

Coaxial

# Voltage Controlled Oscillator

## ZX95-6640C-S+

Frequency Doubling 6520 to 6640 MHz

### Features

- frequency based on multiplication of carrier frequency
- low phase noise
- low pushing
- low pulling
- protected by US patent 6,790,049

### Applications

- r & d
- lab
- instrumentation
- wireless communications
- wireless broadband access



Generic photo used for illustration purposes only  
CASE STYLE: GB956

| Connectors | Model         |
|------------|---------------|
| SMA        | ZX95-6640C-S+ |

**+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 |      |
|---------------|-------------|------|--------------------|---|------|------|------|-------------------|---------------------|---------------|---------------------------------|------|-----------------------------|-----------------|-------------|--------------|----------------------------|-----------------|--------------------|------|
|               | F 2X(1/2F)  |      |                    | Typ.  |      |      |      | VOLTAGE RANGE (V) | SENSITIVITY (MHz/V) | PORT CAP (pF) | 3 dB MODULATION BANDWIDTH (MHz) | Max. |                             |                 | Vcc (volts) | Current (mA) |                            |                 |                    |      |
|               | Min.        | Max. |                    | 1   | 10   | 100  | 1000 |                   |                     |               |                                 | Min. |                             | Max.            |             |              |                            |                 | Typ.               | Typ. |
| ZX95-6640C-S+ | 6520        | 6640 | +1                 | -72   | -100 | -121 | -141 | 0.5               | 5                   | 90-107        | 14                              | 150  | -90                         | -12             | -12         | -15          | 1.5                        | 3               | 5                  | 38   |

### Maximum Ratings

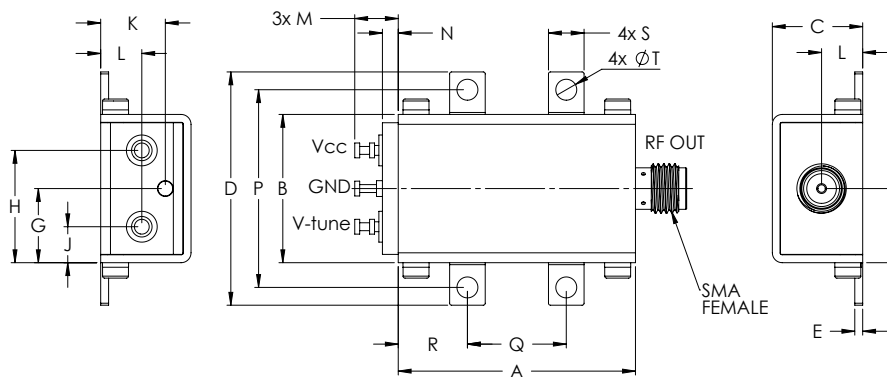
|                                      |                |
|--------------------------------------|----------------|
| Operating Temperature                | -55°C to 85°C  |
| Storage Temperature                  | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc)   | 7V             |
| Absolute Max. Tuning Voltage (Vtune) | 7V             |
| All specifications                   | 50 ohm system  |

Permanent damage may occur if any of these limits are exceeded.



NOTE: When soldering the DC connections, caution must be used to avoid overheating the DC terminals. See Application Note [AN-40-10](#).

### 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  | .08  | 1.00  | .50   | .35  | .18  | .106 | grams |
| 30.48 | 19.15 | 11.61 | 30.07 | 1.02 | 9.53 | 9.53 | 14.43 | 4.62 | 8.31 | 5.28 | 5.59 | 2.03 | 25.40 | 12.70 | 8.89 | 4.57 | 2.69 | 35.0  |

