br>(2.69) | .122<br>(3.10) | 20.0        |

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

Tolerance on hole size and interaxes dimensions to be  $\pm .005$ .

#### Notes:

- Case material: Brass.
- Case finish: Nickel plate.



INTERNET <http://www.minicircuits.com>

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

Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010

Mini-Circuits ISO 9001 & ISO 14001 Certified



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

| Specification              | Test/Inspection Condition                                                              | Reference/Spec                       |
|----------------------------|----------------------------------------------------------------------------------------|--------------------------------------|
| Operating Temperature      | -40° to 85°C                                                                           | Individual Model Data Sheet          |
| Storage Temperature        | -55° to 100° C<br>Ambient Environment                                                  | Individual Model Data Sheet          |
| Barometric Pressure        | 100,000 Feet                                                                           | MIL-STD-202, Method 105, Condition D |
| Humidity                   | 90% RH, 65°C<br>Units may require bake-out after humidity to restore full performance. | MIL-STD-202, Method 103              |
| Thermal Shock              | -65° to 125°C, 5 cycles                                                                | MIL-STD-202, Method 107, Condition B |
| Vibration (High Frequency) | 20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)    | MIL-STD-202, Method 204, Condition D |
| Mechanical Shock           | 100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)                          | MIL-STD-202, Method 213, Condition I |