

Coaxial

# Voltage Controlled Oscillator

ZX95-975+

Linear Tuning 900 to 975 MHz

## Features

- Linear tuning characteristics
- Low phase noise
- Low pulling
- Low pushing
- Protected by US patent 6,790,049

## Applications

- R&D
- LAB
- Instrumentation
- Wireless communications
- Line for receiver
- Defence systems
- Land mobile
- GSM



CASE STYLE: GB956

| Connectors | Model       |
|------------|-------------|
| SMA        | ZX95-975-S+ |

**+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 dB (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. |                            |                 | Typ.               | Typ. |
| ZX95-975+ | 900         | 975  | +0.8               | -90   | -114 | -135 | -154 | 0.5    | 14                | 8                    | 35            | 70                              | -90                         | -25             | -15  | 0.3                        | 0.3             | 5                  | 40   |

## Maximum Ratings

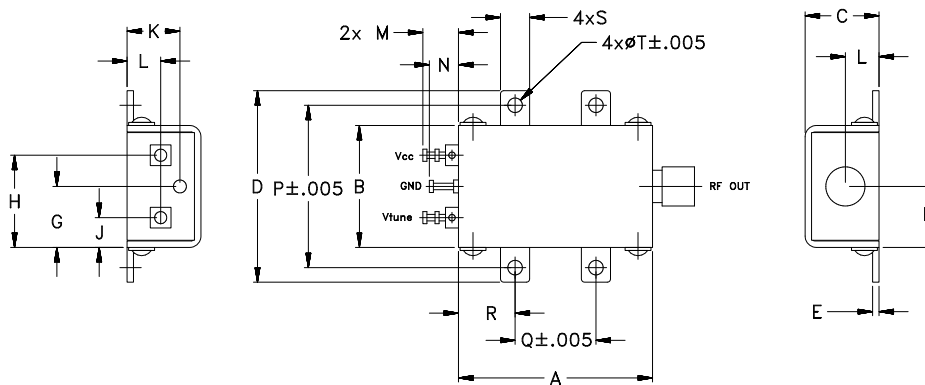
|                                      |                |
|--------------------------------------|----------------|
| Operating Temperature                | -55°C to 85°C  |
| Storage Temperature                  | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc)   | 6V             |
| Absolute Max. Tuning Voltage (Vtune) | 16V            |
| All specifications                   | 50 ohm system  |

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



NOTE: When soldering the DC connections, caution must be used to avoid overheating the DC terminals. See Application Note AN-40-10.

## 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  |

### 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-Circuits' 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