#### Notes

- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
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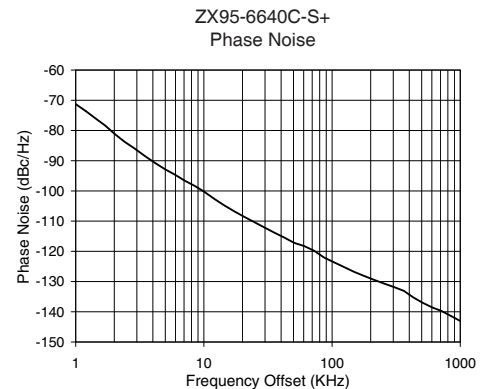
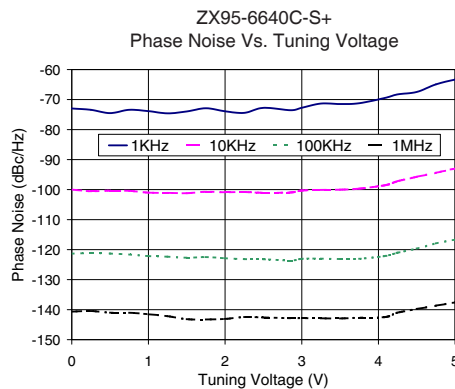
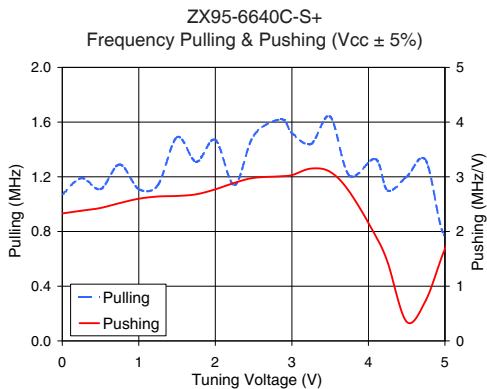
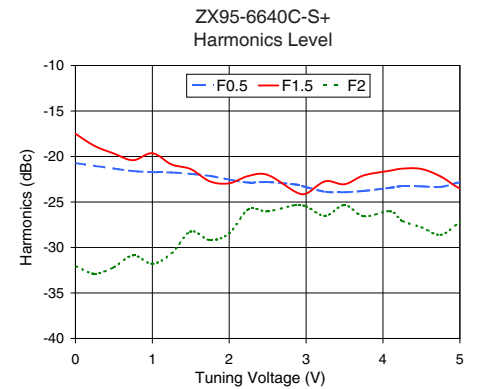
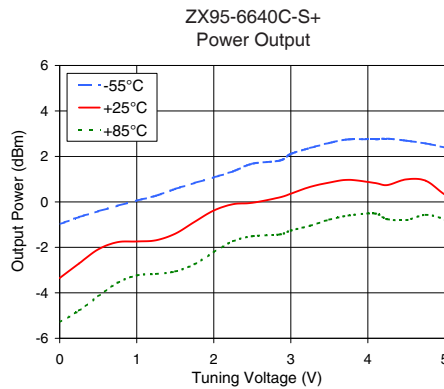
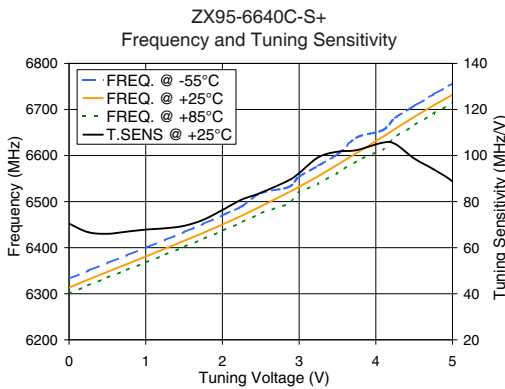
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ZX95-6640C-S+  
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## Performance Data & Curves\*

