

Coaxial

# Voltage Controlled Oscillator

## ZX95-1303+

Linear Tuning 1011 to 1270 MHz

### Features

- Low phase noise
- Low pushing
- Protected by US patent 6,790,049

### Applications

- R&D
- LAB
- Instrumentation
- Industrial communications
- Wireless communications
- Personal communications



CASE STYLE: GB956

| Connectors | Model        | Price       | Qty.  |
|------------|--------------|-------------|-------|
| SMA        | ZX95-1303-S+ | \$40.95 ea. | (1-9) |

**+ RoHS compliant in accordance with EU Directive (2002/95/EC)**

*The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.*

### Electrical Specifications

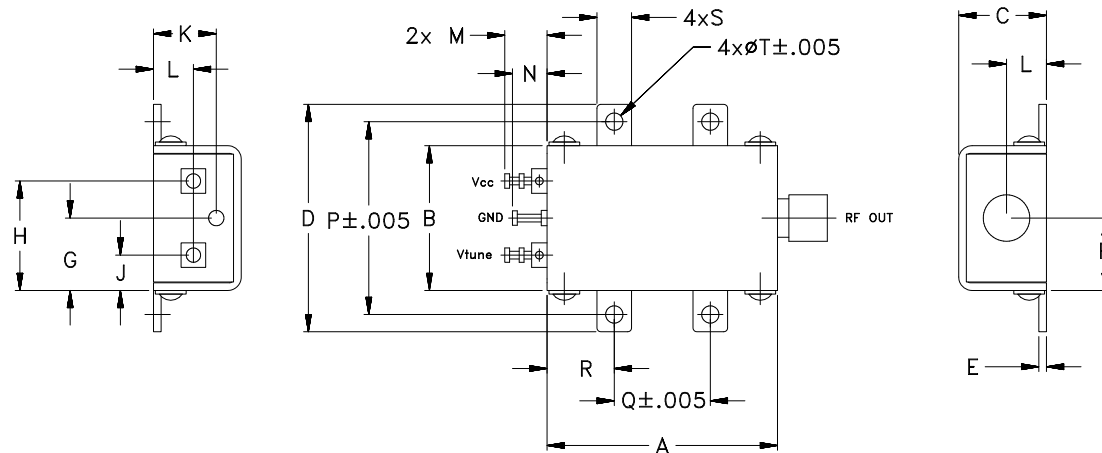
| MODEL NO.  | FREQ. (MHz) |      | POWER OUTPUT (dBm) | PHASE NOISE dBc/Hz SSB at offset frequencies, kHz |      |      |      | TUNING |                   |                       |               |                                 | NON HARMONIC SPURIOUS (dBc) | HARMONICS (dBc) |      | PULLING pk-pk @ 12 dBr (MHz) | PUSHING (MHz/V) | DC OPERATING POWER |             |
|------------|-------------|------|--------------------|---|------|------|------|--------|-------------------|-----------------------|---------------|---------------------------------|-----------------------------|-----------------|------|------------------------------|-----------------|--------------------|-------------|
|            | Min.        | Max. |                    | Typ.  | 1    | 10   | 100  | 1000   | VOLTAGE RANGE (V) | SENSI- TIVITY (MHz/V) | PORT CAP (pF) | 3 dB MODULATION BANDWIDTH (MHz) |                             | Typ.            | Typ. |                              |                 | Max.               | Vcc (volts) |
| ZX95-1303+ | 1011        | 1270 | +7                 | -82   | -109 | -130 | -150 | 0.5    | 12                | 26 - 39               | 40            | 80                              | -90                         | -24             | -14  | 1.5                          | 1               | 5                  | 36          |

