

Coaxial

# Voltage Controlled Oscillator

## ZX95-43-S+

5V Tuning for PLL ICs 43 MHz

### Features

- linear tuning characteristics
- very low phase noise
- very low pulling
- low pushing
- protected by US patent 6,790,049

### Applications

- R&D
- lab
- instrumentation
- cellular infrastructure



Generic photo used for illustration purposes only  
CASE STYLE: GB956

| Connectors | Model      |
|------------|------------|
| SMA        | ZX95-43-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 |      |      |      |             |              |
|------------|-------------|------|--------------------|---|------|------|------|--------|-------------------|------|-----------------------|---------------|-----------------------------|---------------------------------|------|-----------------------------|-----------------|--------------------|------|------|------|-------------|--------------|
|            | Min.        | Max. |                    | Typ.  | 1    | 10   | 100  | 1000   | VOLTAGE RANGE (V) |      | SENSI- TIVITY (MHz/V) | PORT CAP (pF) |                             | 3 dB MODULATION BANDWIDTH (MHz) | Typ. |                             |                 | Typ.               | Max. | Typ. | Typ. | Vcc (volts) | Current (mA) |
|            |             |      |                    |   |      |      |      |        | Min.              | Max. |                       |               |                             |                                 |      |                             |                 |                    |      |      |      |             |              |
| ZX95-43-S+ | 43          |      | +2                 | -105  | -130 | -150 | -170 | 0.5    | 4.75              | 1    | 330                   | 3             | -90                         | -18                             | -10  | 0.002                       | 0.1             | 5                  | 30   |      |      |             |              |

### Maximum Ratings

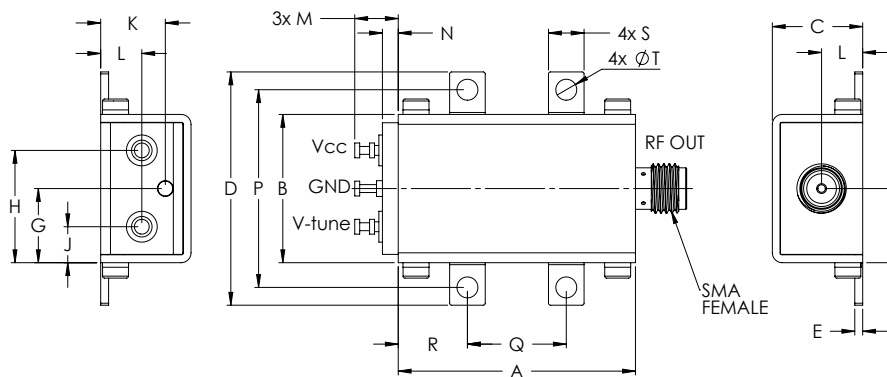
|                                      |                |
|--------------------------------------|----------------|
| Operating Temperature                | -55°C to 85°C  |
| Storage Temperature                  | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc)   | 7V             |
| Absolute 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

