*2X Fundamental*

# Voltage Controlled Oscillator ZX95-5490C+

## Frequency Doubling 5340 to 5490 MHz

### Features

- Frequency based on multiplication of carrier frequency
- Low phase noise
- Low pushing
- Low pulling
- 5V tuning voltage range
- Protected by US patent 6,790,049

### Applications

- R&D
- LAB
- Instrumentation
- Wireless communications
- Point-to-point system

CASE STYLE: GB956

| Connectors | Model | Price | Qty. |
|---|---|---|---|
| **SMA** | ZX95-5490C-S+ | $ 54.95 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

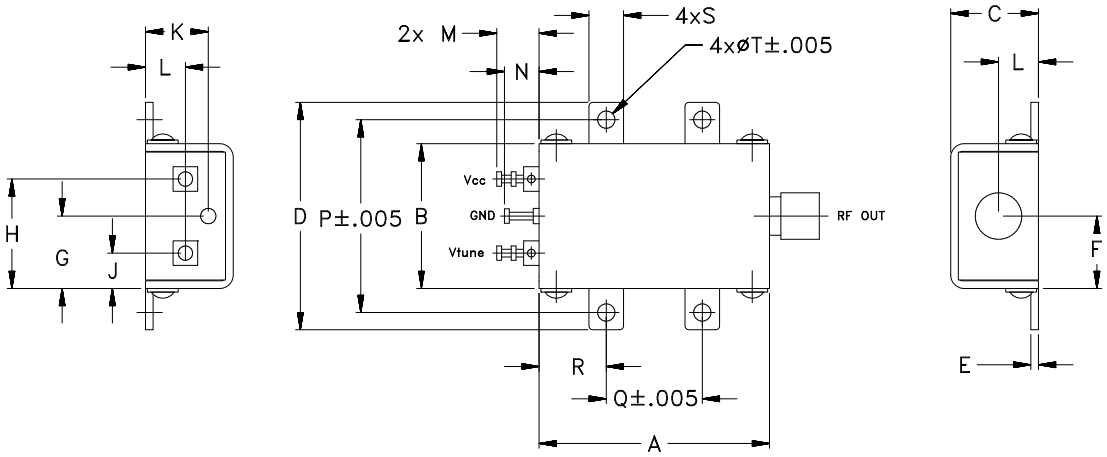
| MODEL NO. | FREQ. (MHz) F 2X(1/2F) | | POWER OUTPUT (dBm) | PHASE NOISE dBc/Hz SSB at offset frequencies,kHz | | | | TUNING | | | | | NON HARMONIC SPURIOUS (dBc) | HARMONICS (dBc) | | | PULLING pk-pk @12 dBr (MHz) | PUSHING (MHz/V) | DC OPERATING POWER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | VOLTAGE RANGE (V) | | SENSI-TIVITY (MHz/V) | PORT CAP (pF) | 3 dB MODULATION BANDWIDTH (MHz) | | | | | | | Vcc (volts) | Current (mA) |
| | Min. | Max. | Typ. | 1 | 10 | 100 | 1000 | Min. | Max. | Typ. | Typ. | Typ. | Typ. | F0.5 | F1.5 | F2 | Typ. | Typ. | | Max. |
| ZX95-5490C+ | 5340 | 5490 | +0.5 | -74 | -102 | -122 | -142 | 0.5 | 5 | 58 - 76 | 15 | 150 | -90 | -15 | -15 | -15 | 0.5 | 1.5 | 5 | 35 |

