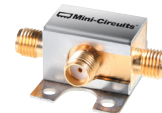


# Frequency Mixer WIDE BAND

Level 13 (LO Power +13 dBm) 824 to 4200 MHz

## ZX05-43MH+



### Maximum Ratings

|                       |                |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C  |
| Storage Temperature   | -55°C to 100°C |
| RF Power              | 50mW           |

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

### Coaxial Connections

|    |   |
|----|---|
| LO | 2 |
| RF | 3 |
| IF | 1 |

### Features

- wide bandwidth, 824 to 4200 MHz
- low conversion loss, 6.1 dB typ.
- excellent L-R isolation, 35 dB typ.
- rugged construction
- small size
- useable as up and down converter
- protected by US patents, 6,790,049 and 7,027,795

### Applications

- cellular
- defense and weather radar
- defense communications
- PCN
- WCDMA
- WIFI
- blue tooth
- VSAT
- ISM

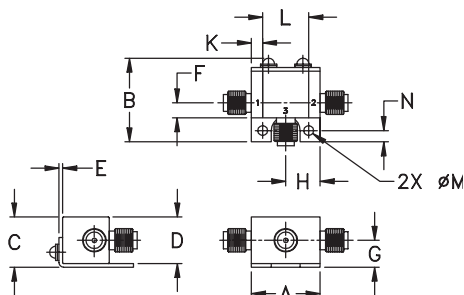
CASE STYLE: FL905

| Connectors | Model        | Price   | Qty.   |
|------------|--------------|---------|--------|
| SMA        | ZX05-43MH-S+ | \$46.45 | (1-24) |

**+RoHS Compliant**

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

### Outline Drawing



### Outline Dimensions ( inch mm )

| 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  |

### Electrical Specifications

| FREQUENCY (MHz) |                 | CONVERSION LOSS* (dB) |          |      | LO-RF ISOLATION (dB) |      | LO-IF ISOLATION (dB) |      | IP3 at center band (dBm) |
|-----------------|-----------------|-----------------------|----------|------|----------------------|------|----------------------|------|--------------------------|
|                 |                 | Typ.                  | $\sigma$ | Max. | Typ.                 | Min. | Typ.                 | Min. |                          |
| 824-4200        | LO/RF $f_L-f_U$ |                       |          |      |                      |      |                      |      |                          |
|                 | IF              |                       |          |      |                      |      |                      |      |                          |
|                 | DC-1500         |                       |          |      |                      |      |                      |      |                          |
|                 | 824-2500        | 6.3                   | 0.1      | 8.6  | 37                   | 28   | 24                   | 7    | 20                       |
|                 | 2500-4200       | 5.7                   | 0.1      | 9.8  | 30                   | 22   | 20                   | 11   | 22                       |

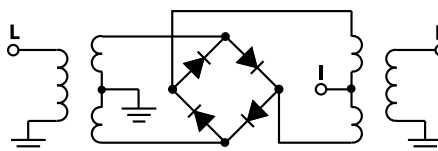
1 dB COMPR.: +9 dBm typ.

\* Conversion loss at 30 MHz IF.  $\sigma$  is a measure of repeatability from unit to unit.

### Typical Performance Data

| Frequency (MHz) |         | Conversion Loss (dB) | Isolation L-R (dB) | Isolation L-I (dB) | VSWR RF Port (:1) | VSWR LO Port (:1) |
|-----------------|---------|----------------------|--------------------|--------------------|-------------------|-------------------|
| RF              | LO      | LO +13dBm            | LO +13dBm          | LO +13dBm          | LO +13dBm         | LO +13dBm         |
| 810.00          | 840.00  | 7.06                 | 38.11              | 22.81              | 2.08              | 8.55              |
| 1010.00         | 1040.00 | 6.43                 | 43.16              | 26.73              | 2.83              | 2.44              |
| 1210.00         | 1240.00 | 5.83                 | 41.09              | 30.74              | 3.45              | 1.27              |
| 1410.00         | 1440.00 | 5.82                 | 34.44              | 34.76              | 3.53              | 1.16              |
| 1610.00         | 1640.00 | 5.70                 | 33.13              | 29.18              | 3.12              | 1.61              |
| 1810.00         | 1840.00 | 6.00                 | 35.10              | 19.67              | 3.21              | 1.77              |
| 2010.00         | 2040.00 | 5.93                 | 33.76              | 11.58              | 3.28              | 1.62              |
| 2210.00         | 2240.00 | 5.94                 | 34.33              | 11.64              | 3.33              | 1.85              |
| 2410.00         | 2440.00 | 5.12                 | 31.89              | 14.42              | 2.18              | 2.27              |
| 2610.00         | 2640.00 | 5.44                 | 31.05              | 17.41              | 2.43              | 2.37              |
| 2810.00         | 2840.00 | 5.15                 | 29.56              | 19.09              | 1.88              | 1.72              |
| 3010.00         | 3040.00 | 4.63                 | 27.17              | 21.48              | 1.70              | 1.64              |
| 3210.00         | 3240.00 | 4.96                 | 25.87              | 25.21              | 1.92              | 1.37              |
| 3410.00         | 3440.00 | 5.46                 | 25.97              | 24.10              | 2.11              | 1.34              |
| 3610.00         | 3640.00 | 6.47                 | 24.80              | 20.53              | 3.34              | 1.88              |
| 3810.00         | 3840.00 | 6.88                 | 25.65              | 18.07              | 3.76              | 2.58              |
| 4010.00         | 4040.00 | 7.75                 | 26.66              | 17.01              | 5.03              | 3.83              |
| 4110.00         | 4140.00 | 7.74                 | 26.80              | 15.46              | 5.14              | 4.62              |
| 4150.00         | 4180.00 | 7.92                 | 26.85              | 15.58              | 5.44              | 4.84              |
| 4210.00         | 4240.00 | 7.83                 | 26.88              | 15.04              | 5.07              | 5.28              |

