

Coaxial

# Voltage Controlled Oscillator

## ZX95-2490+

Linear Tuning 2280 to 2490 MHz

### Features

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

### Applications

- R&D
- LAB
- Instrumentation
- Wireless communications
- Military & avionics



CASE STYLE: GB956

| Connectors | Model        | Price       | Qty.  |
|------------|--------------|-------------|-------|
| SMA        | ZX95-2490-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

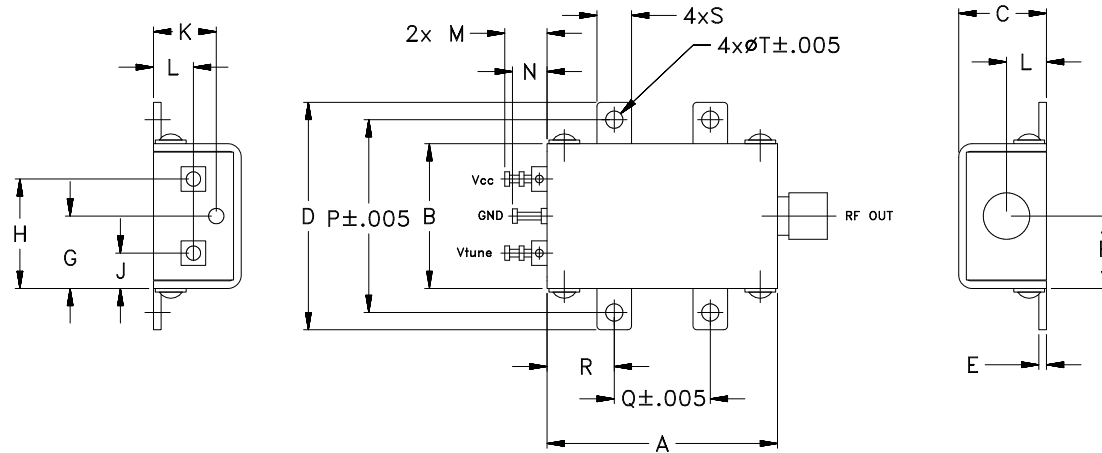
| MODEL NO.  | FREQ. (MHz) |      | POWER OUTPUT (dBm) | PHASE NOISE dBc/Hz SSB at offset frequencies, kHz |      |      |      | TUNING |                   |      |                     |          | NON HARMONIC SPURIOUS (dBc) | HARMONICS (dBc)                 |      | PULLING pk-pk @12 dB (MHz) | PUSHING (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.               | Max. | Typ. | Max. | Vcc (volts) | Current (mA) |
|            |             |      |                    |   |      |      |      |        | Min.              | Max. |                     |          |                             |                                 |      |                            |                 |                    |      |      |      |             |              |
| ZX95-2490+ | 2280        | 2490 | +8                 | -80   | -104 | -124 | -144 | 0.5    | 10                | 30   | -37                 | 22       | 140                         | -90                             | -20  | -11                        | 1               | 1                  | 5    | 38   |      |             |              |

### 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) | 12V            |
| 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  
M111586  
EDR-8365F2  
ZX95-2490+  
RAV  
090831  
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# Performance Data & Curves\*