### Maximum Ratings

|                                      |                |
|--------------------------------------|----------------|
| Operating Temperature                | -55°C to 85°C  |
| Storage Temperature                  | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc)   | 7V             |
| Absolute Max. Tuning Voltage (Vtune) | 14V            |
| 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  | .45   | .57   | .18  | .33  | .21  | .22  | .18  | 1.00  | .50   | .35  | .18  | .106 | GRAM |
| 30.48 | 19.05 | 11.68 | 29.97 | 1.02 | 9.65 | 11.43 | 14.48 | 4.57 | 8.38 | 5.33 | 5.59 | 4.57 | 25.40 | 12.70 | 8.89 | 4.57 | 2.69 | 35.0 |



For detailed performance specs & shopping online see web site

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Provides ACTUAL Data Instantly at [minicircuits.com](http://minicircuits.com)

**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. OR  
M110356  
EDR-8498F2  
ZX95-1303+  
RAV  
090830  
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# Performance Data & Curves\*

# ZX95-1303+

| V TUNE | TUNE SENS (MHz/V) | FREQUENCY (MHz) |        |        | POWER OUTPUT (dBm) |       |       | Icc (mA) | HARMONICS (dBc) |       |       | FREQ. PUSH (MHz/V) | FREQ. PULL (MHz) | PHASE NOISE (dBc/Hz) at offsets |        |        |        | FREQ OFFSET (KHz) | PHASE NOISE at 1157 MHz (dBc/Hz) |
|--------|-------------------|-----------------|--------|--------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|----------------------------------|
|        |                   | -55°C           | +25°C  | +85°C  | -55°C              | +25°C | +85°C |          | F2              | F3    | F4    |                    |                  | 1kHz                            | 10kHz  | 100kHz | 1MHz   |                   |                                  |
| 0.00   | 46.42             | 943.7           | 938.2  | 934.6  | 5.94               | 6.11  | 5.88  | 26.26    | -25.3           | -28.0 | -52.2 | 1.82               | 2.44             | -78.3                           | -104.7 | -125.3 | -145.3 | 1.0               | -82.60                           |
| 0.50   | 40.87             | 966.6           | 961.4  | 957.9  | 6.36               | 6.44  | 6.35  | 26.61    | -23.3           | -28.3 | -52.3 | 1.25               | 2.57             | -78.4                           | -106.0 | -126.8 | -147.0 | 2.0               | -92.10                           |
| 1.00   | 39.09             | 987.0           | 981.8  | 978.2  | 6.68               | 6.71  | 6.61  | 26.87    | -22.7           | -30.9 | -52.9 | 0.97               | 2.38             | -78.1                           | -106.4 | -127.3 | -147.5 | 3.5               | -100.75                          |
| 1.50   | 38.59             | 1006.8          | 1001.3 | 997.6  | 6.99               | 7.01  | 6.85  | 27.13    | -22.8           | -31.7 | -53.2 | 0.73               | 1.67             | -79.6                           | -106.7 | -128.1 | -148.4 | 6.0               | -106.34                          |
| 2.00   | 38.73             | 1026.3          | 1020.6 | 1016.8 | 7.11               | 7.17  | 7.01  | 27.39    | -22.6           | -37.5 | -52.1 | 0.63               | 0.74             | -78.4                           | -106.5 | -128.2 | -148.2 | 8.5               | -109.24                          |
| 2.50   | 38.89             | 1045.6          | 1040.0 | 1036.1 | 7.17               | 7.27  | 7.15  | 27.60    | -22.9           | -38.4 | -51.3 | 0.61               | 0.77             | -79.0                           | -107.1 | -128.4 | -148.4 | 10.0              | -111.36                          |
| 3.00   | 39.00             | 1064.8          | 1059.5 | 1055.5 | 7.18               | 7.31  | 7.24  | 27.77    | -23.5           | -40.6 | -49.6 | 0.64               | 1.75             | -80.3                           | -108.5 | -129.3 | -149.5 | 20.8              | -119.75                          |
