

# Coaxial Voltage Controlled Oscillator

## ZX95-1600W+ ZX95-1600W

Linear Tuning 800 to 1600 MHz

### Features

- wide bandwidth
- high power output, +9 dBm typ.
- low phase noise
- low pushing
- protected by US Patent 6,790,049

### Applications

- r & d
- lab
- instrumentation
- test equipment



CASE STYLE: GB956

| Connectors | Model         | Price.      | Qty.  |
|------------|---------------|-------------|-------|
| SMA        | ZX95-1600W-S+ | \$44.95 ea. | (1-9) |
| SMA        | ZX95-1600W-S  | \$44.95 ea. | (1-9) |

#### +RoHS Compliant

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

### Electrical Specifications

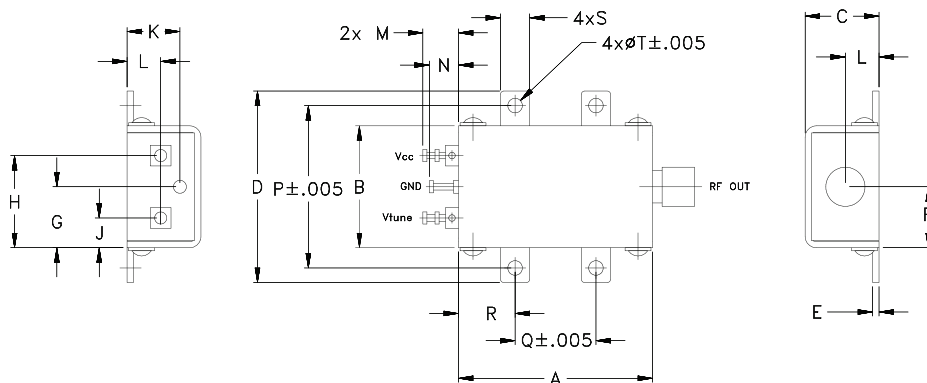
| MODEL NO.     | FREQ. (MHz) |      | POWER OUTPUT (dBm) | PHASE NOISE dBc/Hz SSB at offset frequencies,kHz |     |      |      | TUNING            |                       |               |                                 |             | NON HARMONIC SPURIOUS (dBc) | HARMONICS (dBc) |      | PULLING pk-pk @12 dBr (MHz) | PUSHING (MHz/V) | DC OPERATING POWER |      |
|---------------|-------------|------|--------------------|--------------------------------------------------|-----|------|------|-------------------|-----------------------|---------------|---------------------------------|-------------|-----------------------------|-----------------|------|-----------------------------|-----------------|--------------------|------|
|               |             |      |                    |                                                  |     |      |      | VOLTAGE RANGE (V) | SENSI- TIVITY (MHz/V) | PORT CAP (pF) | 3 dB MODULATION BANDWIDTH (MHz) | Vcc (volts) |                             |                 |      |                             |                 | Current (mA)       |      |
|               | Min.        | Max. |                    | Typ.                                             | 1   | 10   | 100  | 1000              | Min.                  | Max.          | Typ.                            | Typ.        |                             | Typ.            | Typ. |                             |                 | Max.               | Typ. |
| ZX95-1600W(+) | 800         | 1600 | +9                 | -72                                              | -99 | -122 | -143 | 0.5               | 24                    | 35-58         | 210                             | 90          | -90                         | -22             | -15  | 10                          | 0.3             | 11.5               | 35   |

### Maximum Ratings

|                                      |                |
|--------------------------------------|----------------|
| Operating Temperature                | -55°C to 85°C  |
| Storage Temperature                  | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc)   | 12V            |
| Absolute Max. Tuning Voltage (Vtune) | 24V            |
| All specifications                   | 50 ohm system  |

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

### Outline Drawing



### Outline Dimensions (inch mm)

| A     | B     | C     | D     | E    | F    | G    | H     | J    | K    | L    | M    | N    | P     | Q     | R    | S    | T    | wt.   |
|-------|-------|-------|-------|------|------|------|-------|------|------|------|------|------|-------|-------|------|------|------|-------|
| 1.20  | .75   | .46   | 1.18  | .04  | .38  | .38  | .57   | .18  | .33  | .21  | .22  | .18  | 1.00  | .50   | .35  | .18  | .106 | grams |
| 30.48 | 19.05 | 11.68 | 29.97 | 1.02 | 9.65 | 9.65 | 14.48 | 4.57 | 8.38 | 5.33 | 5.59 | 4.57 | 25.40 | 12.70 | 8.89 | 4.57 | 2.69 | 35.0  |



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For detailed performance specs & shopping online see web site

**Notes:** 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet 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).

