

Coaxial

# Voltage Controlled Oscillator

## ZX95-3000+

5V Tuning for PLL IC's 2800 to 2970 MHz

### Features

- high power output, +10dBm typ.
- linear tuning characteristics
- low phase noise
- low pushing
- low pulling
- protected by US patent 6,790,049

### Applications

- r & d
- lab
- instrumentation
- wireless communications
- satellite systems



CASE STYLE: GB956

| Connectors | Model        | Price       | Qty.  |
|------------|--------------|-------------|-------|
| SMA        | ZX95-3000-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

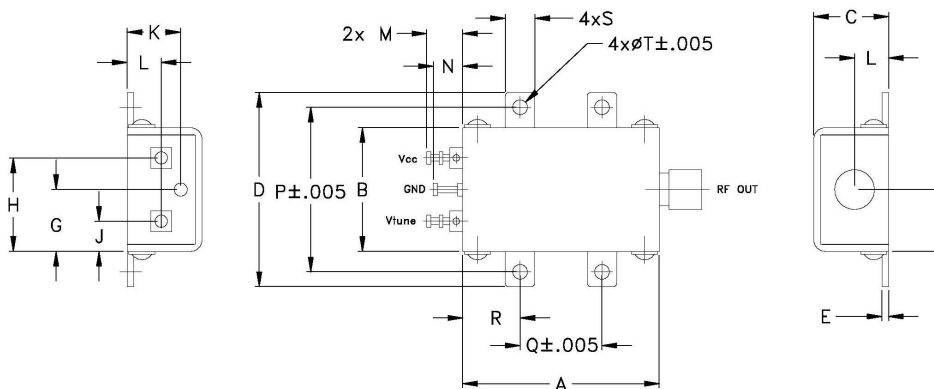
| MODEL NO.  | FREQ. (MHz) |      | POWER OUTPUT (dBm) | PHASE NOISE dBc/Hz SSB at offset frequencies, kHz |      |      |      | TUNING |                   |       |                     |          | NON HARMONIC SPURIOUS (dBc) | HARMONICS (dBc)                 |      | PULLING pk-pk @ 12 dB (MHz) | PUSHING (MHz/V) | DC OPERATING POWER |      |      |             |              |
|------------|-------------|------|--------------------|---|------|------|------|--------|-------------------|-------|---------------------|----------|-----------------------------|---------------------------------|------|-----------------------------|-----------------|--------------------|------|------|-------------|--------------|
|            | Min.        | Max. |                    | Typ.  | 1    | 10   | 100  | 1000   | VOLTAGE RANGE (V) |       | PORT TIVITY (MHz/V) | CAP (pF) |                             | 3 dB MODULATION BANDWIDTH (MHz) | Typ. |                             |                 | Typ.               | Typ. | Typ. | Vcc (volts) | Current (mA) |
|            |             |      |                    |   |      |      |      |        | Min.              | Max.  |                     |          |                             |                                 |      |                             |                 |                    |      |      |             |              |
| ZX95-3000+ | 2800        | 2970 | +10                | -74   | -102 | -123 | -144 | 0.5    | 5                 | 55-68 | 10                  | 150      | -90                         | -25                             | -15  | 4                           | 1.5             | 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) | 7V             |
| 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  |



For detailed performance specs & shopping online see web site

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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).