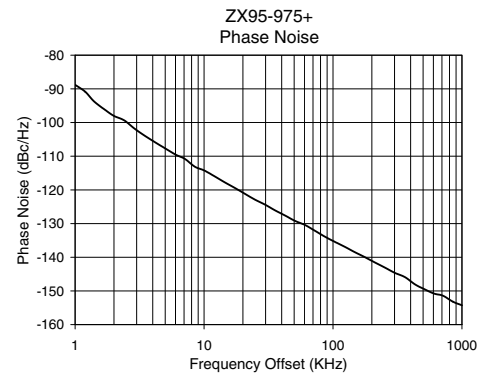
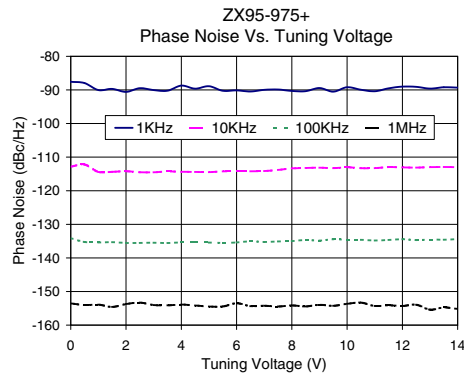
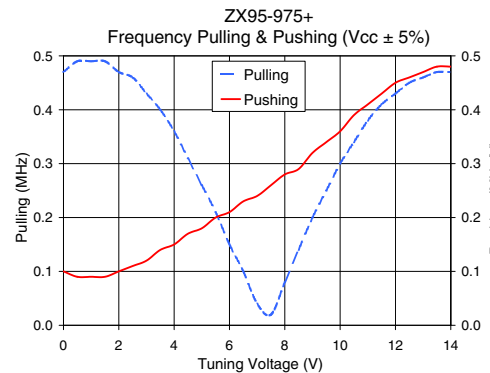
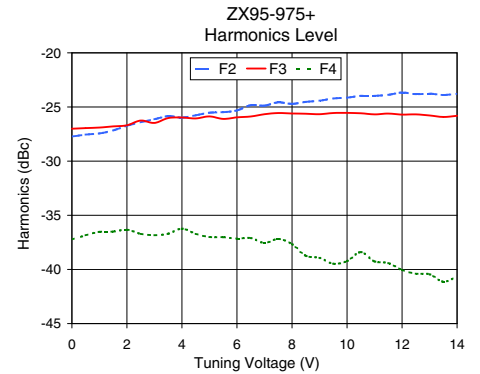
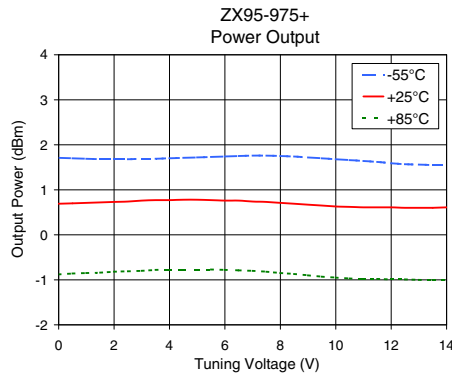
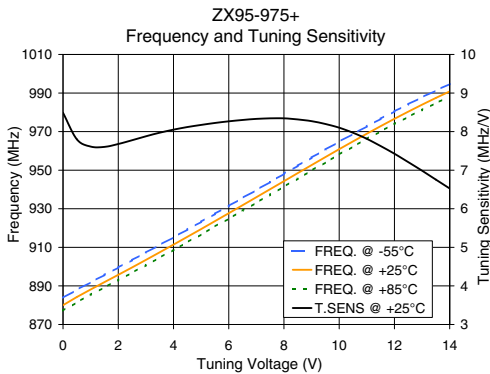
REV. A  
M152326  
EDR-9992F2  
ZX95-975+  
RAV  
150923  
Page 1 of 2