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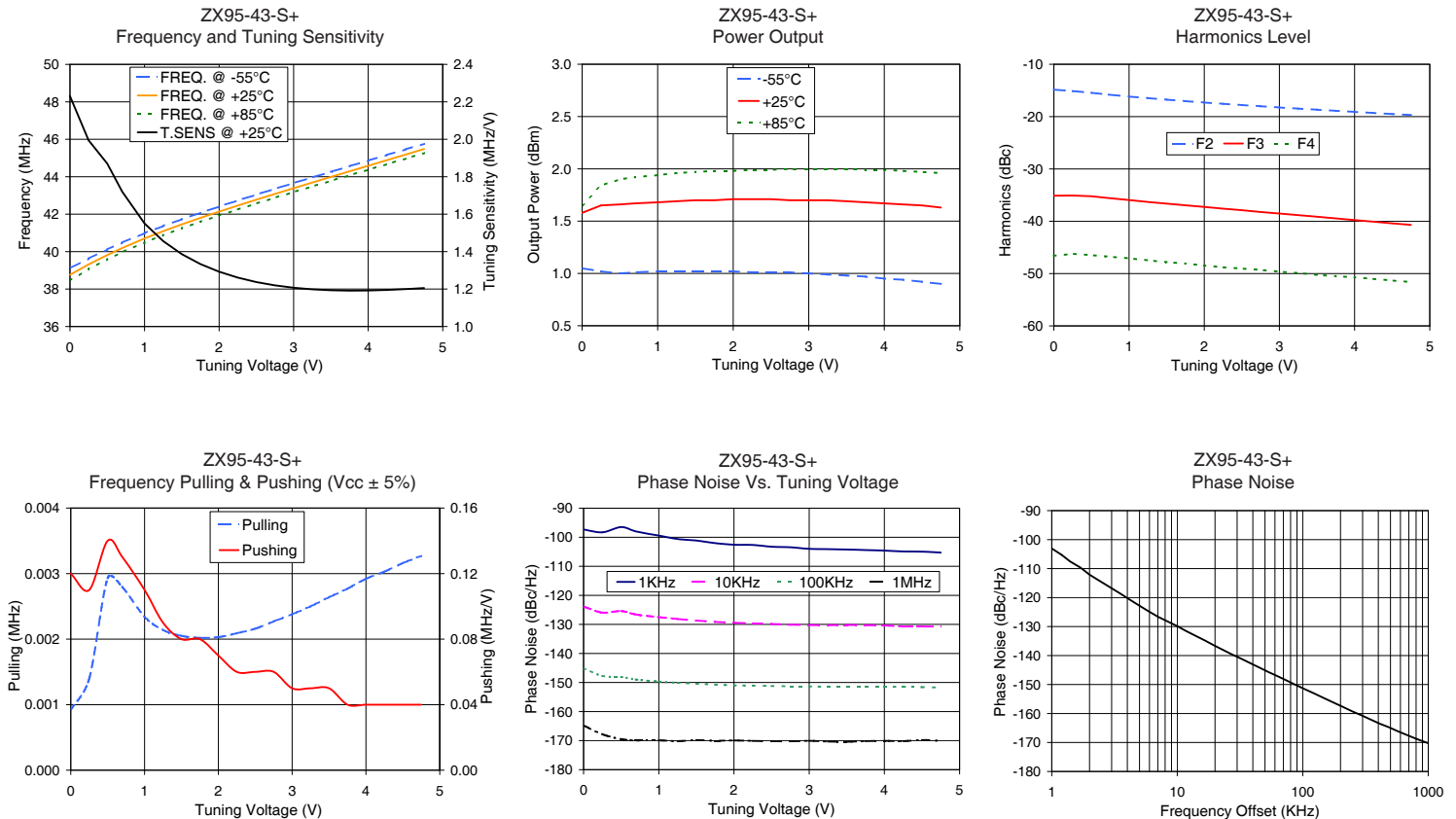