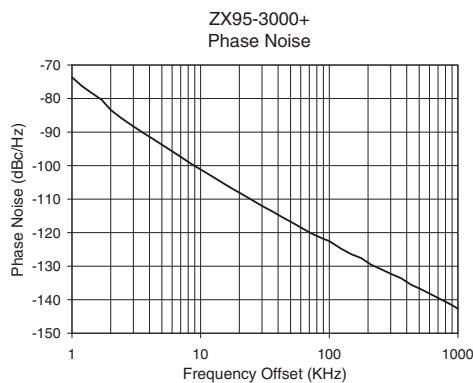
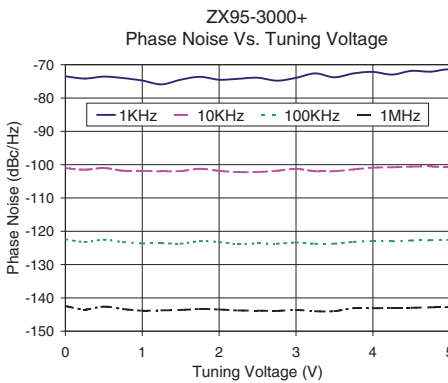
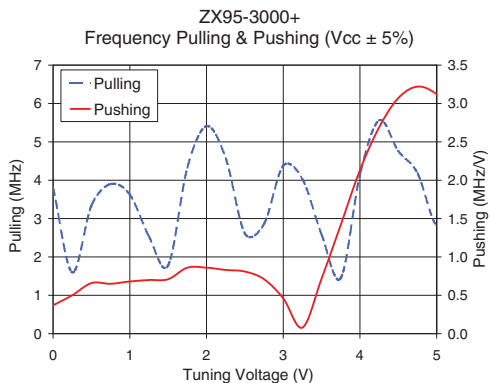
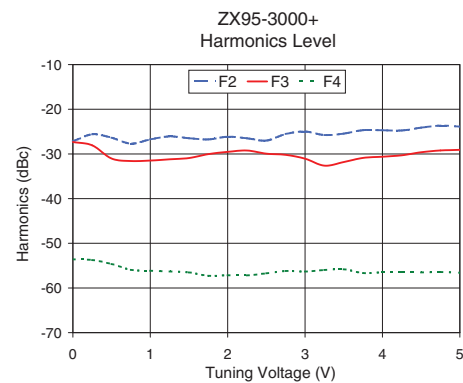
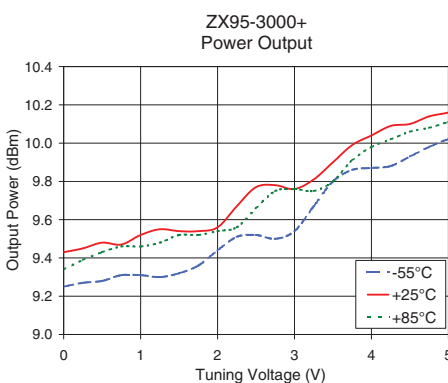
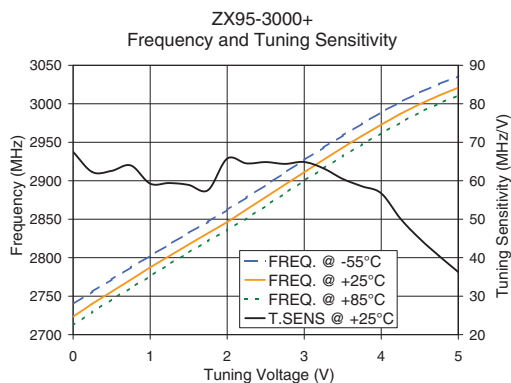
REV. A  
M135213  
EDR-9959MPF1  
ZX95-3000+  
RAV  
120909  
Page 1 of 2

