

Coaxial

# Voltage Controlled Oscillator

## ZX95-3800+

5V Tuning for PLL IC's 3630 to 3800 MHz

### Features

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



CASE STYLE: GB956

### Applications

- R&D
- LAB
- Instrumentation
- Wireless communications
- CATV

| Connectors | Model        | Price       | Qty.  |
|------------|--------------|-------------|-------|
| SMA        | ZX95-3800-S+ | \$44.95 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

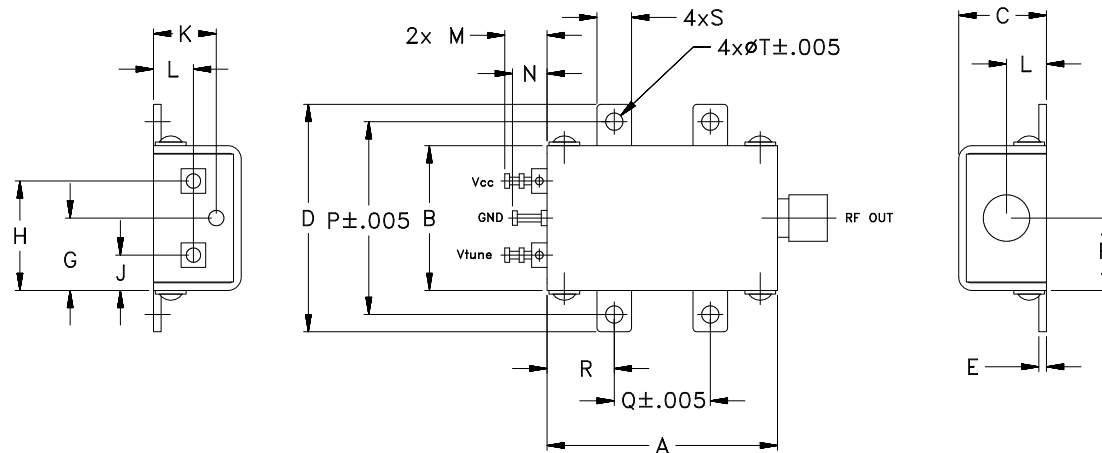
| MODEL NO.  | FREQ. (MHz) |      | POWER OUTPUT (dBm) | PHASE NOISE dBc/Hz SSB at offset frequencies, KHz |     |      |      | TUNING |                   |                     |               |                                 | NON HARMONIC SPURIOUS (dBc) | HARMONICS (dBc) |      | PULLING pk-pk @ 12 dBc (MHz) | PUSHING (MHz/V) | DC OPERATING POWER |      |
|------------|-------------|------|--------------------|---|-----|------|------|--------|-------------------|---------------------|---------------|---------------------------------|-----------------------------|-----------------|------|------------------------------|-----------------|--------------------|------|
|            | Min.        | Max. |                    | Typ.  | 1   | 10   | 100  | 1000   | VOLTAGE RANGE (V) | SENSITIVITY (MHz/V) | PORT CAP (pF) | 3 dB MODULATION BANDWIDTH (MHz) |                             | Typ.            | Typ. |                              |                 | Typ.               | Typ. |
| ZX95-3800+ | 3630        | 3800 | +5                 | -72   | -97 | -119 | -139 | 0.5    | 5                 | 73 - 78             | 10            | 500                             | -90                         | -31             | -22  | 1.5                          | 2               | 5                  | 40   |

### 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  | .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  
M108877  
EDR-7764  
ZX95-3800+  
RAV  
090903  
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# Performance Data & Curves\*