| 4.00   | 38.08             | 1103.1          | 1098.3 | 1094.7 | 7.00               | 7.18  | 7.28  | 27.99    | -25.8           | -39.3 | -48.6 | 0.76               | 2.01             | -81.3                           | -111.7 | -133.3 | -152.5 | 35.5              | -124.75                          |
| 5.00   | 36.19             | 1140.2          | 1135.9 | 1132.5 | 6.82               | 6.95  | 7.22  | 28.37    | -27.8           | -34.2 | -49.9 | 0.98               | 0.67             | -82.5                           | -111.5 | -134.3 | -154.1 | 60.7              | -129.50                          |
| 6.00   | 33.65             | 1175.8          | 1171.5 | 1168.1 | 6.64               | 6.75  | 7.06  | 28.72    | -28.8           | -33.2 | -49.0 | 1.18               | 1.02             | -81.3                           | -110.7 | -134.0 | -154.2 | 86.7              | -132.63                          |
| 7.00   | 31.12             | 1208.9          | 1204.5 | 1201.1 | 6.40               | 6.55  | 6.80  | 29.03    | -29.0           | -31.8 | -46.2 | 1.23               | 1.67             | -83.2                           | -110.7 | -133.9 | -154.1 | 100.0             | -133.98                          |
| 8.00   | 28.62             | 1239.5          | 1235.0 | 1231.5 | 6.23               | 6.33  | 6.53  | 29.27    | -28.7           | -31.0 | -43.7 | 1.14               | 1.44             | -83.2                           | -111.3 | -134.8 | -154.0 | 148.1             | -137.36                          |
| 8.50   | 27.37             | 1253.9          | 1249.3 | 1245.7 | 6.19               | 6.21  | 6.44  | 29.38    | -28.5           | -30.1 | -41.9 | 1.07               | 1.10             | -84.0                           | -111.2 | -134.5 | -154.3 | 177.0             | -139.26                          |
| 9.00   | 26.34             | 1267.8          | 1262.9 | 1259.4 | 6.16               | 6.16  | 6.39  | 29.47    | -28.0           | -29.6 | -41.4 | 1.00               | 0.62             | -83.0                           | -112.0 | -134.7 | -153.8 | 211.6             | -141.00                          |
| 9.50   | 25.36             | 1281.1          | 1276.1 | 1272.5 | 6.09               | 6.08  | 6.31  | 29.53    | -27.7           | -29.7 | -39.9 | 0.92               | 0.19             | -83.7                           | -112.1 | -134.6 | -154.6 | 302.4             | -143.58                          |
| 10.00  | 24.39             | 1293.9          | 1288.8 | 1285.2 | 6.04               | 5.99  | 6.23  | 29.59    | -27.7           | -29.0 | -39.7 | 0.86               | 0.66             | -85.5                           | -112.1 | -134.3 | -153.2 | 361.5             | -145.19                          |
| 10.50  | 23.47             | 1306.2          | 1301.0 | 1297.3 | 5.98               | 5.87  | 6.15  | 29.65    | -27.6           | -29.6 | -37.8 | 0.81               | 1.02             | -85.7                           | -112.4 | -134.5 | -153.9 | 507.5             | -146.95                          |
| 11.00  | 22.54             | 1318.0          | 1312.7 | 1309.0 | 5.94               | 5.74  | 6.06  | 29.71    | -27.3           | -29.3 | -37.9 | 0.76               | 1.25             | -84.6                           | -112.1 | -133.7 | -152.6 | 606.7             | -149.32                          |
| 11.50  | 21.69             | 1329.4          | 1324.0 | 1320.2 | 5.89               | 5.65  | 6.00  | 29.76    | -27.1           | -28.3 | -36.4 | 0.74               | 1.38             | -84.0                           | -111.9 | -133.1 | -152.8 | 851.6             | -152.12                          |
| 12.00  | 20.85             | 1340.4          | 1334.8 | 1331.0 | 5.82               | 5.56  | 5.93  | 29.79    | -27.1           | -28.6 | -36.4 | 0.72               | 1.42             | -83.6                           | -111.2 | -132.6 | -152.6 | 1000.0            | -153.43                          |

\*at 25°C unless mentioned otherwise