# Performance Data & Curves\*

# ZX95-3000+

| 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 2885 MHz (dBc/Hz) |
|--------|-------------------|-----------------|--------|--------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|----------------------------------|
|        |                   | -55°C           | +25°C  | +85°C  | -55°C              | +25°C | +85°C |          | F2              | F3    | F4    |                    |                  | 1KHz                            | 10KHz  | 100KHz | 1MHz   |                   |                                  |
| 0.00   | 67.5              | 2739.6          | 2723.4 | 2711.9 | 9.25               | 9.43  | 9.34  | 30.17    | -27.2           | -27.3 | -53.6 | 0.37               | 3.81             | -73.5                           | -101.1 | -122.5 | -142.5 | 1.0               | -73.7                            |
| 0.50   | 62.6              | 2771.7          | 2755.8 | 2745.6 | 9.28               | 9.48  | 9.43  | 30.20    | -26.4           | -31.0 | -54.6 | 0.66               | 3.34             | -73.6                           | -101.0 | -122.5 | -142.6 | 2.0               | -83.4                            |
| 0.75   | 64.0              | 2787.5          | 2771.5 | 2760.7 | 9.31               | 9.47  | 9.46  | 30.15    | -27.7           | -31.6 | -55.9 | 0.65               | 3.90             | -74.0                           | -101.8 | -123.2 | -143.4 | 3.5               | -90.0                            |
| 1.00   | 59.2              | 2802.5          | 2787.5 | 2776.0 | 9.31               | 9.52  | 9.46  | 30.22    | -26.8           | -31.5 | -56.2 | 0.68               | 3.62             | -74.8                           | -101.9 | -123.6 | -143.8 | 6.0               | -95.7                            |
| 1.25   | 59.4              | 2817.3          | 2802.3 | 2791.8 | 9.30               | 9.55  | 9.48  | 30.27    | -26.1           | -31.2 | -56.3 | 0.70               | 2.53             | -75.9                           | -102.0 | -123.6 | -143.7 | 8.5               | -99.6                            |
| 1.50   | 58.9              | 2832.1          | 2817.1 | 2806.8 | 9.32               | 9.54  | 9.52  | 30.30    | -26.5           | -30.9 | -56.5 | 0.71               | 1.78             | -74.5                           | -101.9 | -123.7 | -143.6 | 10.0              | -101.1                           |
| 1.75   | 57.6              | 2846.6          | 2831.9 | 2821.7 | 9.36               | 9.54  | 9.52  | 30.31    | -26.8           | -30.0 | -57.3 | 0.86               | 4.33             | -73.6                           | -101.3 | -123.0 | -143.3 | 20.8              | -108.5                           |
| 2.00   | 65.8              | 2862.2          | 2846.3 | 2836.2 | 9.44               | 9.56  | 9.54  | 30.27    | -26.2           | -29.5 | -57.1 | 0.86               | 5.41             | -74.5                           | -101.9 | -123.2 | -143.5 | 35.5              | -113.5                           |
| 2.25   | 64.5              | 2878.2          | 2862.7 | 2851.0 | 9.51               | 9.67  | 9.56  | 30.26    | -26.5           | -29.2 | -57.2 | 0.83               | 4.57             | -74.2                           | -102.2 | -123.9 | -143.8 | 60.7              | -118.6                           |
| 2.50   | 64.9              | 2894.4          | 2878.8 | 2867.4 | 9.52               | 9.77  | 9.66  | 30.29    | -27.0           | -29.9 | -56.7 | 0.81               | 2.61             | -73.9                           | -102.2 | -123.7 | -143.8 | 86.7              | -121.6                           |
| 2.75   | 64.4              | 2910.6          | 2895.0 | 2883.8 | 9.50               | 9.78  | 9.75  | 30.33    | -25.5           | -30.2 | -56.2 | 0.71               | 2.86             | -74.8                           | -101.8 | -123.7 | -143.9 | 100.0             | -122.5                           |
| 3.00   | 64.9              | 2926.9          | 2911.1 | 2900.0 | 9.54               | 9.76  | 9.76  | 30.37    | -25.0           | -31.1 | -56.3 | 0.46               | 4.38             | -73.9                           | -101.3 | -123.4 | -143.6 | 148.1             | -126.4                           |
| 3.25   | 63.2              | 2943.1          | 2927.3 | 2916.0 | 9.67               | 9.81  | 9.75  | 30.37    | -25.8           | -32.6 | -56.0 | 0.08               | 4.03             | -72.6                           | -102.0 | -123.8 | -144.0 | 177.0             | -127.6                           |
| 3.50   | 60.5              | 2958.8          | 2943.2 | 2932.0 | 9.80               | 9.90  | 9.80  | 30.37    | -25.5           | -31.8 | -55.8 | 0.72               | 2.58             | -73.8                           | -102.0 | -123.7 | -144.0 | 211.6             | -129.6                           |
| 3.75   | 58.6              | 2974.2          | 2958.3 | 2947.3 | 9.86               | 9.99  | 9.91  | 30.35    | -24.7           | -30.9 | -56.7 | 1.42               | 1.45             | -72.6                           | -101.4 | -123.2 | -143.1 | 302.4             | -132.3                           |
| 4.00   | 56.7              | 2989.0          | 2972.9 | 2961.7 | 9.87               | 10.04 | 9.98  | 30.31    | -24.7           | -30.6 | -56.5 | 2.13               | 4.14             | -72.2                           | -100.9 | -122.9 | -143.1 | 361.5             | -133.6                           |
| 4.25   | 50.1              | 3002.4          | 2987.1 | 2975.5 | 9.88               | 10.09 | 10.02 | 30.32    | -24.8           | -30.3 | -56.5 | 2.69               | 5.56             | -73.0                           | -100.8 | -123.0 | -143.0 | 507.5             | -136.7                           |
| 4.50   | 44.9              | 3014.6          | 2999.6 | 2988.9 | 9.93               | 10.10 | 10.06 | 30.34    | -24.1           | -29.6 | -56.5 | 3.07               | 4.76             | -71.9                           | -100.6 | -122.8 | -143.0 | 606.7             | -138.2                           |
| 4.75   | 40.5              | 3025.7          | 3010.9 | 3000.6 | 9.98               | 10.14 | 10.08 | 30.35    | -23.7           | -29.2 | -56.4 | 3.22               | 4.18             | -72.1                           | -100.6 | -122.7 | -142.8 | 851.6             | -141.1                           |
| 5.00   | 36.3              | 3035.8          | 3021.0 | 3010.9 | 10.02              | 10.16 | 10.11 | 30.33    | -23.9           | -29.1 | -56.6 | 3.12               | 2.81             | -71.4                           | -100.8 | -122.5 | -142.8 | 1000.0            | -142.7                           |

\*at 25°C unless mentioned otherwise



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