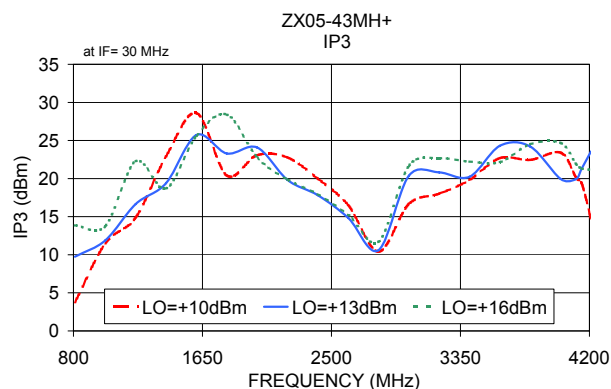
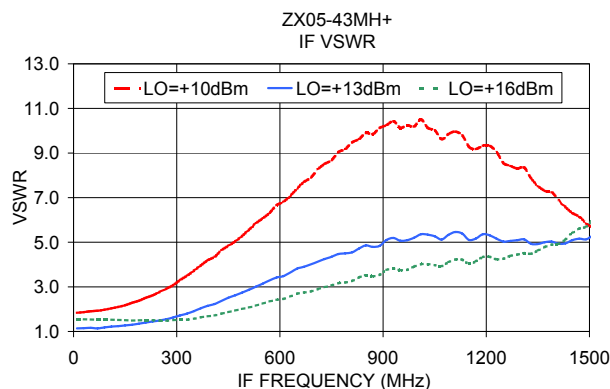
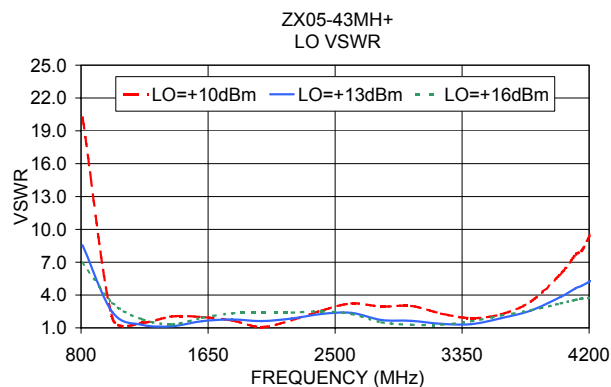
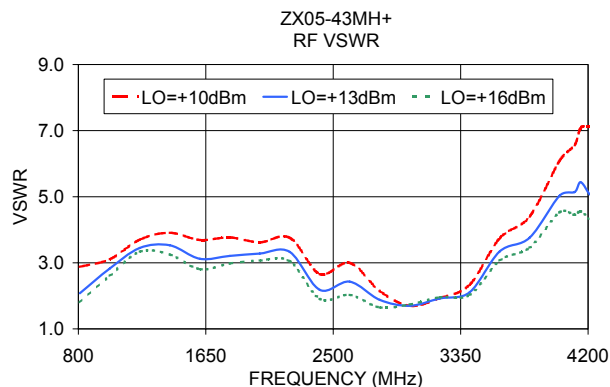
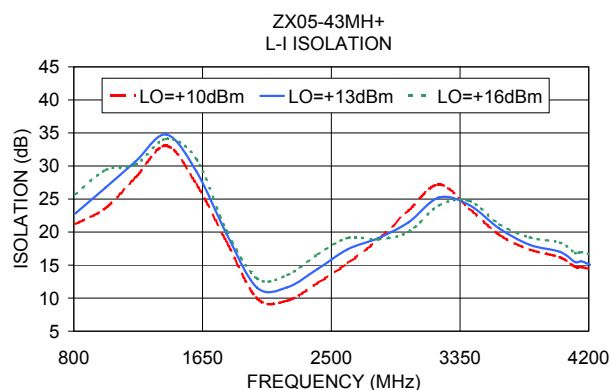
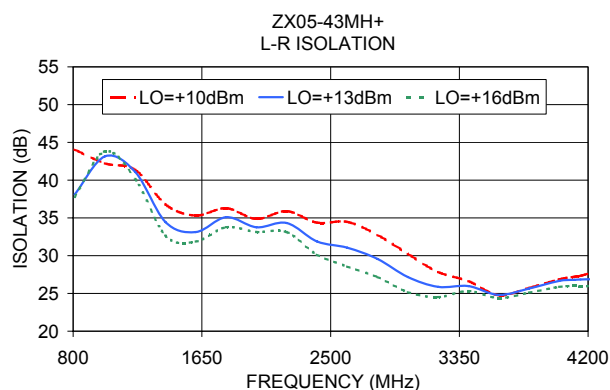
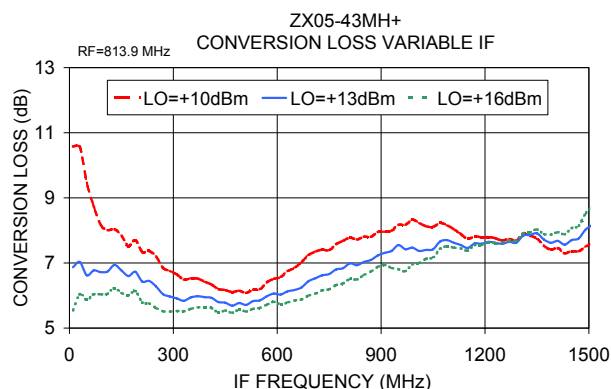
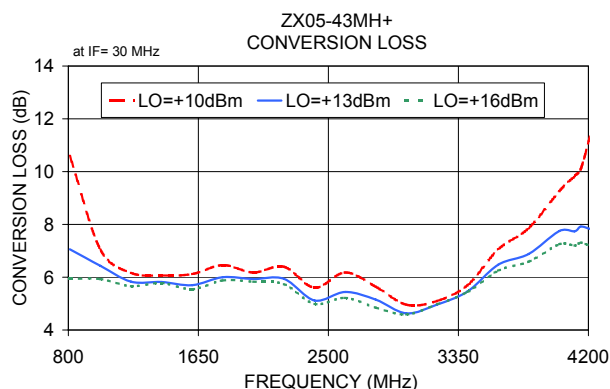
### Electrical Schematic



### 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.
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# Frequency Mixer