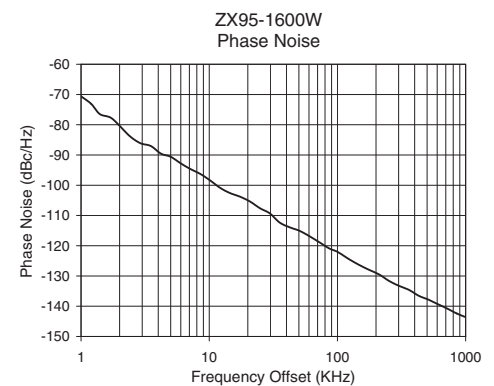
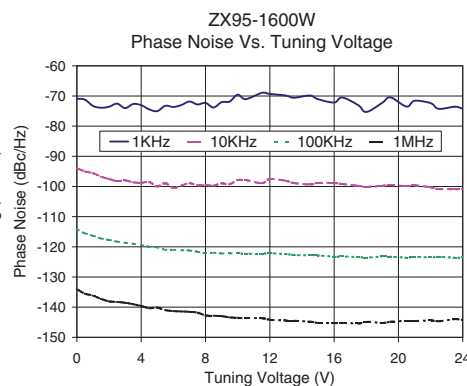
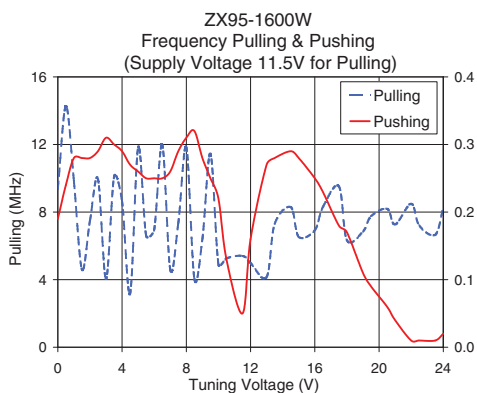
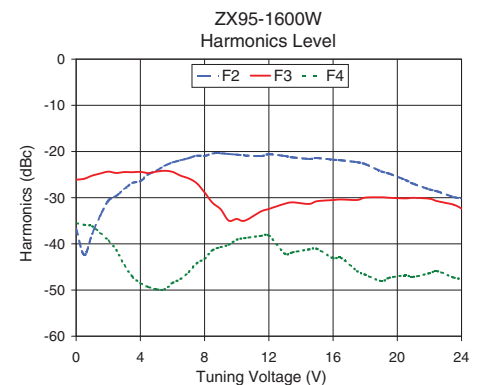
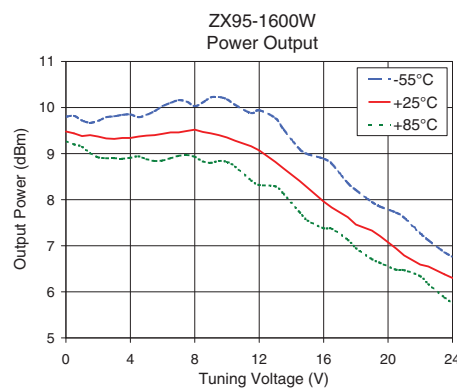
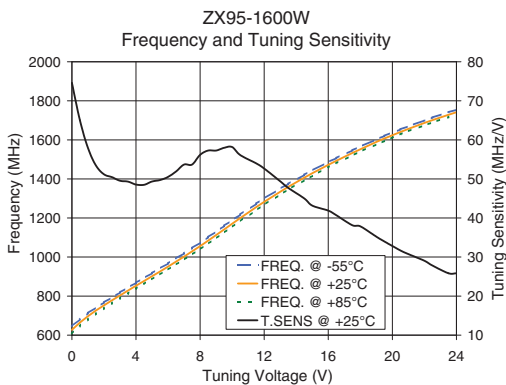
REV. A  
M98898  
EDR-7307/3  
ZX95-1600W  
RAV/URJ  
120903  
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# Performance Data & Curves\*