# Performance Data & Curves\*

# ZX95-975+

| 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 939 MHz (dBc/Hz) |
|--------|-------------------|-----------------|-------|-------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|---------------------------------|
|        |                   | -55°C           | +25°C | +85°C | -55°C              | +25°C | +85°C |          | F2              | F3    | F4    |                    |                  | 1kHz                            | 10kHz  | 100kHz | 1MHz   |                   |                                 |
| 0.00   | 8.49              | 883.8           | 880.0 | 877.2 | 1.71               | 0.69  | -0.88 | 33.24    | -27.7           | -27.0 | -37.2 | 0.10               | 0.47             | -87.6                           | -112.9 | -134.1 | -153.5 | 1.0               | -88.80                          |
| 0.50   | 7.80              | 888.0           | 884.3 | 881.5 | 1.70               | 0.70  | -0.86 | 33.23    | -27.6           | -27.0 | -36.9 | 0.09               | 0.49             | -88.0                           | -112.2 | -135.3 | -154.0 | 2.0               | -98.04                          |
| 1.00   | 7.61              | 891.9           | 888.2 | 885.4 | 1.69               | 0.71  | -0.85 | 33.23    | -27.4           | -26.9 | -36.5 | 0.09               | 0.49             | -90.1                           | -114.4 | -135.4 | -153.9 | 3.5               | -104.02                         |
| 2.50   | 7.78              | 903.4           | 899.6 | 896.9 | 1.68               | 0.74  | -0.81 | 33.22    | -26.4           | -26.3 | -36.7 | 0.11               | 0.46             | -89.5                           | -114.5 | -135.5 | -153.3 | 6.0               | -109.50                         |
| 3.00   | 7.88              | 907.3           | 903.5 | 900.7 | 1.69               | 0.76  | -0.80 | 33.22    | -26.1           | -26.5 | -36.8 | 0.12               | 0.43             | -90.1                           | -114.5 | -135.5 | -154.0 | 8.5               | -113.14                         |
| 3.50   | 7.97              | 911.2           | 907.4 | 904.7 | 1.69               | 0.77  | -0.78 | 33.22    | -25.9           | -26.0 | -36.7 | 0.14               | 0.40             | -90.2                           | -114.3 | -135.6 | -154.1 | 10.0              | -114.21                         |
| 4.00   | 8.05              | 915.2           | 911.4 | 908.6 | 1.70               | 0.77  | -0.77 | 33.22    | -26.0           | -26.0 | -36.2 | 0.15               | 0.36             | -88.7                           | -114.4 | -135.4 | -153.9 | 20.8              | -121.19                         |
| 4.50   | 8.12              | 919.2           | 915.4 | 912.7 | 1.71               | 0.78  | -0.77 | 33.22    | -25.8           | -26.1 | -36.7 | 0.17               | 0.31             | -89.6                           | -114.4 | -135.4 | -154.2 | 35.5              | -126.07                         |
| 5.50   | 8.22              | 927.3           | 923.6 | 920.8 | 1.73               | 0.77  | -0.77 | 33.22    | -25.5           | -26.1 | -37.0 | 0.20               | 0.21             | -90.3                           | -114.3 | -135.5 | -154.5 | 60.7              | -130.43                         |
| 6.00   | 8.27              | 931.5           | 927.7 | 924.9 | 1.74               | 0.76  | -0.78 | 33.22    | -25.3           | -26.0 | -37.2 | 0.21               | 0.15             | -90.1                           | -114.2 | -135.4 | -153.5 | 86.7              | -133.90                         |
| 6.50   | 8.30              | 935.6           | 931.8 | 929.0 | 1.75               | 0.76  | -0.79 | 33.22    | -24.8           | -25.9 | -37.1 | 0.23               | 0.10             | -90.5                           | -114.2 | -135.1 | -154.4 | 100.0             | -135.17                         |
| 7.00   | 8.33              | 939.7           | 936.0 | 933.1 | 1.76               | 0.74  | -0.80 | 33.22    | -24.9           | -25.7 | -37.6 | 0.24               | 0.04             | -90.0                           | -114.2 | -135.3 | -154.2 | 148.1             | -138.51                         |
| 7.50   | 8.34              | 943.9           | 940.1 | 937.3 | 1.76               | 0.73  | -0.82 | 33.22    | -24.6           | -25.6 | -37.2 | 0.26               | 0.02             | -89.9                           | -113.8 | -135.1 | -154.5 | 177.0             | -139.99                         |
| 8.50   | 8.32              | 952.3           | 948.5 | 945.6 | 1.74               | 0.69  | -0.87 | 33.22    | -24.5           | -25.6 | -38.7 | 0.29               | 0.14             | -90.4                           | -113.2 | -134.7 | -154.4 | 211.6             | -141.57                         |
| 9.50   | 8.20              | 960.6           | 956.8 | 954.0 | 1.70               | 0.65  | -0.93 | 33.23    | -24.2           | -25.6 | -39.5 | 0.34               | 0.25             | -90.5                           | -113.3 | -134.5 | -154.3 | 302.4             | -144.66                         |
| 10.00  | 8.10              | 964.7           | 960.9 | 958.1 | 1.68               | 0.63  | -0.95 | 33.22    | -24.1           | -25.5 | -39.2 | 0.36               | 0.30             | -89.2                           | -113.0 | -134.6 | -153.7 | 361.5             | -145.90                         |
| 11.00  | 7.81              | 972.7           | 968.9 | 966.2 | 1.64               | 0.61  | -0.98 | 33.23    | -24.0           | -25.7 | -39.3 | 0.41               | 0.38             | -90.4                           | -113.3 | -134.8 | -154.3 | 507.5             | -149.41                         |
| 12.00  | 7.43              | 980.4           | 976.6 | 973.9 | 1.59               | 0.61  | -0.99 | 33.23    | -23.7           | -25.7 | -40.0 | 0.45               | 0.43             | -89.0                           | -113.0 | -134.4 | -154.3 | 606.7             | -150.78                         |
| 13.50  | 6.76              | 991.3           | 987.4 | 984.7 | 1.55               | 0.60  | -1.01 | 33.24    | -23.9           | -25.9 | -41.1 | 0.48               | 0.47             | -89.2                           | -112.9 | -134.6 | -154.7 | 851.6             | -153.20                         |
| 14.00  | 6.53              | 994.7           | 990.8 | 988.1 | 1.55               | 0.61  | -1.01 | 33.24    | -23.8           | -25.8 | -40.7 | 0.48               | 0.47             | -89.3                           | -113.0 | -134.4 | -155.2 | 1000.0            | -154.27                         |

\*at 25°C unless mentioned otherwise



**Notes**

- A. 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.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- C. 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)