**ZX05-43MH+**

## Typical Performance Data

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>IF FIXED<br>@IF(OUT)=30MHz<br>(dB) |       |      | RF<br>(IN)<br>(MHz) | LO<br>(MHz) | IP3 INPUT<br>(dBm) |       |       | RF<br>(IN)<br>(MHz) | LO<br>(MHz) | COMPRESSION<br>@RF IN=+9dBm<br>(dB) |       |      |
|---------------------|-------------|-------------------------------------------------------|-------|------|---------------------|-------------|--------------------|-------|-------|---------------------|-------------|-------------------------------------|-------|------|
|                     |             | @LO (dBm)                                             |       |      |                     |             | @LO (dBm)          |       |       |                     |             | @LO (dBm)                           |       |      |
|                     |             |                                                       |       |      |                     |             |                    |       |       |                     |             |                                     |       |      |
| +10                 | +13         | +16                                                   | +10   | +13  | +16                 | +10         | +13                | +16   |       |                     |             |                                     |       |      |
| 670.0               | 700.0       | 25.39                                                 | 14.44 | 8.64 | 670.0               | 700.0       | -5.16              | 1.78  | 8.44  | 670.0               | 700.0       | -10.24                              | -1.99 | 1.07 |
| 770.0               | 800.0       | 11.87                                                 | 7.93  | 6.43 | 770.0               | 800.0       | 3.86               | 7.57  | 15.92 | 770.0               | 800.0       | 1.57                                | 2.49  | 2.30 |
| 870.0               | 900.0       | 8.88                                                  | 7.12  | 6.33 | 870.0               | 900.0       | 7.14               | 10.80 | 13.84 | 870.0               | 900.0       | 1.95                                | 2.45  | 2.48 |
| 970.0               | 1000.0      | 7.81                                                  | 7.01  | 6.49 | 970.0               | 1000.0      | 10.78              | 11.58 | 12.38 | 970.0               | 1000.0      | 2.00                                | 2.02  | 1.97 |
| 1070.0              | 1100.0      | 6.92                                                  | 6.41  | 6.02 | 1070.0              | 1100.0      | 13.57              | 16.04 | 18.28 | 1070.0              | 1100.0      | 1.90                                | 1.82  | 1.66 |
| 1170.0              | 1200.0      | 6.44                                                  | 6.23  | 6.12 | 1170.0              | 1200.0      | 15.71              | 17.37 | 17.69 | 1170.0              | 1200.0      | 1.44                                | 1.21  | 1.09 |
| 1270.0              | 1300.0      | 6.53                                                  | 6.30  | 6.16 | 1270.0              | 1300.0      | 23.12              | 16.40 | 19.81 | 1270.0              | 1300.0      | 0.93                                | 0.69  | 0.67 |
| 1370.0              | 1400.0      | 6.43                                                  | 6.17  | 6.08 | 1370.0              | 1400.0      | 22.42              | 25.69 | 18.69 | 1370.0              | 1400.0      | 0.78                                | 0.55  | 0.42 |
| 1470.0              | 1500.0      | 6.34                                                  | 5.95  | 5.88 | 1470.0              | 1500.0      | 28.90              | 18.76 | 18.56 | 1470.0              | 1500.0      | 0.72                                | 0.57  | 0.46 |
| 1570.0              | 1600.0      | 6.31                                                  | 5.97  | 5.85 | 1570.0              | 1600.0      | 22.62              | 23.55 | 23.20 | 1570.0              | 1600.0      | 0.75                                | 0.55  | 0.46 |
| 1670.0              | 1700.0      | 6.41                                                  | 6.00  | 5.86 | 1670.0              | 1700.0      | 26.39              | 22.11 | 20.52 | 1670.0              | 1700.0      | 0.82                                | 0.56  | 0.44 |
| 1770.0              | 1800.0      | 6.71                                                  | 6.23  | 6.07 | 1770.0              | 1800.0      | 17.64              | 20.09 | 24.80 | 1770.0              | 1800.0      | 0.78                                | 0.60  | 0.36 |
| 1870.0              | 1900.0      | 6.58                                                  | 6.24  | 6.15 | 1870.0              | 1900.0      | 18.52              | 25.60 | 28.62 | 1870.0              | 1900.0      | 0.85                                | 0.51  | 0.35 |
| 1970.0              | 2000.0      | 6.54                                                  | 6.29  | 6.18 | 1970.0              | 2000.0      | 23.41              | 24.14 | 22.67 | 1970.0              | 2000.0      | 0.80                                | 0.47  | 0.34 |
| 2070.0              | 2100.0      | 6.45                                                  | 6.17  | 6.06 | 2070.0              | 2100.0      | 22.17              | 22.08 | 22.94 | 2070.0              | 2100.0      | 0.88                                | 0.58  | 0.44 |
| 2170.0              | 2200.0      | 6.65                                                  | 6.24  | 6.06 | 2170.0              | 2200.0      | 26.62              | 21.36 | 20.96 | 2170.0              | 2200.0      | 0.90                                | 0.70  | 0.58 |
| 2270.0              | 2300.0      | 6.61                                                  | 6.08  | 5.86 | 2270.0              | 2300.0      | 17.65              | 18.22 | 19.79 | 2270.0              | 2300.0      | 0.88                                | 0.74  | 0.66 |
| 2370.0              | 2400.0      | 6.08                                                  | 5.63  | 5.45 | 2370.0              | 2400.0      | 16.69              | 16.92 | 17.60 | 2370.0              | 2400.0      | 1.22                                | 0.91  | 0.78 |
| 2470.0              | 2500.0      | 6.41                                                  | 5.81  | 5.60 | 2470.0              | 2500.0      | 16.91              | 28.12 | 26.61 | 2470.0              | 2500.0      | 1.15                                | 0.98  | 0.79 |
| 2570.0              | 2600.0      | 6.86                                                  | 6.15  | 5.79 | 2570.0              | 2600.0      | 16.53              | 14.34 | 15.20 | 2570.0              | 2600.0      | 1.30                                | 1.24  | 1.19 |
| 2650.0              | 2680.0      | 6.36                                                  | 5.58  | 5.18 | 2650.0              | 2680.0      | 13.82              | 14.99 | 14.82 | 2650.0              | 2680.0      | 1.19                                | 1.32  | 1.33 |
| 2750.0              | 2780.0      | 6.03                                                  | 5.45  | 5.09 | 2750.0              | 2780.0      | 11.36              | 12.21 | 13.04 | 2750.0              | 2780.0      | 1.51                                | 1.38  | 1.38 |
| 2830.0              | 2860.0      | 5.81                                                  | 5.37  | 5.04 | 2830.0              | 2860.0      | 10.65              | 10.81 | 13.64 | 2830.0              | 2860.0      | 1.50                                | 1.30  | 1.22 |
| 2930.0              | 2960.0      | 5.64                                                  | 4.92  | 4.80 | 2930.0              | 2960.0      | 10.94              | 18.97 | 20.21 | 2930.0              | 2960.0      | 1.41                                | 1.18  | 0.95 |
| 3010.0              | 3040.0      | 5.24                                                  | 4.91  | 4.88 | 3010.0              | 3040.0      | 16.74              | 20.46 | 21.81 | 3010.0              | 3040.0      | 1.53                                | 0.75  | 0.66 |
| 3110.0              | 3140.0      | 5.18                                                  | 5.02  | 5.06 | 3110.0              | 3140.0      | 18.32              | 19.70 | 22.49 | 3110.0              | 3140.0      | 1.26                                | 0.47  | 0.38 |
| 3190.0              | 3220.0      | 5.38                                                  | 5.20  | 5.21 | 3190.0              | 3220.0      | 18.59              | 21.39 | 22.64 | 3190.0              | 3220.0      | 1.17                                | 0.41  | 0.29 |
| 3290.0              | 3320.0      | 5.49                                                  | 5.38  | 5.44 | 3290.0              | 3320.0      | 20.20              | 23.51 | 21.80 | 3290.0              | 3320.0      | 1.22                                | 0.57  | 0.32 |
| 3370.0              | 3400.0      | 5.83                                                  | 5.64  | 5.63 | 3370.0              | 3400.0      | 20.95              | 22.83 | 23.60 | 3370.0              | 3400.0      | 1.29                                | 0.75  | 0.56 |
| 3470.0              | 3500.0      | 6.41                                                  | 6.06  | 5.98 | 3470.0              | 3500.0      | 18.06              | 22.09 | 20.86 | 3470.0              | 3500.0      | 1.28                                | 0.85  | 0.62 |
| 3550.0              | 3580.0      | 6.84                                                  | 6.34  | 6.16 | 3550.0              | 3580.0      | 19.11              | 22.35 | 20.83 | 3550.0              | 3580.0      | 1.08                                | 0.78  | 0.60 |
| 3650.0              | 3680.0      | 7.20                                                  | 6.69  | 6.54 | 3650.0              | 3680.0      | 23.87              | 23.55 | 22.71 | 3650.0              | 3680.0      | 0.60                                | 0.43  | 0.37 |
| 3730.0              | 3760.0      | 7.53                                                  | 6.68  | 6.49 | 3730.0              | 3760.0      | 24.36              | 22.25 | 22.74 | 3730.0              | 3760.0      | 0.58                                | 0.48  | 0.40 |
| 3830.0              | 3860.0      | 8.05                                                  | 7.07  | 6.84 | 3830.0              | 3860.0      | 20.51              | 24.06 | 25.13 | 3830.0              | 3860.0      | 0.61                                | 0.43  | 0.35 |
| 3910.0              | 3940.0      | 9.06                                                  | 7.68  | 7.28 | 3910.0              | 3940.0      | 22.04              | 22.76 | 25.62 | 3910.0              | 3940.0      | 0.35                                | 0.38  | 0.43 |
| 4010.0              | 4040.0      | 9.55                                                  | 7.98  | 7.53 | 4010.0              | 4040.0      | 23.51              | 20.07 | 24.95 | 4010.0              | 4040.0      | 0.13                                | 0.22  | 0.28 |
| 4090.0              | 4120.0      | 10.40                                                 | 8.15  | 7.64 | 4090.0              | 4120.0      | 20.41              | 19.47 | 22.58 | 4090.0              | 4120.0      | -0.19                               | 0.13  | 0.19 |
| 4190.0              | 4220.0      | 11.67                                                 | 8.25  | 7.61 | 4190.0              | 4220.0      | 15.37              | 23.62 | 20.95 | 4190.0              | 4220.0      | -0.96                               | 0.17  | 0.20 |
| 4270.0              | 4300.0      | 14.06                                                 | 8.38  | 7.63 | 4270.0              | 4300.0      | 8.20               | 23.28 | 23.13 | 4270.0              | 4300.0      | -2.81                               | 0.23  | 0.25 |
| 4370.0              | 4400.0      | 18.83                                                 | 9.39  | 7.92 | 4370.0              | 4400.0      | 3.94               | 23.87 | 26.05 | 4370.0              | 4400.0      | -6.24                               | 0.07  | 0.25 |

REV. X2

ZX05-43MH+

101011

Page 1 of 5



IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS9100 CERTIFIED • RoHS compliant  
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# Frequency Mixer