## ZX95-1600W+ ZX95-1600W

| V<br>TUNE | TUNE<br>SENS<br>(MHz/V) | FREQUENCY<br>(MHz) |        |        | POWER OUTPUT<br>(dBm) |       |       | Icc<br>(mA) | HARMONICS (dBc) |       |       | FREQ.<br>PUSH<br>(MHz/V) | FREQ.<br>PULL<br>(MHz) | PHASE NOISE (dBc/Hz)<br>at offsets |        |        |        | FREQ<br>OFFSET<br>(KHz) | PHASE<br>NOISE at<br>1200 MHz<br>(dBc/Hz) |
|-----------|-------------------------|--------------------|--------|--------|-----------------------|-------|-------|-------------|-----------------|-------|-------|--------------------------|------------------------|------------------------------------|--------|--------|--------|-------------------------|-------------------------------------------|
|           |                         | -55°C              | +25°C  | +85°C  | -55°C                 | +25°C | +85°C |             | F2              | F3    | F4    |                          |                        | 1kHz                               | 10kHz  | 100kHz | 1MHz   |                         |                                           |
| 0.00      | 74.62                   | 645.6              | 627.3  | 607.1  | 9.80                  | 9.48  | 9.27  | 25.79       | -36.7           | -26.1 | -35.5 | 0.19                     | 9.36                   | -70.9                              | -93.9  | -114.2 | -134.1 | 1.0                     | -70.60                                    |
| 0.50      | 65.03                   | 681.8              | 664.6  | 646.9  | 9.82                  | 9.44  | 9.20  | 25.80       | -42.4           | -25.9 | -35.9 | 0.24                     | 14.26                  | -71.2                              | -95.0  | -115.5 | -135.5 | 2.0                     | -80.36                                    |
| 1.00      | 57.95                   | 713.0              | 697.1  | 680.3  | 9.72                  | 9.38  | 9.15  | 25.82       | -37.8           | -25.2 | -36.2 | 0.28                     | 9.86                   | -73.3                              | -95.6  | -116.3 | -136.2 | 3.5                     | -87.03                                    |
| 2.00      | 51.19                   | 768.0              | 752.8  | 737.4  | 9.71                  | 9.37  | 8.92  | 25.85       | -30.7           | -24.4 | -39.3 | 0.28                     | 7.48                   | -73.6                              | -97.5  | -117.7 | -138.1 | 6.0                     | -92.78                                    |
| 3.00      | 49.54                   | 818.7              | 803.6  | 788.2  | 9.81                  | 9.32  | 8.90  | 25.88       | -28.1           | -24.4 | -44.6 | 0.31                     | 4.04                   | -74.0                              | -98.0  | -118.7 | -138.5 | 8.5                     | -96.22                                    |
| 4.00      | 48.56                   | 868.3              | 853.0  | 837.9  | 9.85                  | 9.34  | 8.91  | 25.92       | -26.4           | -24.4 | -48.5 | 0.29                     | 8.63                   | -73.0                              | -98.8  | -119.4 | -139.6 | 10.0                    | -98.19                                    |
| 5.00      | 49.33                   | 917.5              | 901.6  | 886.4  | 9.84                  | 9.39  | 8.88  | 25.97       | -24.2           | -24.4 | -49.8 | 0.26                     | 11.82                  | -75.0                              | -100.0 | -120.2 | -140.1 | 20.8                    | -105.38                                   |
| 6.00      | 50.53                   | 967.4              | 951.1  | 935.6  | 10.03                 | 9.43  | 8.85  | 26.03       | -22.4           | -24.4 | -48.5 | 0.25                     | 6.96                   | -73.7                              | -100.5 | -121.0 | -141.3 | 35.5                    | -112.36                                   |
| 7.00      | 53.68                   | 1019.3             | 1002.3 | 986.5  | 10.16                 | 9.46  | 8.95  | 26.09       | -21.5           | -25.8 | -46.1 | 0.26                     | 4.60                   | -71.8                              | -98.9  | -121.2 | -141.6 | 60.7                    | -116.90                                   |
