

Coaxial

# Voltage Controlled Oscillator

ZX95-505+

5V Tuning for PLL IC's 470 to 505 MHz

## Features

- linear tuning characteristics
- low phase noise
- low pushing
- low pulling
- 0.5-5V tuning voltage range
- protected by US patent 6,790,049

## Applications

- r & d
- lab
- instrumentation
- PLL circuitry
- wireless microphones



CASE STYLE: GB956

| Connectors | Model       | Price       | Qty.  |
|------------|-------------|-------------|-------|
| SMA        | ZX95-505-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

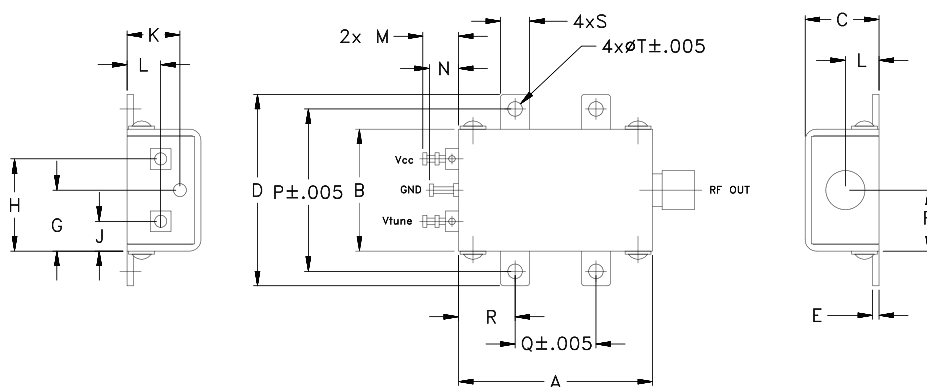
| MODEL NO. | FREQ. (MHz) |      | POWER OUTPUT (dBm) | PHASE NOISE dBc/Hz SSB at offset frequencies,KHz<br><br>Typ. |      |      |      | TUNING            |                       |               |                                 |      | NON HARMONIC SPURIOUS (dBc) | HARMONICS (dBc) |      | PULLING pk-pk @12 dB (MHz) | PUSHING (MHz/V) | DC OPERATING POWER<br><br>Vcc Current (volts) (mA) |    |
|-----------|-------------|------|--------------------|--------------------------------------------------------------|------|------|------|-------------------|-----------------------|---------------|---------------------------------|------|-----------------------------|-----------------|------|----------------------------|-----------------|----------------------------------------------------|----|
|           |             |      |                    |                                                              |      |      |      | VOLTAGE RANGE (V) | SENSI- TIVITY (MHz/V) | PORT CAP (pF) | 3 dB MODULATION BANDWIDTH (MHz) |      |                             |                 |      |                            |                 |                                                    |    |
|           | Min.        | Max. | Typ.               | 1                                                            | 10   | 100  | 1000 | Min.              | Max.                  | Typ.          | Typ.                            | Typ. | Typ.                        | Typ.            | Max. | Typ.                       | Typ.            | Max.                                               |    |
| ZX95-505+ | 470         | 505  | +0.5               | -89                                                          | -114 | -135 | -154 | 0.5               | 5                     | 11-13         | 70                              | 80   | -90                         | -21             | -13  | 0.2                        | 0.3             | 5                                                  | 17 |

## 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  |

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REV. OR  
M108877  
EDR-7747/5  
ZX95-505+  
RAV  
120830  
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# Performance Data & Curves\*