**ZX05-43MH+**

## Typical Performance Data

| IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=2512MHz<br>(dB) | IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=813.9MHz<br>(dB) | IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=4210.1001MHz<br>(dB) |
|----------------------|-------------|----------------------------------------------------------------|----------------------|-------------|-----------------------------------------------------------------|----------------------|-------------|---------------------------------------------------------------------|
|                      |             | @LO (dBm)                                                      |                      |             | @LO (dBm)                                                       |                      |             | @LO (dBm)                                                           |
|                      |             | +13                                                            |                      |             | +13                                                             |                      |             | +13                                                                 |
| 1412.0               | 1100.0      | 10.84                                                          | 10.1                 | 824.0       | 7.61                                                            | 1350.1               | 2860.0      | 11.40                                                               |
| 1337.2               | 1174.8      | 9.39                                                           | 50.1                 | 864.0       | 6.91                                                            | 1310.1               | 2900.0      | 10.92                                                               |
| 1262.5               | 1249.5      | 7.25                                                           | 90.1                 | 904.0       | 6.78                                                            | 1270.1               | 2940.0      | 10.06                                                               |
| 1187.7               | 1324.3      | 6.75                                                           | 130.1                | 944.0       | 6.96                                                            | 1230.1               | 2980.0      | 9.71                                                                |
| 1112.9               | 1399.1      | 7.50                                                           | 170.1                | 984.0       | 6.72                                                            | 1190.1               | 3020.0      | 10.16                                                               |
| 1038.1               | 1473.9      | 7.64                                                           | 210.1                | 1024.0      | 6.55                                                            | 1150.1               | 3060.0      | 9.80                                                                |
| 963.4                | 1548.6      | 8.02                                                           | 250.1                | 1064.0      | 6.36                                                            | 1110.1               | 3100.0      | 9.46                                                                |
| 888.6                | 1623.4      | 9.31                                                           | 290.1                | 1104.0      | 6.06                                                            | 1070.1               | 3140.0      | 9.13                                                                |
| 813.8                | 1698.2      | 9.27                                                           | 330.1                | 1144.0      | 5.94                                                            | 1030.1               | 3180.0      | 8.97                                                                |
| 739.0                | 1773.0      | 8.10                                                           | 370.1                | 1184.0      | 6.05                                                            | 990.1                | 3220.0      | 9.03                                                                |
| 664.3                | 1847.7      | 7.09                                                           | 410.1                | 1224.0      | 6.02                                                            | 950.1                | 3260.0      | 9.08                                                                |
| 589.5                | 1922.5      | 6.50                                                           | 450.1                | 1264.0      | 5.92                                                            | 910.1                | 3300.0      | 9.25                                                                |
| 514.7                | 1997.3      | 6.34                                                           | 490.1                | 1304.0      | 5.93                                                            | 870.1                | 3340.0      | 9.29                                                                |
| 439.9                | 2072.1      | 5.88                                                           | 530.1                | 1344.0      | 5.96                                                            | 830.1                | 3380.0      | 9.19                                                                |
| 365.2                | 2146.8      | 5.58                                                           | 570.1                | 1384.0      | 6.06                                                            | 790.1                | 3420.0      | 9.30                                                                |
| 290.4                | 2221.6      | 5.34                                                           | 610.1                | 1424.0      | 6.20                                                            | 750.1                | 3460.0      | 9.33                                                                |
| 215.6                | 2296.4      | 5.17                                                           | 650.1                | 1464.0      | 6.28                                                            | 710.1                | 3500.0      | 9.58                                                                |
| 140.9                | 2371.1      | 5.19                                                           | 690.1                | 1504.0      | 6.61                                                            | 670.1                | 3540.0      | 9.85                                                                |
| 66.1                 | 2445.9      | 5.87                                                           | 730.1                | 1544.0      | 6.76                                                            | 630.1                | 3580.0      | 10.04                                                               |
| 10.0                 | 2522.0      | 6.39                                                           | 770.1                | 1584.0      | 6.90                                                            | 610.1                | 3600.0      | 10.03                                                               |
| 95.2                 | 2607.2      | 6.55                                                           | 810.1                | 1624.0      | 7.05                                                            | 570.1                | 3640.0      | 10.21                                                               |
| 180.5                | 2692.5      | 6.88                                                           | 850.1                | 1664.0      | 7.13                                                            | 550.1                | 3660.0      | 10.09                                                               |
| 265.7                | 2777.7      | 7.24                                                           | 890.1                | 1704.0      | 7.46                                                            | 510.1                | 3700.0      | 9.89                                                                |
| 350.9                | 2862.9      | 7.10                                                           | 930.1                | 1744.0      | 7.62                                                            | 490.1                | 3720.0      | 10.01                                                               |
| 436.1                | 2948.1      | 6.25                                                           | 970.1                | 1784.0      | 7.60                                                            | 450.1                | 3760.0      | 9.67                                                                |
| 521.4                | 3033.4      | 6.34                                                           | 1010.1               | 1824.0      | 7.50                                                            | 430.1                | 3780.0      | 9.57                                                                |
| 606.6                | 3118.6      | 6.29                                                           | 1050.1               | 1864.0      | 7.58                                                            | 390.1                | 3820.0      | 9.34                                                                |
| 691.8                | 3203.8      | 6.23                                                           | 1090.1               | 1904.0      | 7.82                                                            | 370.1                | 3840.0      | 9.09                                                                |
| 777.0                | 3289.0      | 6.18                                                           | 1130.1               | 1944.0      | 7.67                                                            | 330.1                | 3880.0      | 8.84                                                                |
| 862.3                | 3374.3      | 6.20                                                           | 1190.1               | 2004.0      | 7.76                                                            | 310.1                | 3900.0      | 8.64                                                                |
| 947.5                | 3459.5      | 6.13                                                           | 1230.1               | 2044.0      | 7.74                                                            | 270.1                | 3940.0      | 8.46                                                                |
| 1011.4               | 3523.4      | 6.21                                                           | 1290.1               | 2104.0      | 7.81                                                            | 250.1                | 3960.0      | 8.30                                                                |
| 1096.6               | 3608.6      | 6.40                                                           | 1330.1               | 2144.0      | 8.05                                                            | 210.1                | 4000.0      | 8.17                                                                |
| 1160.6               | 3672.6      | 6.59                                                           | 1390.1               | 2204.0      | 7.82                                                            | 190.1                | 4020.0      | 8.13                                                                |
| 1245.8               | 3757.8      | 6.85                                                           | 1430.1               | 2244.0      | 7.75                                                            | 150.1                | 4060.0      | 7.93                                                                |
| 1309.7               | 3821.7      | 7.15                                                           | 1490.1               | 2304.0      | 8.15                                                            | 130.1                | 4080.0      | 7.88                                                                |
| 1394.9               | 3906.9      | 7.80                                                           | 1530.1               | 2344.0      | 8.32                                                            | 90.1                 | 4120.0      | 8.01                                                                |
| 1458.9               | 3970.9      | 8.27                                                           | 1590.1               | 2404.0      | 9.09                                                            | 70.1                 | 4140.0      | 8.03                                                                |
| 1544.1               | 4056.1      | 9.47                                                           | 1630.1               | 2444.0      | 9.65                                                            | 30.1                 | 4180.0      | 8.03                                                                |
| 1608.0               | 4120.0      | 10.47                                                          | 1690.1               | 2504.0      | 10.49                                                           | 10.1                 | 4200.0      | 8.27                                                                |

## Typical Performance Data

| LO<br>(MHz) | LO-RF ISOLATION<br>(dB) |       |       | LO-IF ISOLATION<br>(dB) |       |       |
|-------------|-------------------------|-------|-------|-------------------------|-------|-------|
|             | @LO (dBm)               |       |       | @LO (dBm)               |       |       |
|             | +10                     | +13   | +16   | +10                     | +13   | +16   |
| 700.0       | 54.16                   | 56.69 | 53.69 | 25.16                   | 25.17 | 25.31 |
| 800.0       | 50.97                   | 41.61 | 39.88 | 22.47                   | 23.02 | 25.42 |
| 900.0       | 36.84                   | 36.38 | 36.96 | 21.39                   | 24.14 | 27.05 |
| 1000.0      | 39.89                   | 40.18 | 40.81 | 23.08                   | 26.14 | 28.82 |
| 1100.0      | 43.12                   | 43.91 | 44.08 | 24.92                   | 27.86 | 30.18 |
| 1200.0      | 41.59                   | 41.26 | 40.65 | 27.29                   | 29.94 | 30.52 |
| 1300.0      | 40.38                   | 38.24 | 36.99 | 30.08                   | 31.98 | 30.70 |
| 1400.0      | 37.69                   | 35.46 | 33.77 | 32.87                   | 34.26 | 32.94 |
| 1500.0      | 35.78                   | 33.25 | 31.54 | 33.25                   | 37.19 | 38.58 |
| 1600.0      | 34.75                   | 32.49 | 31.29 | 28.54                   | 31.15 | 34.19 |
| 1700.0      | 36.60                   | 34.51 | 33.19 | 26.09                   | 27.70 | 28.35 |
| 1800.0      | 36.51                   | 35.68 | 34.15 | 20.64                   | 22.08 | 22.40 |
| 1900.0      | 35.61                   | 34.13 | 33.16 | 15.32                   | 16.68 | 17.52 |
| 2000.0      | 34.94                   | 33.98 | 33.19 | 11.06                   | 12.60 | 13.80 |
| 2100.0      | 35.35                   | 34.13 | 33.10 | 9.29                    | 11.07 | 12.55 |
| 2200.0      | 36.00                   | 34.49 | 33.44 | 9.60                    | 11.43 | 13.16 |
| 2300.0      | 35.10                   | 33.47 | 32.25 | 10.70                   | 12.63 | 14.56 |
| 2400.0      | 34.45                   | 32.22 | 30.56 | 12.08                   | 14.06 | 16.10 |
| 2500.0      | 35.34                   | 33.15 | 31.57 | 13.48                   | 15.55 | 17.60 |
| 2600.0      | 34.45                   | 31.21 | 29.66 | 14.93                   | 16.94 | 18.71 |
| 2680.0      | 34.00                   | 30.98 | 28.83 | 16.37                   | 18.17 | 19.68 |
| 2780.0      | 32.64                   | 29.78 | 27.59 | 17.99                   | 18.88 | 19.09 |
| 2860.0      | 33.06                   | 30.39 | 27.60 | 19.39                   | 19.39 | 18.79 |
| 2960.0      | 32.51                   | 29.74 | 26.74 | 20.89                   | 20.13 | 19.23 |
| 3040.0      | 30.56                   | 27.59 | 25.44 | 23.61                   | 21.83 | 20.26 |
| 3140.0      | 29.05                   | 26.65 | 24.99 | 26.74                   | 23.72 | 21.99 |
| 3220.0      | 28.14                   | 25.96 | 24.27 | 27.47                   | 24.96 | 23.36 |
| 3320.0      | 27.74                   | 26.34 | 24.84 | 25.25                   | 24.52 | 23.63 |
| 3400.0      | 27.31                   | 26.63 | 25.57 | 24.09                   | 24.58 | 24.58 |
| 3500.0      | 25.73                   | 25.43 | 24.71 | 23.34                   | 23.74 | 23.97 |
| 3580.0      | 25.22                   | 25.11 | 24.58 | 21.54                   | 22.43 | 22.69 |
| 3680.0      | 24.97                   | 24.99 | 24.54 | 18.87                   | 19.82 | 20.59 |
| 3760.0      | 25.46                   | 25.04 | 24.80 | 17.41                   | 18.11 | 19.20 |
| 3860.0      | 26.24                   | 25.82 | 25.46 | 17.59                   | 17.98 | 19.25 |
| 3940.0      | 26.62                   | 26.17 | 25.87 | 19.01                   | 19.28 | 20.62 |
| 4040.0      | 26.98                   | 26.59 | 26.01 | 16.20                   | 16.91 | 18.44 |
| 4120.0      | 27.32                   | 26.80 | 26.18 | 15.13                   | 15.69 | 17.18 |
| 4220.0      | 27.66                   | 26.88 | 26.16 | 14.57                   | 15.15 | 16.74 |
| 4300.0      | 28.37                   | 27.87 | 26.81 | 14.42                   | 15.20 | 16.75 |
| 4400.0      | 29.17                   | 29.22 | 27.60 | 14.13                   | 15.02 | 16.20 |

