

Coaxial

# Voltage Controlled Oscillator

## ZX95-2840+

5V Tuning for PLL IC's 2835 to 2860 MHz

### Features

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

### Applications

- r & d
- lab
- instrumentation
- wireless communications
- point-to-point



CASE STYLE: GB956

| Connectors | Model        | Price       | Qty.  |
|------------|--------------|-------------|-------|
| SMA        | ZX95-2840-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

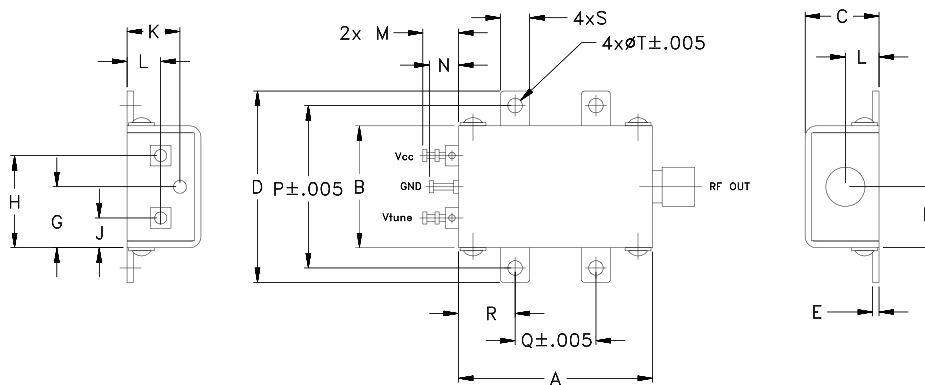
| MODEL NO.  | FREQ. (MHz) |      | POWER OUTPUT (dBm) | PHASE NOISE dBc/Hz SSB at offset frequencies, kHz |      |      |      | TUNING |                   |      |                       |               | NON HARMONIC SPURIOUS (dBc) | HARMONICS (dBc)                 |      | PULLING pk-pk @12 dB (MHz) | 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. | Max. | Vcc (volts) | Current (mA) |
|            |             |      |                    |   |      |      |      |        | Min.              | Max. |                       |               |                             |                                 |      |                            |                 |                    |      |      |      |             |              |
| ZX95-2840+ | 2835        | 2860 | +4.5               | -79   | -105 | -126 | -146 | 0.5    | 5                 | 16   | 15                    | 110           | -90                         | -25                             | -15  | 0.4                        | 1.5             | 5                  | 40   |      |      |             |              |

### 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  |



For detailed performance specs & shopping online see web site

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**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).

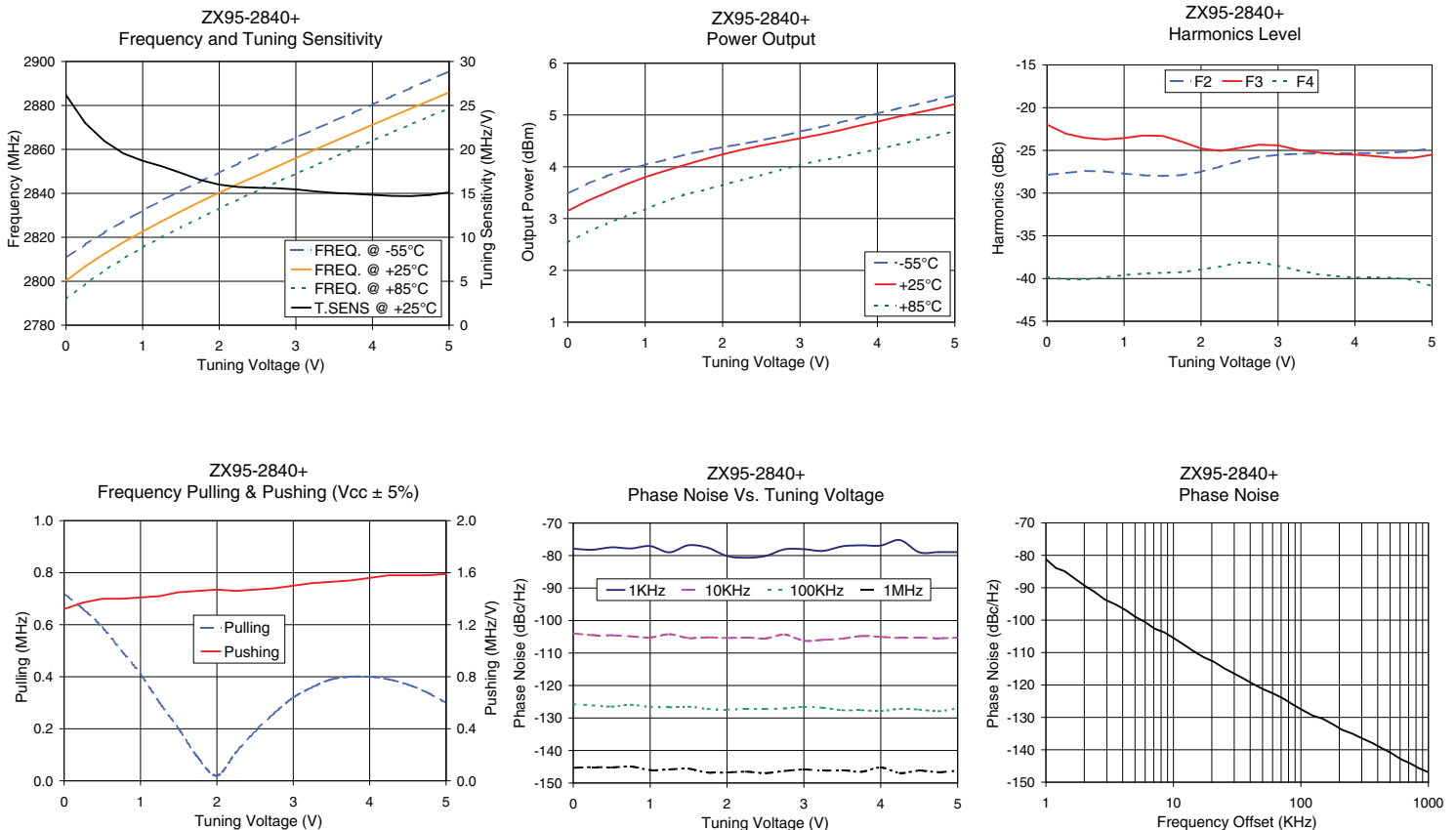
REV. OR  
M115158  
EDR-6685/2AF1  
ZX95-2840+  
RAV  
120904  
Page 1 of 2