## ZX95-6640C-S+

| 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 6580 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   | 70.42             | 6332.8          | 6313.2 | 6299.9 | -0.98              | -3.35 | -5.29 | 25.10    | -20.7           | -17.5 | -32.1 | 2.33               | 1.07             | -73.0                           | -100.0 | -121.3 | -140.7 | 1.0               | -71.26                           |
| 0.25   | 66.72             | 6350.0          | 6330.8 | 6318.2 | -0.67              | -2.71 | -4.78 | 25.22    | -21.0           | -18.8 | -32.9 | 2.38               | 1.19             | -73.4                           | -100.5 | -121.2 | -140.5 | 2.0               | -81.05                           |
| 0.50   | 66.03             | 6366.6          | 6347.5 | 6335.1 | -0.41              | -2.09 | -4.15 | 25.33    | -21.3           | -19.7 | -32.2 | 2.43               | 1.11             | -74.5                           | -100.3 | -121.3 | -141.0 | 3.5               | -88.59                           |
| 0.75   | 66.95             | 6383.2          | 6364.0 | 6351.5 | -0.17              | -1.77 | -3.56 | 25.43    | -21.6           | -20.4 | -30.9 | 2.52               | 1.29             | -73.4                           | -100.4 | -121.6 | -141.0 | 6.0               | -94.71                           |
| 1.00   | 67.84             | 6399.8          | 6380.8 | 6367.9 | 0.06               | -1.74 | -3.23 | 25.52    | -21.7           | -19.6 | -31.8 | 2.60               | 1.11             | -73.9                           | -101.0 | -122.1 | -141.5 | 8.5               | -98.37                           |
| 1.25   | 68.41             | 6416.6          | 6397.7 | 6384.6 | 0.27               | -1.69 | -3.17 | 25.62    | -21.8           | -20.9 | -30.6 | 2.64               | 1.14             | -74.6                           | -101.1 | -122.4 | -142.2 | 10.0              | -100.19                          |
| 1.50   | 69.46             | 6433.9          | 6414.8 | 6401.6 | 0.57               | -1.40 | -3.06 | 25.73    | -21.9           | -21.4 | -28.3 | 2.65               | 1.49             | -74.0                           | -101.2 | -122.7 | -143.2 | 20.8              | -108.64                          |
| 1.75   | 72.08             | 6451.8          | 6432.2 | 6418.9 | 0.83               | -0.88 | -2.74 | 25.85    | -22.1           | -22.7 | -29.2 | 2.68               | 1.31             | -72.9                           | -100.7 | -122.5 | -143.3 | 35.5              | -113.82                          |
| 2.00   | 76.37             | 6470.3          | 6450.2 | 6436.6 | 1.08               | -0.38 | -2.21 | 25.96    | -22.5           | -23.0 | -28.4 | 2.77               | 1.47             | -73.9                           | -100.9 | -122.9 | -143.1 | 60.7              | -118.26                          |
| 2.25   | 80.86             | 6489.7          | 6469.3 | 6455.0 | 1.34               | -0.10 | -1.73 | 26.06    | -22.9           | -22.1 | -25.8 | 2.89               | 1.14             | -74.4                           | -100.8 | -123.2 | -142.5 | 86.7              | -122.05                          |
| 2.50   | 83.83             | 6518.6          | 6489.5 | 6474.6 | 1.68               | -0.04 | -1.51 | 26.17    | -22.8           | -22.0 | -26.0 | 2.98               | 1.50             | -72.8                           | -101.1 | -123.2 | -142.6 | 100.0             | -123.33                          |
| 2.86   | 89.18             | 6531.4          | 6520.0 | 6495.3 | 1.82               | 0.20  | -1.43 | 26.38    | -23.1           | -23.9 | -25.3 | 3.01               | 1.62             | -73.5                           | -100.9 | -123.6 | -142.9 | 148.1             | -126.76                          |
| 3.00   | 92.37             | 6554.0          | 6532.1 | 6520.3 | 2.11               | 0.36  | -1.26 | 26.46    | -23.4           | -24.1 | -25.5 | 3.03               | 1.52             | -72.7                           | -100.3 | -123.1 | -142.8 | 177.0             | -128.12                          |
| 3.25   | 99.26             | 6577.8          | 6555.2 | 6539.1 | 2.37               | 0.66  | -1.05 | 26.57    | -23.9           | -22.7 | -26.5 | 3.15               | 1.44             | -71.3                           | -100.1 | -123.0 | -142.9 | 211.6             | -129.39                          |
| 3.50   | 101.67            | 6602.8          | 6580.0 | 6562.9 | 2.59               | 0.85  | -0.78 | 26.69    | -23.9           | -23.1 | -25.3 | 3.09               | 1.64             | -71.5                           | -100.0 | -123.1 | -142.9 | 302.4             | -131.79                          |
| 3.75   | 102.35            | 6639.2          | 6605.5 | 6588.2 | 2.75               | 0.97  | -0.60 | 26.86    | -23.8           | -22.1 | -26.6 | 2.73               | 1.21             | -71.2                           | -99.7  | -123.0 | -142.7 | 361.5             | -133.04                          |
| 4.09   | 105.59            | 6655.0          | 6640.6 | 6613.7 | 2.75               | 0.83  | -0.51 | 27.04    | -23.5           | -21.6 | -26.0 | 1.93               | 1.33             | -69.4                           | -98.5  | -122.1 | -142.5 | 507.5             | -137.01                          |
| 4.25   | 105.07            | 6681.6          | 6657.5 | 6640.4 | 2.78               | 0.74  | -0.76 | 27.10    | -23.3           | -21.3 | -27.1 | 1.44               | 1.10             | -68.3                           | -97.2  | -121.0 | -141.0 | 606.7             | -138.60                          |
| 4.50   | 98.73             | 6707.6          | 6683.8 | 6665.5 | 2.69               | 0.99  | -0.80 | 27.24    | -23.3           | -21.4 | -27.8 | 0.35               | 1.20             | -67.5                           | -95.7  | -119.7 | -139.8 | 851.6             | -141.44                          |
| 5.00   | 88.73             | 6756.0          | 6732.0 | 6714.2 | 2.39               | 0.32  | -0.79 | 27.47    | -22.8           | -23.5 | -27.2 | 1.68               | 0.77             | -63.3                           | -93.0  | -116.7 | -137.6 | 1000.0            | -143.06                          |

\*at 25°C unless mentioned otherwise



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