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | RF-IF ISOLATION<br>(dB) |       |       |
|---------------------|-------------|-------------------------|-------|-------|
|                     |             | @LO (dBm)               |       |       |
|                     |             | +10                     | +13   | +16   |
| 670.0               | 700.0       | 24.76                   | 24.52 | 20.49 |
| 770.0               | 800.0       | 21.48                   | 15.54 | 13.65 |
| 870.0               | 900.0       | 13.58                   | 12.26 | 11.74 |
| 970.0               | 1000.0      | 14.26                   | 13.41 | 12.85 |
| 1070.0              | 1100.0      | 17.10                   | 16.23 | 15.74 |
| 1170.0              | 1200.0      | 19.69                   | 19.37 | 19.26 |
| 1270.0              | 1300.0      | 22.52                   | 22.46 | 22.18 |
| 1370.0              | 1400.0      | 24.13                   | 24.38 | 24.96 |
| 1470.0              | 1500.0      | 24.79                   | 25.08 | 25.60 |
| 1570.0              | 1600.0      | 24.51                   | 25.49 | 26.06 |
| 1670.0              | 1700.0      | 23.74                   | 24.28 | 24.65 |
| 1770.0              | 1800.0      | 25.19                   | 25.90 | 25.98 |
| 1870.0              | 1900.0      | 28.59                   | 28.45 | 28.38 |
| 1970.0              | 2000.0      | 33.88                   | 33.84 | 33.67 |
| 2070.0              | 2100.0      | 41.36                   | 40.26 | 39.52 |
| 2170.0              | 2200.0      | 37.33                   | 36.92 | 36.88 |
| 2270.0              | 2300.0      | 38.08                   | 38.30 | 39.09 |
| 2370.0              | 2400.0      | 39.34                   | 39.03 | 39.09 |
| 2470.0              | 2500.0      | 41.85                   | 41.65 | 41.37 |
| 2570.0              | 2600.0      | 38.22                   | 38.74 | 39.20 |
| 2650.0              | 2680.0      | 34.89                   | 34.19 | 33.66 |
| 2750.0              | 2780.0      | 31.31                   | 30.90 | 30.80 |
| 2830.0              | 2860.0      | 28.82                   | 28.28 | 28.84 |
| 2930.0              | 2960.0      | 28.53                   | 27.13 | 27.54 |
| 3010.0              | 3040.0      | 26.95                   | 26.62 | 26.88 |
| 3110.0              | 3140.0      | 26.19                   | 25.74 | 25.76 |
| 3190.0              | 3220.0      | 26.14                   | 25.71 | 25.62 |
| 3290.0              | 3320.0      | 32.60                   | 33.38 | 34.21 |
| 3370.0              | 3400.0      | 21.94                   | 21.20 | 20.85 |
| 3470.0              | 3500.0      | 20.86                   | 20.43 | 20.25 |
| 3550.0              | 3580.0      | 21.64                   | 20.96 | 21.05 |
| 3650.0              | 3680.0      | 24.58                   | 23.64 | 23.39 |
| 3730.0              | 3760.0      | 25.55                   | 23.73 | 23.09 |
| 3830.0              | 3860.0      | 25.80                   | 24.11 | 23.59 |
| 3910.0              | 3940.0      | 31.78                   | 29.91 | 29.48 |
| 4010.0              | 4040.0      | 38.48                   | 42.35 | 42.42 |
| 4090.0              | 4120.0      | 33.16                   | 34.12 | 33.65 |
| 4190.0              | 4220.0      | 28.40                   | 26.36 | 25.24 |
| 4270.0              | 4300.0      | 26.76                   | 25.09 | 24.05 |
| 4370.0              | 4400.0      | 27.13                   | 28.40 | 27.66 |