# ZX95-505+

| V<br>TUNE | TUNE<br>SENS<br>(MHz/V) | FREQUENCY<br>(MHz) |       |       | POWER OUTPUT<br>(dBm) |       |       | Icc<br>(mA) | HARMONICS (dBc) |       |       | FREQ.<br>PUSH<br>(MHz/V) | FREQ.<br>PULL<br>(MHz) | PHASE NOISE (dBc/Hz)<br>at offsets |        |        |        | FREQ<br>OFFSET<br>(KHz) | PHASE<br>NOISE at<br>488 MHz<br>(dBc/Hz) |
|-----------|-------------------------|--------------------|-------|-------|-----------------------|-------|-------|-------------|-----------------|-------|-------|--------------------------|------------------------|------------------------------------|--------|--------|--------|-------------------------|------------------------------------------|
|           |                         | -55°C              | +25°C | +85°C | -55°C                 | +25°C | +85°C |             | F2              | F3    | F4    |                          |                        | 1kHz                               | 10kHz  | 100kHz | 1MHz   |                         |                                          |
| 0.00      | 12.51                   | 459.0              | 456.2 | 453.6 | -0.52                 | 0.26  | 0.54  | 11.80       | -20.4           | -33.2 | -36.0 | 0.02                     | 0.26                   | -92.8                              | -115.3 | -135.3 | -153.5 | 1.0                     | -90.92                                   |
| 0.50      | 10.63                   | 464.7              | 462.1 | 459.7 | -0.43                 | 0.34  | 0.61  | 11.84       | -20.5           | -33.0 | -36.0 | 0.13                     | 0.23                   | -92.4                              | -115.5 | -135.4 | -153.0 | 2.0                     | -97.00                                   |
| 0.75      | 10.30                   | 467.4              | 464.8 | 462.4 | -0.39                 | 0.37  | 0.64  | 11.85       | -20.6           | -32.9 | -36.0 | 0.17                     | 0.21                   | -93.0                              | -114.8 | -135.1 | -152.5 | 3.5                     | -104.67                                  |
| 1.00      | 10.20                   | 470.0              | 467.4 | 465.0 | -0.36                 | 0.40  | 0.67  | 11.87       | -20.7           | -32.8 | -36.0 | 0.20                     | 0.20                   | -92.3                              | -114.6 | -135.6 | -152.1 | 6.0                     | -110.09                                  |
| 1.25      | 10.30                   | 472.5              | 469.9 | 467.5 | -0.32                 | 0.43  | 0.69  | 11.88       | -20.8           | -32.7 | -36.1 | 0.22                     | 0.19                   | -93.2                              | -114.7 | -135.3 | -154.2 | 8.5                     | -112.12                                  |
| 1.50      | 10.55                   | 475.2              | 472.5 | 470.1 | -0.28                 | 0.46  | 0.71  | 11.90       | -20.8           | -32.5 | -36.3 | 0.25                     | 0.18                   | -91.7                              | -114.5 | -135.2 | -151.5 | 10.0                    | -113.64                                  |
| 1.75      | 10.94                   | 477.9              | 475.1 | 472.7 | -0.24                 | 0.49  | 0.74  | 11.91       | -20.8           | -32.4 | -36.4 | 0.28                     | 0.19                   | -91.2                              | -114.3 | -134.7 | -152.9 | 20.8                    | -120.27                                  |
| 2.00      | 11.40                   | 480.7              | 477.9 | 475.4 | -0.20                 | 0.51  | 0.75  | 11.93       | -20.8           | -32.3 | -36.8 | 0.29                     | 0.20                   | -90.3                              | -114.2 | -134.7 | -150.5 | 35.5                    | -125.80                                  |
| 2.25      | 11.89                   | 483.6              | 480.7 | 478.1 | -0.17                 | 0.53  | 0.77  | 11.94       | -20.9           | -32.0 | -37.0 | 0.30                     | 0.21                   | -89.5                              | -114.3 | -134.8 | -153.8 | 60.7                    | -130.43                                  |
| 2.50      | 12.32                   | 486.7              | 483.7 | 481.1 | -0.14                 | 0.55  | 0.79  | 11.95       | -21.0           | -31.6 | -37.2 | 0.29                     | 0.22                   | -89.2                              | -113.7 | -135.0 | -153.5 | 86.7                    | -133.14                                  |
| 2.75      | 12.65                   | 489.9              | 486.8 | 484.1 | -0.11                 | 0.56  | 0.79  | 11.95       | -21.1           | -31.2 | -37.7 | 0.24                     | 0.23                   | -89.9                              | -113.7 | -134.6 | -154.8 | 100.0                   | -134.63                                  |
| 3.00      | 12.83                   | 493.1              | 489.9 | 487.2 | -0.10                 | 0.57  | 0.79  | 11.96       | -21.3           | -31.1 | -38.3 | 0.17                     | 0.23                   | -89.5                              | -113.3 | -134.5 | -152.0 | 148.1                   | -138.31                                  |
| 3.25      | 12.85                   | 496.3              | 493.1 | 490.4 | -0.09                 | 0.57  | 0.78  | 11.96       | -21.3           | -30.9 | -38.9 | 0.08                     | 0.23                   | -88.5                              | -113.7 | -134.7 | -152.3 | 177.0                   | -139.53                                  |
| 3.50      | 12.73                   | 499.6              | 496.3 | 493.6 | -0.10                 | 0.56  | 0.76  | 11.95       | -21.2           | -30.6 | -39.4 | 0.03                     | 0.22                   | -87.9                              | -113.9 | -134.2 | -153.1 | 211.6                   | -141.52                                  |
| 3.75      | 12.49                   | 502.8              | 499.5 | 496.8 | -0.12                 | 0.53  | 0.72  | 11.95       | -21.2           | -30.2 | -39.9 | 0.13                     | 0.23                   | -86.7                              | -113.8 | -134.3 | -151.9 | 302.4                   | -143.72                                  |
| 4.00      | 12.13                   | 505.9              | 502.6 | 499.9 | -0.15                 | 0.49  | 0.68  | 11.94       | -21.2           | -30.0 | -40.2 | 0.22                     | 0.25                   | -86.1                              | -113.3 | -134.0 | -152.6 | 361.5                   | -145.79                                  |
| 4.25      | 11.71                   | 508.9              | 505.7 | 502.9 | -0.20                 | 0.44  | 0.62  | 11.93       | -21.4           | -30.1 | -40.5 | 0.28                     | 0.26                   | -87.3                              | -113.1 | -133.5 | -151.0 | 507.5                   | -148.70                                  |
| 4.50      | 11.22                   | 511.8              | 508.6 | 505.9 | -0.26                 | 0.38  | 0.57  | 11.92       | -21.6           | -30.0 | -40.4 | 0.31                     | 0.26                   | -88.3                              | -111.7 | -133.7 | -151.4 | 606.7                   | -150.28                                  |
| 4.75      | 10.69                   | 514.6              | 511.4 | 508.7 | -0.33                 | 0.32  | 0.51  | 11.91       | -21.7           | -29.9 | -40.6 | 0.32                     | 0.27                   | -88.4                              | -111.8 | -133.4 | -152.3 | 851.6                   | -151.83                                  |
| 5.00      | 10.15                   | 517.3              | 514.1 | 511.4 | -0.40                 | 0.26  | 0.45  | 11.91       | -21.7           | -29.9 | -40.2 | 0.31                     | 0.27                   | -89.7                              | -112.2 | -133.5 | -151.6 | 1000.0                  | -151.75                                  |

\*at 25°C unless mentioned otherwise