| 8.00      | 56.17                   | 1073.6             | 1056.0 | 1039.9 | 10.03                 | 9.52  | 8.93  | 26.17       | -21.0           | -28.9 | -43.2 | 0.31                     | 11.82                  | -72.3                              | -99.5  | -122.1 | -142.7 | 86.7                    | -120.92                                   |
| 10.00     | 58.16                   | 1188.8             | 1170.3 | 1154.1 | 10.18                 | 9.35  | 8.82  | 26.32       | -20.7           | -34.6 | -39.1 | 0.22                     | 4.90                   | -69.6                              | -97.9  | -122.2 | -143.5 | 100.0                   | -122.01                                   |
| 12.00     | 52.65                   | 1300.1             | 1282.7 | 1267.6 | 9.94                  | 9.07  | 8.32  | 26.40       | -20.6           | -32.4 | -38.2 | 0.16                     | 4.98                   | -69.3                              | -97.5  | -122.1 | -144.2 | 148.1                   | -126.40                                   |
| 13.00     | 49.39                   | 1350.5             | 1334.4 | 1320.5 | 9.77                  | 8.82  | 8.29  | 26.40       | -21.0           | -31.3 | -42.1 | 0.27                     | 4.15                   | -69.9                              | -98.1  | -122.4 | -144.4 | 211.6                   | -129.53                                   |
| 15.00     | 43.16                   | 1443.5             | 1429.0 | 1416.2 | 8.99                  | 8.26  | 7.55  | 26.37       | -21.4           | -30.8 | -41.1 | 0.28                     | 6.53                   | -71.1                              | -98.8  | -122.9 | -145.2 | 361.5                   | -134.62                                   |
| 16.00     | 41.89                   | 1486.4             | 1472.0 | 1459.5 | 8.89                  | 7.96  | 7.38  | 26.33       | -21.8           | -30.5 | -43.1 | 0.25                     | 6.92                   | -72.2                              | -98.9  | -123.3 | -145.3 | 432.2                   | -136.57                                   |
| 18.00     | 37.87                   | 1565.8             | 1551.9 | 1539.7 | 8.21                  | 7.46  | 6.95  | 26.26       | -22.7           | -30.0 | -46.7 | 0.17                     | 6.33                   | -75.3                              | -100.1 | -123.6 | -144.8 | 507.5                   | -137.73                                   |
| 19.00     | 35.22                   | 1602.7             | 1589.3 | 1577.1 | 7.95                  | 7.33  | 6.71  | 26.23       | -24.3           | -29.9 | -48.1 | 0.11                     | 6.85                   | -72.2                              | -99.8  | -123.2 | -145.2 | 600.0                   | -139.22                                   |
| 21.00     | 30.75                   | 1669.7             | 1656.2 | 1644.3 | 7.61                  | 6.79  | 6.47  | 26.19       | -27.0           | -30.0 | -47.1 | 0.04                     | 7.26                   | -71.6                              | -99.6  | -123.3 | -144.6 | 712.4                   | -140.72                                   |
| 22.00     | 29.05                   | 1699.9             | 1686.7 | 1674.6 | 7.27                  | 6.59  | 6.34  | 26.16       | -28.2           | -30.2 | -46.4 | 0.01                     | 8.49                   | -72.4                              | -100.3 | -123.5 | -144.4 | 851.6                   | -142.39                                   |
| 24.00     | 25.85                   | 1754.6             | 1741.4 | 1729.6 | 6.76                  | 6.30  | 5.75  | 26.13       | -30.2           | -32.3 | -47.6 | 0.02                     | 8.26                   | -74.2                              | -101.0 | -123.5 | -144.2 | 1000.0                  | -143.61                                   |

\*at 25°C unless mentioned otherwise



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