# Frequency Mixer

# ZX05-43MH+

## Typical Performance Data

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | RF VSWR<br>(:1) |      |      | LO<br>(MHz) | LO VSWR<br>(:1) |       |       | IF<br>(OUT)<br>(MHz) | IF VSWR<br>@LO=4200MHz<br>(:1) |      |      |
|---------------------|-------------|-----------------|------|------|-------------|-----------------|-------|-------|----------------------|--------------------------------|------|------|
|                     |             | @LO (dBm)       |      |      |             | @LO (dBm)       |       |       |                      | @LO (dBm)                      |      |      |
|                     |             | +10             | +13  | +16  |             | +10             | +13   | +16   |                      | +10                            | +13  | +16  |
| 670.0               | 700.0       | 10.19           | 5.33 | 3.47 | 700.0       | 31.60           | 31.03 | 24.14 | 10.0                 | 1.82                           | 1.11 | 1.53 |
| 770.0               | 800.0       | 3.07            | 2.46 | 2.12 | 800.0       | 22.58           | 13.39 | 8.43  | 50.0                 | 1.76                           | 1.17 | 1.55 |
| 870.0               | 900.0       | 2.36            | 1.90 | 1.68 | 900.0       | 5.77            | 4.62  | 5.13  | 90.0                 | 1.85                           | 1.20 | 1.54 |
| 970.0               | 1000.0      | 2.82            | 2.52 | 2.34 | 1000.0      | 2.34            | 2.84  | 3.70  | 130.0                | 1.98                           | 1.24 | 1.53 |
| 1070.0              | 1100.0      | 3.26            | 3.04 | 2.87 | 1100.0      | 1.33            | 1.92  | 2.68  | 170.0                | 2.16                           | 1.30 | 1.51 |
| 1170.0              | 1200.0      | 3.52            | 3.40 | 3.34 | 1200.0      | 1.26            | 1.40  | 1.99  | 210.0                | 2.38                           | 1.38 | 1.50 |
| 1270.0              | 1300.0      | 3.79            | 3.54 | 3.47 | 1300.0      | 1.75            | 1.24  | 1.54  | 250.0                | 2.62                           | 1.47 | 1.50 |
| 1370.0              | 1400.0      | 3.90            | 3.57 | 3.33 | 1400.0      | 1.99            | 1.16  | 1.32  | 290.0                | 2.95                           | 1.59 | 1.50 |
| 1470.0              | 1500.0      | 3.80            | 3.34 | 3.05 | 1500.0      | 2.04            | 1.26  | 1.45  | 330.0                | 3.35                           | 1.75 | 1.53 |
| 1570.0              | 1600.0      | 3.66            | 3.15 | 2.86 | 1600.0      | 2.00            | 1.53  | 1.81  | 370.0                | 3.76                           | 1.97 | 1.62 |
| 1670.0              | 1700.0      | 3.65            | 3.15 | 2.84 | 1700.0      | 1.93            | 1.76  | 2.19  | 410.0                | 4.13                           | 2.17 | 1.72 |
| 1770.0              | 1800.0      | 3.86            | 3.19 | 2.85 | 1800.0      | 1.74            | 1.86  | 2.34  | 450.0                | 4.60                           | 2.41 | 1.85 |
| 1870.0              | 1900.0      | 3.63            | 3.24 | 3.04 | 1900.0      | 1.43            | 1.70  | 2.35  | 490.0                | 5.00                           | 2.63 | 1.99 |
| 1970.0              | 2000.0      | 3.65            | 3.33 | 3.13 | 2000.0      | 1.08            | 1.64  | 2.34  | 530.0                | 5.49                           | 2.84 | 2.13 |
| 2070.0              | 2100.0      | 3.59            | 3.25 | 3.03 | 2100.0      | 1.23            | 1.67  | 2.33  | 570.0                | 5.97                           | 3.11 | 2.31 |
| 2170.0              | 2200.0      | 3.71            | 3.36 | 3.14 | 2200.0      | 1.55            | 1.79  | 2.35  | 610.0                | 6.35                           | 3.26 | 2.41 |
| 2270.0              | 2300.0      | 3.62            | 3.20 | 2.94 | 2300.0      | 1.95            | 1.96  | 2.39  | 650.0                | 6.94                           | 3.59 | 2.65 |
| 2370.0              | 2400.0      | 2.98            | 2.53 | 2.27 | 2400.0      | 2.37            | 2.16  | 2.43  | 710.0                | 7.41                           | 3.83 | 2.80 |
| 2470.0              | 2500.0      | 2.81            | 2.45 | 2.23 | 2500.0      | 2.68            | 2.24  | 2.39  | 750.0                | 7.94                           | 4.12 | 3.05 |
| 2570.0              | 2600.0      | 3.10            | 2.60 | 2.32 | 2600.0      | 2.97            | 2.18  | 2.14  | 810.0                | 8.39                           | 4.24 | 3.17 |
| 2650.0              | 2680.0      | 2.83            | 2.41 | 2.00 | 2680.0      | 3.02            | 2.24  | 2.18  | 850.0                | 8.99                           | 4.59 | 3.49 |
| 2750.0              | 2780.0      | 2.32            | 2.07 | 1.85 | 2780.0      | 2.92            | 1.88  | 1.77  | 910.0                | 8.99                           | 4.64 | 3.58 |
| 2830.0              | 2860.0      | 1.98            | 1.72 | 1.51 | 2860.0      | 2.70            | 1.59  | 1.37  | 950.0                | 9.38                           | 4.91 | 3.79 |
| 2930.0              | 2960.0      | 1.75            | 1.54 | 1.54 | 2960.0      | 2.70            | 1.57  | 1.27  | 1010.0               | 9.13                           | 4.88 | 3.83 |
| 3010.0              | 3040.0      | 1.67            | 1.69 | 1.73 | 3040.0      | 2.84            | 1.58  | 1.27  | 1050.0               | 9.28                           | 5.14 | 4.08 |
| 3110.0              | 3140.0      | 1.82            | 1.87 | 1.94 | 3140.0      | 2.55            | 1.48  | 1.27  | 1110.0               | 8.81                           | 5.04 | 4.09 |
| 3190.0              | 3220.0      | 1.90            | 1.91 | 1.96 | 3220.0      | 2.29            | 1.37  | 1.31  | 1150.0               | 8.90                           | 5.09 | 4.15 |
| 3290.0              | 3320.0      | 1.90            | 1.84 | 1.84 | 3320.0      | 1.99            | 1.32  | 1.44  | 1210.0               | 8.35                           | 4.99 | 4.25 |
| 3370.0              | 3400.0      | 2.13            | 1.98 | 1.91 | 3400.0      | 1.88            | 1.31  | 1.55  | 1250.0               | 8.23                           | 4.96 | 4.28 |
| 3470.0              | 3500.0      | 2.66            | 2.38 | 2.24 | 3500.0      | 1.89            | 1.51  | 1.75  | 1310.0               | 7.66                           | 4.96 | 4.55 |
| 3550.0              | 3580.0      | 3.22            | 2.87 | 2.63 | 3580.0      | 2.02            | 1.68  | 1.94  | 1350.0               | 7.25                           | 4.73 | 4.41 |
| 3650.0              | 3680.0      | 3.86            | 3.47 | 3.21 | 3680.0      | 2.30            | 1.94  | 2.18  | 1410.0               | 6.51                           | 4.87 | 4.89 |
| 3730.0              | 3760.0      | 4.30            | 3.68 | 3.40 | 3760.0      | 2.68            | 2.19  | 2.37  | 1450.0               | 5.93                           | 4.83 | 5.13 |
| 3830.0              | 3860.0      | 4.53            | 3.87 | 3.58 | 3860.0      | 3.32            | 2.56  | 2.58  | 1510.0               | 5.42                           | 5.23 | 5.87 |
| 3910.0              | 3940.0      | 5.54            | 4.61 | 4.23 | 3940.0      | 4.11            | 2.97  | 2.78  | 1550.0               | 5.02                           | 5.54 | 6.44 |
| 4010.0              | 4040.0      | 6.30            | 5.14 | 4.66 | 4040.0      | 5.42            | 3.59  | 3.09  | 1610.0               | 4.70                           | 6.26 | 7.38 |
| 4090.0              | 4120.0      | 6.68            | 5.17 | 4.54 | 4120.0      | 6.76            | 4.22  | 3.31  | 1650.0               | 4.84                           | 7.08 | 8.31 |
| 4190.0              | 4220.0      | 7.20            | 5.13 | 4.35 | 4220.0      | 8.35            | 4.89  | 3.58  | 1710.0               | 5.20                           | 7.70 | 8.90 |
| 4270.0              | 4300.0      | 7.97            | 5.03 | 4.21 | 4300.0      | 9.63            | 5.52  | 3.62  | 1750.0               | 5.58                           | 7.97 | 9.04 |
| 4370.0              | 4400.0      | 9.53            | 5.59 | 4.45 | 4400.0      | 10.96           | 7.08  | 3.96  | 1810.0               | 5.91                           | 7.63 | 8.35 |

## Harmonics Tables

RF HARMONICS ORDER

|    | (-dBm) | (-dBc) |     |     |     |     |     |     |     |     |     |     |
|----|--------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0  | -      | -      | +9  | 9   | 13  | 21  | 38  | 47  | 41  | 43  | 34  | --- |
| 1  | -      | 36     | +0  | 40  | 19  | 30  | 36  | 61  | 39  | 66  | 52  | 61  |
| 2  | 73     | 53     | 51  | 54  | 48  | 66  | 53  | 62  | 75  | 70  | 74  | 73  |
| 3  | >90    | 63     | 60  | >78 | 61  | >78 | 66  | 73  | 69  | >78 | 71  | >78 |
| 4  | >90    | >78    | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 |
| 5  | >90    | >78    | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 |
| 6  | >90    | >78    | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 |
| 7  | >90    | >78    | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 |
| 8  | >90    | >78    | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 |
| 9  | >90    | >78    | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 |
| 10 | ---    | ---    | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 |
|    | RF CAL | 0      | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |

### LO HARMONICS ORDER

Test conditions: RF IN: 2512 MHz; -6.00 dBm.  
LO IN: 2542 MHz; +13.00 dBm  
IF OUT: 30 MHz; -12.41 dBm