### 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 |

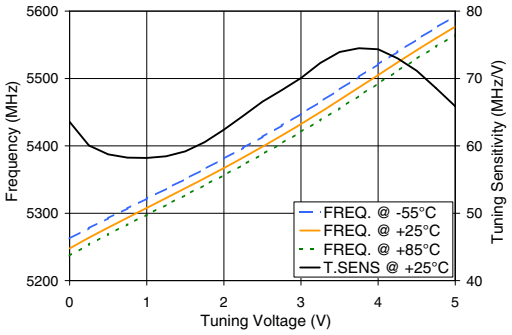
# Performance Data & Curves*

# ZX95-5490C+

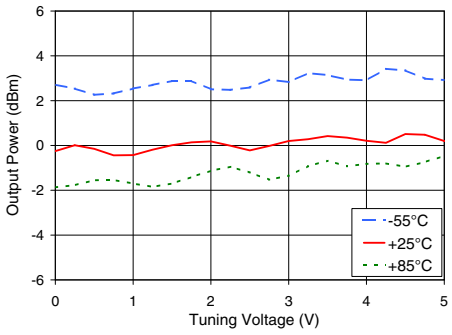
| V TUNE | TUNE SENS (MHz/V) | FREQUENCY (MHz) | | | POWER OUTPUT (dBm) | | | Icc (mA) | HARMONICS (dBc) | | | FREQ. PUSH (MHz/V) | FREQ. PULL (MHz) | PHASE NOISE (dBc/Hz) at offsets | | | | FREQ OFFSET (KHz) | PHASE NOISE at 5415 MHz (dBc/Hz) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | -55°C | +25°C | +85°C | -55°C | +25°C | +85°C | | F0.5 | F1.5 | F2 | | | 1kHz | 10kHz | 100kHz | 1MHz | | |
| 0.00 | 63.57 | 5262.5 | 5247.8 | 5237.0 | 2.71 | -0.25 | -1.87 | 25.96 | -28.0 | -43.5 | -26.6 | 0.92 | 0.37 | -76.2 | -102.9 | -123.9 | -141.3 | 1.0 | -74.20 |
| 0.25 | 60.06 | 5277.8 | 5263.7 | 5253.5 | 2.54 | 0.01 | -1.77 | 26.02 | -27.3 | -46.2 | -26.1 | 1.04 | 0.70 | -75.5 | -103.2 | -124.3 | -141.4 | 2.0 | -84.01 |
| 0.50 | 58.74 | 5292.6 | 5278.7 | 5268.7 | 2.26 | -0.15 | -1.55 | 26.05 | -27.4 | -40.9 | -26.5 | 1.12 | 0.72 | -74.2 | -103.5 | -124.4 | -142.4 | 3.5 | -90.49 |
| 0.75 | 58.26 | 5307.2 | 5293.4 | 5283.4 | 2.32 | -0.44 | -1.54 | 26.09 | -27.6 | -37.9 | -26.2 | 1.18 | 0.45 | -75.6 | -102.2 | -124.4 | -142.5 | 6.0 | -98.31 |
| 1.00 | 58.21 | 5321.7 | 5307.9 | 5297.8 | 2.54 | -0.43 | -1.70 | 26.12 | -27.6 | -38.7 | -26.6 | 1.23 | 0.09 | -74.5 | -103.5 | -124.2 | -142.0 | 8.5 | -101.20 |
| 1.25 | 58.45 | 5336.2 | 5322.5 | 5312.3 | 2.70 | -0.19 | -1.85 | 26.15 | -27.3 | -38.6 | -26.2 | 1.28 | 0.37 | -76.5 | -102.7 | -124.6 | -141.7 | 10.0 | -102.96 |
| 1.50 | 59.18 | 5350.8 | 5337.1 | 5326.9 | 2.88 | 0.01 | -1.70 | 26.20 | -26.9 | -36.3 | -26.2 | 1.31 | 0.66 | -74.7 | -102.7 | -123.7 | -141.9 | 20.8 | -109.39 |
| 1.75 | 60.54 | 5365.7 | 5351.9 | 5341.6 | 2.88 | 0.14 | -1.41 | 26.23 | -26.7 | -34.7 | -26.3 | 1.34 | 0.73 | -75.0 | -103.2 | -124.7 | -143.1 | 35.5 | -112.94 |
| 2.00 | 62.40 | 5381.1 | 5367.0 | 5356.5 | 2.51 | 0.18 | -1.13 | 26.27 | -26.5 | -34.9 | -26.3 | 1.37 | 0.60 | -74.8 | -102.3 | -122.9 | -142.4 | 60.7 | -115.54 |
| 2.25 | 64.45 | 5397.0 | 5382.6 | 5371.8 | 2.48 | -0.01 | -0.95 | 26.29 | -26.1 | -34.0 | -25.9 | 1.42 | 0.20 | -73.3 | -103.1 | -124.0 | -141.4 | 86.7 | -120.28 |
| 2.50 | 66.55 | 5413.4 | 5398.7 | 5387.6 | 2.59 | -0.22 | -1.21 | 26.33 | -26.3 | -33.3 | -27.0 | 1.48 | 0.29 | -74.3 | -102.1 | -123.6 | -141.5 | 100.0 | -121.57 |
| 2.75 | 68.27 | 5430.2 | 5415.4 | 5403.9 | 2.94 | -0.02 | -1.53 | 26.36 | -26.6 | -32.5 | -26.6 | 1.53 | 0.65 | -74.1 | -102.7 | -122.0 | -143.4 | 148.1 | -125.36 |
| 3.00 | 70.07 | 5447.5 | 5432.4 | 5420.8 | 2.83 | 0.20 | -1.35 | 26.40 | -26.6 | -32.6 | -26.8 | 1.54 | 0.67 | -75.3 | -102.1 | -123.5 | -141.7 | 177.0 | -127.78 |
| 3.25 | 72.30 | 5465.4 | 5450.0 | 5438.1 | 3.23 | 0.28 | -0.92 | 26.44 | -26.5 | -32.2 | -26.9 | 1.53 | 0.25 | -73.7 | -101.9 | -122.9 | -142.9 | 211.6 | -128.79 |
| 3.50 | 73.93 | 5483.7 | 5468.0 | 5455.8 | 3.14 | 0.42 | -0.68 | 26.47 | -26.0 | -31.5 | -24.8 | 1.46 | 0.21 | -74.1 | -101.3 | -122.2 | -142.0 | 302.4 | -131.92 |
| 3.75 | 74.49 | 5502.4 | 5486.5 | 5474.1 | 2.94 | 0.35 | -0.93 | 26.51 | -25.7 | -31.3 | -25.6 | 1.31 | 0.58 | -73.9 | -101.1 | -122.3 | -142.8 | 361.5 | -134.36 |
| 4.00 | 74.34 | 5521.1 | 5505.1 | 5492.6 | 2.91 | 0.21 | -0.82 | 26.54 | -26.3 | -31.5 | -26.4 | 1.02 | 0.64 | -73.7 | -100.9 | -122.5 | -141.3 | 507.5 | -138.28 |
| 4.25 | 73.00 | 5539.6 | 5523.7 | 5511.1 | 3.42 | 0.12 | -0.80 | 26.58 | -26.7 | -32.6 | -25.2 | 0.64 | 0.42 | -72.2 | -100.1 | -121.5 | -141.2 | 606.7 | -139.40 |
| 4.50 | 71.14 | 5557.8 | 5542.0 | 5529.5 | 3.35 | 0.51 | -0.95 | 26.61 | -26.7 | -33.3 | -26.7 | 0.21 | 0.13 | -71.9 | -99.3 | -120.9 | -140.6 | 851.6 | -141.57 |
| 5.00 | 65.87 | 5592.6 | 5576.9 | 5564.5 | 2.92 | 0.20 | -0.47 | 26.67 | -25.4 | -32.5 | -25.5 | 0.50 | 0.62 | -70.2 | -99.1 | -120.4 | -140.1 | 1000.0 | -142.95 |