# ZX95-3800+

| 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 3730 MHz (dBc/Hz) |
|--------|-------------------|-----------------|--------|--------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|-------|--------|--------|-------------------|----------------------------------|
|        |                   | -55°C           | +25°C  | +85°C  | -55°C              | +25°C | +85°C |          | F2              | F3    | F4    |                    |                  | 1kHz                            | 10kHz | 100kHz | 1MHz   |                   |                                  |
| 0.00   | 105.06            | 3532.5          | 3514.7 | 3497.0 | 4.83               | 4.86  | 4.21  | 33.62    | -30.8           | -41.5 | -35.6 | 0.92               | 1.38             | -74.3                           | -97.6 | -118.6 | -138.7 | 1.0               | -72.71                           |
| 0.50   | 90.89             | 3580.8          | 3564.2 | 3548.0 | 4.93               | 4.99  | 4.55  | 33.81    | -30.0           | -42.5 | -37.7 | 1.55               | 1.72             | -70.5                           | -97.7 | -119.3 | -139.3 | 2.0               | -79.50                           |
| 0.75   | 81.89             | 3602.2          | 3586.9 | 3570.2 | 4.99               | 4.90  | 4.77  | 33.93    | -28.9           | -42.6 | -41.2 | 1.66               | 2.05             | -71.6                           | -99.0 | -119.7 | -139.6 | 3.5               | -87.76                           |
| 1.00   | 80.23             | 3622.7          | 3607.4 | 3591.7 | 5.22               | 5.10  | 4.69  | 34.05    | -29.3           | -43.0 | -43.8 | 1.70               | 1.51             | -73.9                           | -97.6 | -119.7 | -139.5 | 6.0               | -91.77                           |
| 1.25   | 82.20             | 3643.7          | 3627.4 | 3611.5 | 4.68               | 5.23  | 4.87  | 34.11    | -30.4           | -44.3 | -43.6 | 1.75               | 1.62             | -72.6                           | -98.2 | -119.6 | -139.7 | 8.5               | -95.59                           |
| 1.50   | 77.27             | 3663.4          | 3648.0 | 3631.2 | 5.00               | 4.78  | 5.00  | 34.21    | -29.3           | -43.5 | -39.7 | 1.93               | 1.62             | -73.0                           | -97.5 | -119.5 | -139.3 | 10.0              | -97.42                           |
| 1.75   | 77.40             | 3682.9          | 3667.3 | 3651.2 | 5.18               | 5.08  | 4.64  | 34.33    | -29.4           | -45.0 | -41.5 | 1.80               | 1.46             | -72.9                           | -97.8 | -119.7 | -139.3 | 20.8              | -104.73                          |
| 2.00   | 77.08             | 3702.8          | 3686.7 | 3670.2 | 4.75               | 5.20  | 4.87  | 34.44    | -30.1           | -45.0 | -41.6 | 1.80               | 1.73             | -72.2                           | -97.3 | -119.5 | -139.8 | 35.5              | -110.01                          |
| 2.25   | 72.53             | 3721.0          | 3705.9 | 3689.2 | 5.04               | 4.88  | 4.99  | 34.60    | -30.5           | -44.8 | -44.0 | 1.68               | 1.56             | -72.5                           | -97.7 | -119.9 | -139.1 | 60.7              | -115.10                          |
| 2.50   | 78.18             | 3740.6          | 3724.1 | 3708.1 | 5.14               | 5.09  | 4.81  | 34.67    | -30.6           | -46.6 | -48.4 | 1.53               | 1.49             | -72.3                           | -97.3 | -119.9 | -139.2 | 86.7              | -118.56                          |
| 2.75   | 77.62             | 3760.5          | 3743.6 | 3726.2 | 4.78               | 5.17  | 4.87  | 34.72    | -31.1           | -46.2 | -47.2 | 1.57               | 1.48             | -71.8                           | -96.1 | -119.0 | -138.9 | 100.0             | -119.67                          |
| 3.00   | 72.76             | 3779.0          | 3763.0 | 3745.3 | 4.79               | 4.90  | 4.98  | 34.90    | -31.4           | -46.1 | -47.3 | 1.34               | 1.41             | -70.3                           | -96.4 | -119.2 | -139.0 | 148.1             | -122.89                          |
| 3.25   | 73.94             | 3797.9          | 3781.2 | 3764.3 | 5.09               | 4.83  | 4.82  | 35.05    | -31.4           | -48.5 | -51.0 | 0.99               | 1.55             | -70.8                           | -97.0 | -119.2 | -139.1 | 177.0             | -124.26                          |
| 3.50   | 75.18             | 3817.0          | 3799.7 | 3782.5 | 5.00               | 5.08  | 4.65  | 35.11    | -32.7           | -50.6 | -47.0 | 0.74               | 1.77             | -69.9                           | -96.1 | -118.4 | -138.5 | 211.6             | -125.83                          |
| 3.75   | 73.42             | 3836.0          | 3818.5 | 3800.6 | 4.77               | 5.04  | 4.86  | 35.20    | -33.4           | -49.5 | -41.7 | 0.44               | 1.37             | -69.1                           | -95.9 | -117.9 | -138.2 | 302.4             | -129.15                          |
| 4.00   | 72.45             | 3854.7          | 3836.8 | 3819.0 | 4.84               | 4.76  | 4.91  | 35.31    | -33.3           | -52.1 | -38.7 | 0.10               | 1.32             | -69.1                           | -96.1 | -117.7 | -137.8 | 361.5             | -130.56                          |
| 4.25   | 70.95             | 3873.2          | 3854.9 | 3837.1 | 4.74               | 4.84  | 4.65  | 35.40    | -34.9           | -51.4 | -36.5 | 0.68               | 1.77             | -70.1                           | -95.4 | -116.9 | -137.6 | 507.5             | -133.62                          |
| 4.50   | 67.72             | 3891.0          | 3872.7 | 3854.6 | 4.89               | 4.74  | 4.64  | 35.47    | -36.4           | -49.7 | -35.0 | 1.35               | 2.08             | -67.8                           | -95.2 | -116.8 | -137.0 | 606.7             | -134.89                          |
| 4.75   | 66.72             | 3908.7          | 3889.6 | 3871.8 | 5.05               | 4.78  | 4.63  | 35.52    | -41.2           | -45.6 | -34.1 | 2.13               | 1.99             | -66.8                           | -93.7 | -116.4 | -136.4 | 851.6             | -137.98                          |
| 5.00   | 64.36             | 3925.7          | 3906.3 | 3888.2 | 4.91               | 4.96  | 4.56  | 35.53    | -39.9           | -47.3 | -35.1 | 3.02               | 1.95             | -66.3                           | -93.6 | -115.9 | -136.0 | 1000.0            | -139.91                          |

\*at 25°C unless mentioned otherwise