RF HARMONICS ORDER

|    | (-dBm) | (-dBc) |     |     |     |     |     |     |     |     |     |     |
|----|--------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0  | -      | -      | 1   | 20  | 25  | 34  | 49  | 53  | 53  | 57  | 48  | --- |
| 1  | -      | 35     | +0  | 43  | 19  | 34  | 38  | 68  | 44  | 72  | 59  | 63  |
| 2  | 53     | 45     | 43  | 57  | 39  | 60  | 45  | 52  | 65  | 65  | 69  | 68  |
| 3  | 86     | 41     | 37  | 58  | 37  | 58  | 46  | 46  | 50  | 75  | 53  | 76  |
| 4  | >90    | 68     | 67  | 59  | 57  | 54  | 56  | 64  | 57  | 71  | 78  | 71  |
| 5  | >90    | 74     | 60  | 63  | 56  | 74  | 54  | 81  | 63  | 65  | 65  | >88 |
| 6  | >90    | >88    | >88 | 80  | 76  | 73  | 74  | 65  | 71  | 75  | 69  | 79  |
| 7  | >90    | >88    | >88 | >88 | 80  | 83  | 71  | 84  | 63  | >88 | 74  | 75  |
| 8  | >90    | >88    | >88 | >88 | >88 | 88  | >88 | 84  | >88 | 74  | 76  | >88 |
| 9  | >90    | >88    | >88 | >88 | >88 | >88 | >88 | >88 | 86  | >88 | 80  | >88 |
| 10 | ---    | ---    | >88 | >88 | >88 | >88 | >88 | >88 | >88 | >88 | >88 | 82  |
|    | RF CAL | 0      | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |

### LO HARMONICS ORDER

Test conditions: RF IN: 2512 MHz; 4.00 dBm.  
LO IN: 2542 MHz; +13.00 dBm  
IF OUT: 30 MHz; -2.39 dBm

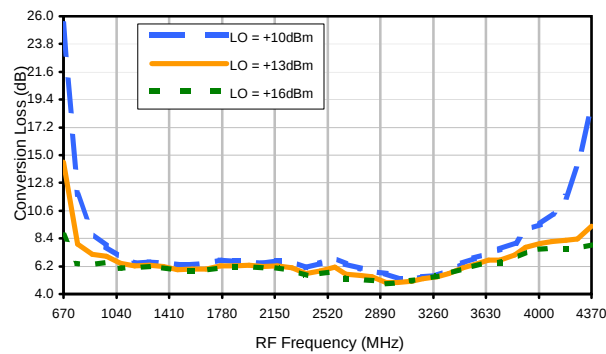
- Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.  
2. + entry denotes harmonics are in (dBc) above IF OUTPUT.  
3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

# Frequency Mixer

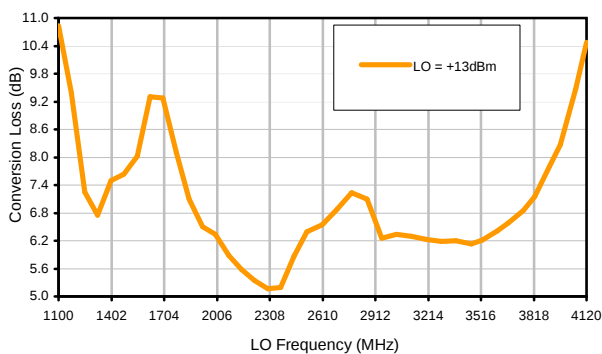
ZX05-43MH+

## Typical Performance Curves

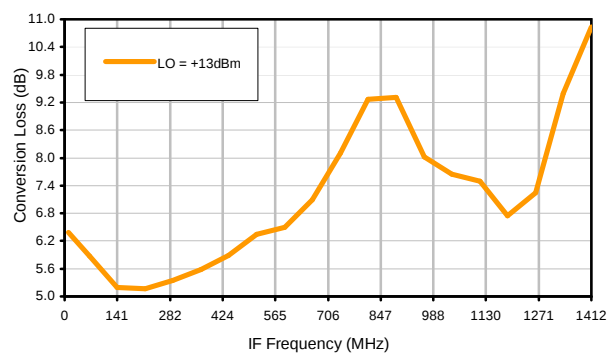
Conversion Loss @ IF=30MHz



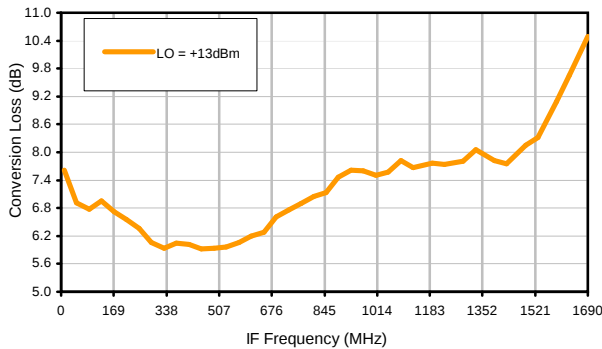
Conversion Loss vs. LO @ RF=2512MHz



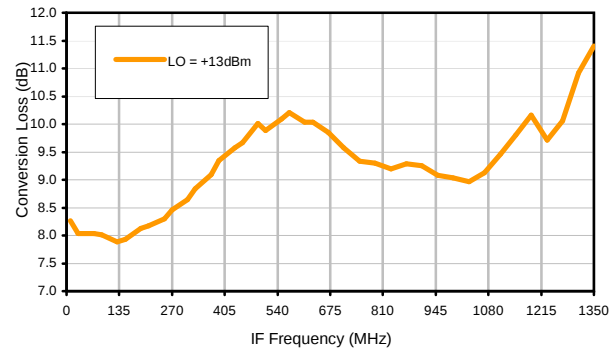
Conversion Loss vs. IF @ RF=2512MHz



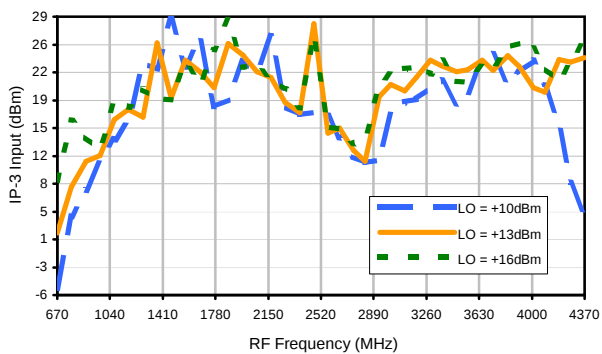
Conversion Loss vs. IF @ RF=813.9MHz



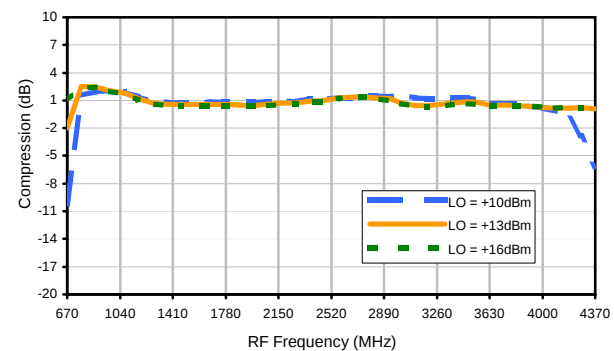
Conversion Loss vs. IF @ RF=4210.1001MHz