# ZX95-2490+

| 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 2385 MHz (dBc/Hz) |
|--------|-------------------|-----------------|--------|--------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|----------------------------------|
|        |                   | -55°C           | +25°C  | +85°C  | -55°C              | +25°C | +85°C |          | F2              | F3    | F4    |                    |                  | 1kHz                            | 10kHz  | 100kHz | 1MHz   |                   |                                  |
| 0.00   | 32.97             | 2227.6          | 2218.2 | 2210.9 | 7.44               | 7.64  | 7.69  | 30.93    | -22.7           | -29.7 | -43.3 | 1.37               | 1.63             | -80.3                           | -103.4 | -123.9 | -143.8 | 1.0               | -80.04                           |
| 0.50   | 30.02             | 2243.7          | 2234.7 | 2227.5 | 7.46               | 7.64  | 7.75  | 30.98    | -23.7           | -31.3 | -39.1 | 1.42               | 0.97             | -82.2                           | -103.6 | -124.2 | -143.8 | 2.0               | -88.06                           |
| 1.00   | 30.15             | 2259.1          | 2249.7 | 2242.6 | 7.59               | 7.75  | 7.84  | 31.04    | -22.3           | -28.5 | -35.3 | 1.39               | 0.30             | -82.1                           | -103.8 | -124.4 | -144.2 | 3.5               | -93.59                           |
| 1.50   | 31.28             | 2274.2          | 2264.8 | 2257.4 | 7.62               | 7.83  | 7.93  | 31.07    | -21.4           | -30.1 | -36.9 | 1.42               | 0.72             | -81.5                           | -103.6 | -124.5 | -144.3 | 6.0               | -98.85                           |
| 2.00   | 32.55             | 2290.2          | 2280.4 | 2272.7 | 7.58               | 7.83  | 7.98  | 31.12    | -22.3           | -29.5 | -33.4 | 1.39               | 1.08             | -80.7                           | -103.7 | -124.6 | -144.2 | 8.5               | -102.03                          |
| 2.50   | 34.34             | 2306.6          | 2296.7 | 2288.7 | 7.67               | 7.88  | 7.99  | 31.17    | -22.3           | -30.3 | -34.6 | 1.37               | 1.21             | -80.1                           | -103.7 | -124.5 | -144.1 | 10.0              | -103.57                          |
| 3.00   | 35.17             | 2324.0          | 2313.8 | 2305.4 | 7.75               | 7.92  | 8.08  | 31.20    | -21.0           | -28.7 | -33.9 | 1.40               | 0.88             | -80.3                           | -104.0 | -124.7 | -144.4 | 20.8              | -110.64                          |
| 3.50   | 36.22             | 2342.1          | 2331.4 | 2322.9 | 7.83               | 8.04  | 8.13  | 31.25    | -20.6           | -29.2 | -31.8 | 1.31               | 0.43             | -81.0                           | -103.8 | -124.6 | -144.4 | 35.5              | -115.15                          |
| 4.00   | 36.73             | 2360.5          | 2349.5 | 2340.5 | 7.80               | 8.05  | 8.18  | 31.26    | -21.3           | -30.3 | -34.7 | 1.27               | 1.49             | -80.4                           | -103.8 | -124.5 | -144.4 | 60.7              | -119.88                          |
| 4.50   | 36.53             | 2379.1          | 2367.9 | 2358.6 | 7.81               | 8.08  | 8.21  | 31.29    | -21.0           | -30.1 | -34.6 | 1.20               | 1.66             | -80.5                           | -103.9 | -124.5 | -144.2 | 86.7              | -123.09                          |
| 5.00   | 36.25             | 2397.4          | 2386.2 | 2376.7 | 7.81               | 8.02  | 8.18  | 31.32    | -19.6           | -27.5 | -34.1 | 1.13               | 0.71             | -79.9                           | -103.4 | -124.4 | -144.1 | 100.0             | -124.36                          |
| 5.50   | 34.86             | 2415.8          | 2404.3 | 2394.4 | 7.87               | 8.01  | 8.11  | 31.42    | -19.4           | -28.7 | -35.8 | 1.00               | 0.93             | -79.8                           | -103.5 | -124.3 | -144.2 | 148.1             | -127.69                          |
| 6.00   | 33.94             | 2433.0          | 2421.7 | 2411.9 | 8.05               | 8.15  | 8.13  | 31.47    | -19.8           | -30.3 | -34.3 | 0.92               | 1.51             | -80.1                           | -103.5 | -124.5 | -144.3 | 177.0             | -129.37                          |
| 6.50   | 33.05             | 2450.3          | 2438.7 | 2428.7 | 8.32               | 8.36  | 8.30  | 31.53    | -20.1           | -29.7 | -35.1 | 0.85               | 1.53             | -79.8                           | -103.4 | -124.5 | -144.3 | 211.6             | -130.79                          |
| 7.00   | 32.48             | 2466.7          | 2455.2 | 2445.1 | 8.47               | 8.62  | 8.49  | 31.57    | -18.9           | -29.5 | -36.3 | 0.76               | 0.79             | -79.2                           | -103.4 | -124.4 | -144.2 | 302.4             | -134.04                          |
| 7.50   | 31.19             | 2482.9          | 2471.5 | 2461.0 | 8.51               | 8.66  | 8.63  | 31.62    | -19.3           | -31.3 | -33.0 | 0.72               | 0.80             | -78.5                           | -103.5 | -124.4 | -144.1 | 361.5             | -135.22                          |
| 8.00   | 30.27             | 2498.8          | 2487.1 | 2476.7 | 8.56               | 8.79  | 8.74  | 31.70    | -19.3           | -31.1 | -34.2 | 0.61               | 1.50             | -79.2                           | -103.2 | -124.4 | -144.2 | 507.5             | -138.36                          |
| 8.50   | 29.64             | 2513.8          | 2502.2 | 2491.8 | 8.89               | 8.89  | 8.82  | 31.78    | -19.0           | -30.1 | -31.6 | 0.54               | 1.73             | -78.5                           | -103.5 | -124.6 | -144.4 | 606.7             | -139.97                          |
| 9.00   | 29.18             | 2528.9          | 2517.0 | 2506.5 | 9.09               | 9.01  | 8.91  | 31.80    | -18.5           | -29.7 | -33.3 | 0.49               | 1.16             | -77.9                           | -103.4 | -124.5 | -144.6 | 851.6             | -142.92                          |
| 10.00  | 28.61             | 2557.9          | 2545.9 | 2534.9 | 9.47               | 9.37  | 9.26  | 31.81    | -18.9           | -30.3 | -32.0 | 0.40               | 0.95             | -78.8                           | -103.0 | -124.0 | -144.1 | 1000.0            | -144.12                          |

\*at 25°C unless mentioned otherwise