*at 25°C unless mentioned otherwise

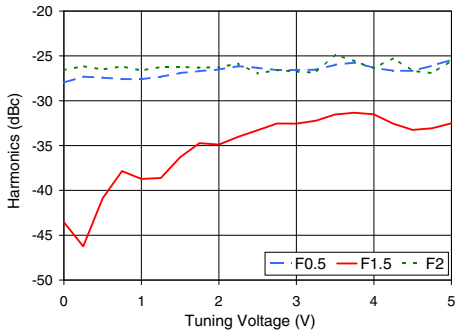
ZX95-5490C+
Frequency and Tuning Sensitivity



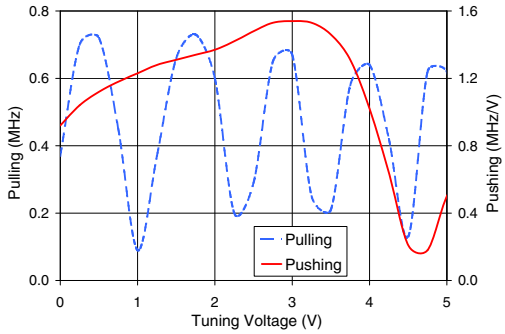

ZX95-5490C+
Power Output



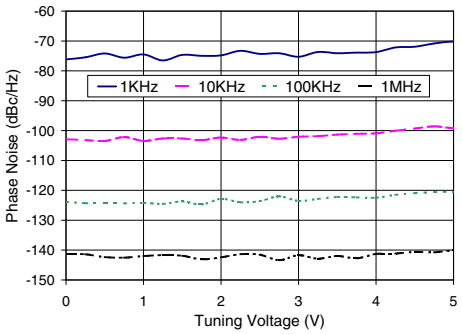

ZX95-5490C+
Harmonics Level




ZX95-5490+
Frequency Pulling & Pushing (Vcc ± 5%)




ZX95-5490C+
Phase Noise Vs. Tuning Voltage




ZX95-5490C+
Phase Noise