IP3 Input

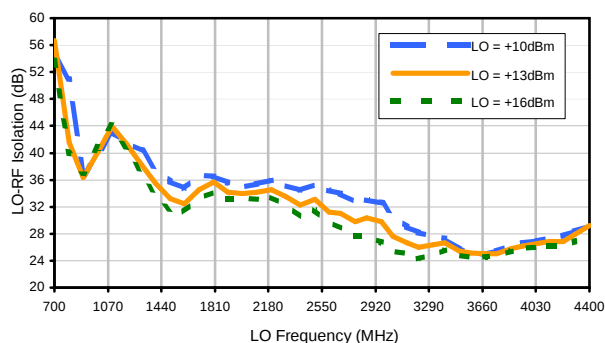


Compression @ RF IN=+9dBm

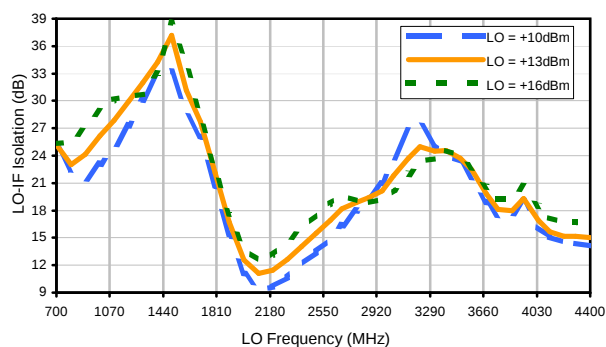


## Typical Performance Curves

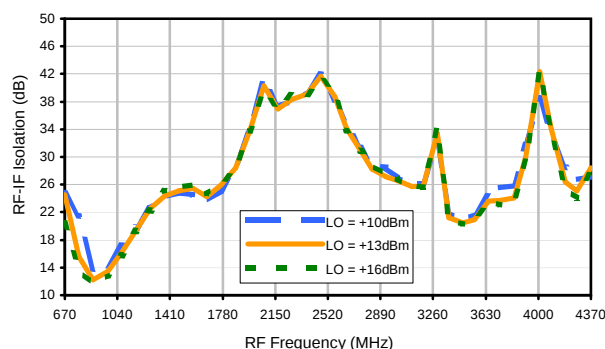
LO-RF Isolation



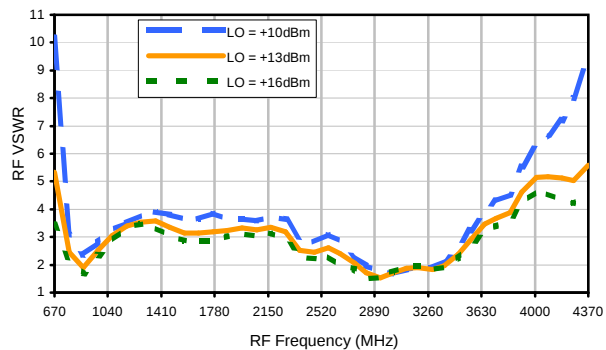
LO-IF Isolation



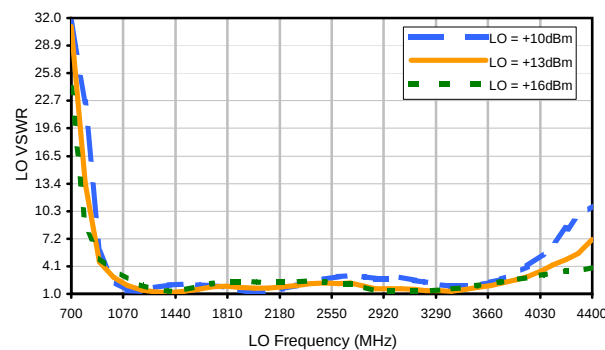
RF-IF Isolation



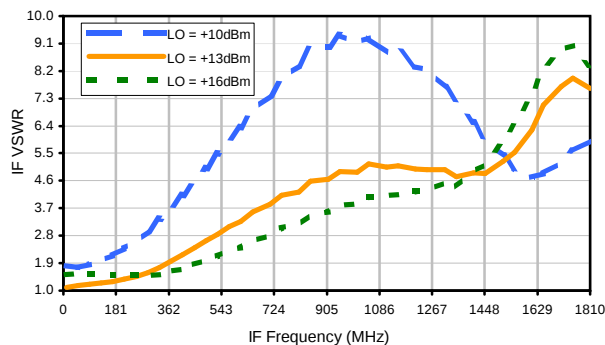
RF VSWR



LO VSWR



IF VSWR



## Harmonics Tables

RF HARMONICS ORDER

|    | (-dBm) | (-dBc) |     |     |     |     |     |     |     |     |     |     |
|----|--------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0  | -      | -      | +9  | 9   | 13  | 21  | 38  | 47  | 41  | 43  | 34  | --- |
| 1  | -      | 36     | +0  | 40  | 19  | 30  | 36  | 61  | 39  | 66  | 52  | 61  |
| 2  | 73     | 53     | 51  | 54  | 48  | 66  | 53  | 62  | 75  | 70  | 74  | 73  |
| 3  | >90    | 63     | 60  | >78 | 61  | >78 | 66  | 73  | 69  | >78 | 71  | >78 |
| 4  | >90    | >78    | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 |
| 5  | >90    | >78    | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 |
| 6  | >90    | >78    | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 |
| 7  | >90    | >78    | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 |
| 8  | >90    | >78    | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 |
| 9  | >90    | >78    | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 |
| 10 | ---    | ---    | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 | >78 |
|    | RF CAL | 0      | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |

### LO HARMONICS ORDER

Test conditions:

RF IN: 2512 MHz; -6.00 dBm.  
LO IN: 2542 MHz; +13.00 dBm  
IF OUT: 30 MHz; -12.41 dBm

RF HARMONICS ORDER

|    | (-dBm) | (-dBc) |     |     |     |     |     |     |     |     |     |     |
|----|--------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0  | -      | -      | 1   | 20  | 25  | 34  | 49  | 53  | 53  | 57  | 48  | --- |
| 1  | -      | 35     | +0  | 43  | 19  | 34  | 38  | 68  | 44  | 72  | 59  | 63  |
| 2  | 53     | 45     | 43  | 57  | 39  | 60  | 45  | 52  | 65  | 65  | 69  | 68  |
| 3  | 86     | 41     | 37  | 58  | 37  | 58  | 46  | 46  | 50  | 75  | 53  | 76  |
| 4  | >90    | 68     | 67  | 59  | 57  | 54  | 56  | 64  | 57  | 71  | 78  | 71  |
| 5  | >90    | 74     | 60  | 63  | 56  | 74  | 54  | 81  | 63  | 65  | 65  | >88 |
| 6  | >90    | >88    | >88 | 80  | 76  | 73  | 74  | 65  | 71  | 75  | 69  | 79  |
| 7  | >90    | >88    | >88 | >88 | 80  | 83  | 71  | 84  | 63  | >88 | 74  | 75  |
| 8  | >90    | >88    | >88 | >88 | >88 | 88  | >88 | 84  | >88 | 74  | 76  | >88 |
| 9  | >90    | >88    | >88 | >88 | >88 | >88 | >88 | >88 | 86  | >88 | 80  | >88 |
| 10 | ---    | ---    | >88 | >88 | >88 | >88 | >88 | >88 | >88 | >88 | >88 | 82  |
|    | RF CAL | 0      | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |

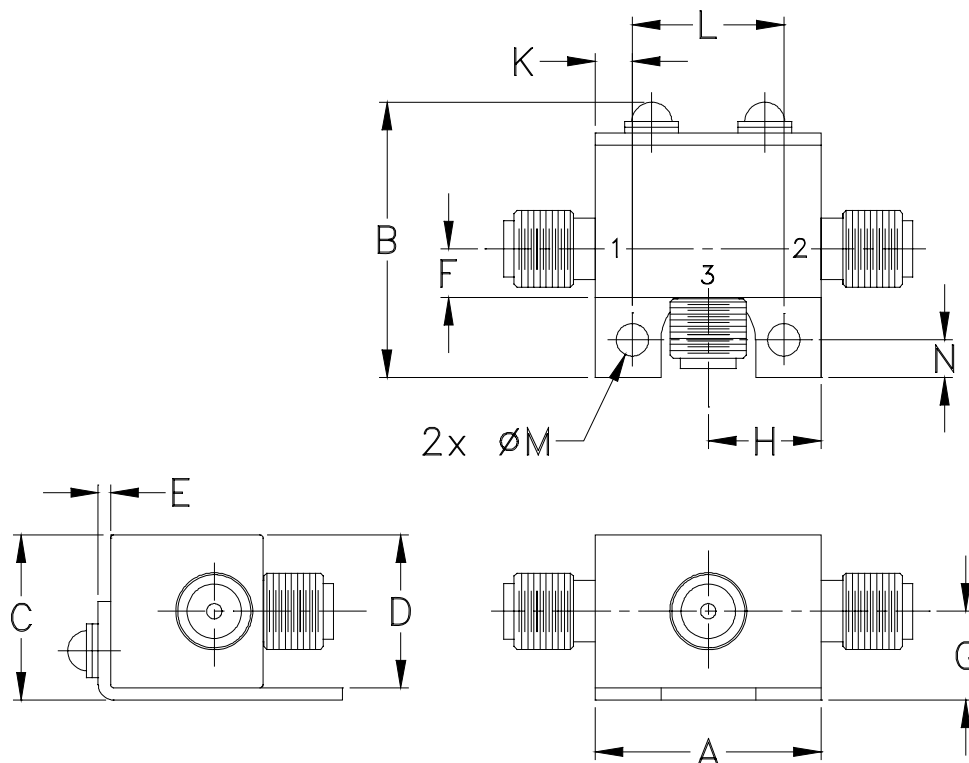
### LO HARMONICS ORDER

Test conditions:

RF IN: 2512 MHz; 4.00 dBm.  
LO IN: 2542 MHz; +13.00 dBm  
IF OUT: 30 MHz; -2.39 dBm

- Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.  
2. + entry denotes harmonics are in (dBc) above IF OUTPUT.  
3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

### 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:

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



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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 |