## Performance Data & Curves\*

## ZX95-43-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 43 MHz (dBc/Hz) |
|--------|-------------------|-----------------|-------|-------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|--------------------------------|
|        |                   | -55°C           | +25°C | +85°C | -55°C              | +25°C | +85°C |          | F2              | F3    | F4    |                    |                  | 1kHz                            | 10kHz  | 100kHz | 1MHz   |                   |                                |
| 0.00   | 2.23              | 39.1            | 38.8  | 38.5  | 1.05               | 1.58  | 1.65  | 22.27    | -14.9           | -35.1 | -46.6 | 0.12               | 0.001            | -97.3                           | -123.9 | -145.2 | -164.8 | 1.0               | -103.06                        |
| 0.25   | 1.99              | 39.6            | 39.3  | 39.1  | 1.02               | 1.65  | 1.84  | 22.19    | -15.1           | -35.1 | -46.2 | 0.11               | 0.001            | -98.3                           | -125.9 | -147.8 | -167.8 | 2.0               | -112.09                        |
| 0.50   | 1.87              | 40.1            | 39.8  | 39.6  | 1.00               | 1.66  | 1.90  | 22.09    | -15.4           | -35.2 | -46.5 | 0.14               | 0.003            | -96.5                           | -125.4 | -148.1 | -169.5 | 3.5               | -118.58                        |
| 0.70   | 1.72              | 40.5            | 40.2  | 40.0  | 1.01               | 1.67  | 1.92  | 22.07    | -15.8           | -35.5 | -46.7 | 0.13               | 0.003            | -98.0                           | -126.6 | -149.0 | -170.0 | 6.0               | -124.92                        |
| 1.00   | 1.55              | 41.0            | 40.7  | 40.5  | 1.02               | 1.68  | 1.94  | 22.05    | -16.2           | -35.9 | -47.1 | 0.11               | 0.002            | -99.4                           | -127.5 | -149.7 | -169.9 | 8.4               | -128.26                        |
| 1.25   | 1.46              | 41.4            | 41.1  | 40.9  | 1.02               | 1.69  | 1.96  | 22.04    | -16.5           | -36.3 | -47.5 | 0.09               | 0.002            | -100.6                          | -128.1 | -150.1 | -170.2 | 10.0              | -129.87                        |
| 1.50   | 1.39              | 41.7            | 41.5  | 41.2  | 1.02               | 1.70  | 1.97  | 22.02    | -16.8           | -36.6 | -47.8 | 0.08               | 0.002            | -101.1                          | -128.7 | -150.4 | -169.8 | 19.4              | -136.36                        |
| 1.75   | 1.33              | 42.1            | 41.8  | 41.6  | 1.02               | 1.70  | 1.98  | 22.00    | -17.0           | -37.0 | -48.1 | 0.08               | 0.002            | -102.0                          | -129.1 | -150.7 | -170.0 | 32.5              | -141.13                        |
| 2.00   | 1.29              | 42.4            | 42.1  | 41.9  | 1.02               | 1.71  | 1.98  | 21.98    | -17.3           | -37.3 | -48.5 | 0.07               | 0.002            | -102.6                          | -129.4 | -151.0 | -169.9 | 53.5              | -145.71                        |
| 2.25   | 1.26              | 42.7            | 42.5  | 42.3  | 1.01               | 1.71  | 1.99  | 21.96    | -17.6           | -37.6 | -48.8 | 0.06               | 0.002            | -102.7                          | -129.7 | -151.1 | -170.1 | 89.8              | -150.34                        |
| 2.50   | 1.24              | 43.0            | 42.8  | 42.6  | 1.01               | 1.71  | 1.99  | 21.94    | -17.8           | -37.9 | -49.0 | 0.06               | 0.002            | -103.3                          | -129.8 | -151.2 | -170.2 | 100.0             | -151.28                        |
| 2.75   | 1.22              | 43.4            | 43.1  | 42.9  | 1.01               | 1.70  | 2.00  | 21.92    | -18.0           | -38.2 | -49.3 | 0.06               | 0.002            | -103.5                          | -130.1 | -151.3 | -170.2 | 126.1             | -153.28                        |
| 3.00   | 1.21              | 43.7            | 43.4  | 43.2  | 1.00               | 1.70  | 2.00  | 21.89    | -18.3           | -38.5 | -49.6 | 0.05               | 0.002            | -104.0                          | -130.2 | -151.4 | -170.1 | 148.1             | -154.72                        |
| 3.25   | 1.20              | 44.0            | 43.7  | 43.5  | 0.99               | 1.70  | 2.00  | 21.87    | -18.5           | -38.8 | -49.9 | 0.05               | 0.003            | -104.1                          | -130.3 | -151.5 | -170.3 | 177.0             | -156.27                        |
| 3.50   | 1.19              | 44.3            | 44.0  | 43.8  | 0.98               | 1.69  | 2.00  | 21.85    | -18.7           | -39.1 | -50.3 | 0.05               | 0.003            | -104.2                          | -130.2 | -151.5 | -170.4 | 248.5             | -159.26                        |
| 3.75   | 1.19              | 44.6            | 44.3  | 44.1  | 0.97               | 1.68  | 1.99  | 21.82    | -18.9           | -39.5 | -50.5 | 0.04               | 0.003            | -104.4                          | -130.3 | -151.5 | -170.2 | 291.8             | -160.56                        |
| 4.00   | 1.19              | 44.9            | 44.6  | 44.4  | 0.95               | 1.67  | 1.99  | 21.79    | -19.1           | -39.8 | -50.7 | 0.04               | 0.003            | -104.6                          | -130.4 | -151.5 | -170.1 | 409.6             | -163.49                        |
| 4.25   | 1.20              | 45.2            | 44.9  | 44.7  | 0.94               | 1.66  | 1.98  | 21.77    | -19.3           | -40.1 | -51.0 | 0.04               | 0.003            | -104.9                          | -130.7 | -151.5 | -170.2 | 489.7             | -164.80                        |
| 4.50   | 1.20              | 45.5            | 45.2  | 45.0  | 0.92               | 1.65  | 1.97  | 21.74    | -19.5           | -40.4 | -51.3 | 0.04               | 0.003            | -105.0                          | -130.7 | -151.6 | -169.8 | 807.2             | -168.75                        |
| 4.75   | 1.21              | 45.8            | 45.5  | 45.3  | 0.90               | 1.63  | 1.96  | 21.71    | -19.7           | -40.7 | -51.6 | 0.04               | 0.003            | -105.3                          | -130.7 | -151.8 | -170.1 | 1000.0            | -170.26                        |

\*at 25°C unless mentioned otherwise



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