# Performance Data & Curves\*

# ZX95-2840+

| 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 2845 MHz (dBc/Hz) |
|--------|-------------------|-----------------|--------|--------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|----------------------------------|
|        |                   | -55°C           | +25°C  | +85°C  | -55°C              | +25°C | +85°C |          | F2              | F3    | F4    |                    |                  | 1kHz                            | 10kHz  | 100kHz | 1MHz   |                   |                                  |
| 0.00   | 26.17             | 2810.7          | 2800.2 | 2791.9 | 3.48               | 3.15  | 2.54  | 31.81    | -27.9           | -22.0 | -39.8 | 1.32               | 0.72             | -77.9                           | -104.0 | -125.8 | -145.4 | 1.0               | -81.19                           |
| 0.25   | 23.00             | 2816.7          | 2806.8 | 2798.8 | 3.67               | 3.34  | 2.74  | 31.90    | -27.6           | -23.1 | -40.1 | 1.37               | 0.66             | -78.2                           | -104.5 | -126.1 | -145.1 | 2.0               | -89.30                           |
| 0.50   | 20.95             | 2822.2          | 2812.5 | 2804.9 | 3.82               | 3.50  | 2.90  | 31.97    | -27.4           | -23.5 | -40.1 | 1.40               | 0.59             | -77.5                           | -104.5 | -126.5 | -145.2 | 4.2               | -96.84                           |
| 0.75   | 19.53             | 2827.3          | 2817.8 | 2810.4 | 3.94               | 3.66  | 3.05  | 32.04    | -27.5           | -23.7 | -39.9 | 1.40               | 0.50             | -77.8                           | -104.9 | -125.9 | -145.0 | 6.0               | -100.62                          |
| 1.00   | 18.70             | 2832.2          | 2822.6 | 2815.4 | 4.04               | 3.80  | 3.18  | 32.10    | -27.7           | -23.6 | -39.6 | 1.41               | 0.41             | -77.1                           | -105.2 | -126.6 | -146.0 | 8.5               | -103.79                          |
| 1.25   | 18.08             | 2836.8          | 2827.3 | 2820.1 | 4.13               | 3.92  | 3.33  | 32.16    | -27.9           | -23.3 | -39.4 | 1.42               | 0.30             | -79.0                           | -104.2 | -126.7 | -145.8 | 10.0              | -105.49                          |
| 1.50   | 17.33             | 2841.1          | 2831.8 | 2824.5 | 4.23               | 4.03  | 3.46  | 32.21    | -28.0           | -23.3 | -39.3 | 1.45               | 0.20             | -76.8                           | -105.4 | -126.5 | -145.6 | 20.8              | -112.84                          |
| 1.75   | 16.53             | 2845.3          | 2836.2 | 2828.9 | 4.31               | 4.14  | 3.55  | 32.27    | -27.9           | -24.0 | -39.3 | 1.46               | 0.09             | -77.6                           | -105.2 | -127.2 | -146.8 | 42.5              | -119.76                          |
| 2.00   | 15.99             | 2849.5          | 2840.3 | 2833.1 | 4.38               | 4.24  | 3.65  | 32.33    | -27.5           | -24.8 | -38.9 | 1.47               | 0.02             | -80.1                           | -105.4 | -127.4 | -146.8 | 60.7              | -122.64                          |
| 2.25   | 15.72             | 2853.6          | 2844.3 | 2837.3 | 4.44               | 4.33  | 3.75  | 32.38    | -26.9           | -25.1 | -38.6 | 1.46               | 0.11             | -80.7                           | -105.2 | -127.2 | -146.5 | 86.7              | -126.07                          |
| 2.50   | 15.63             | 2857.6          | 2848.2 | 2841.3 | 4.51               | 4.41  | 3.84  | 32.43    | -26.2           | -24.7 | -38.1 | 1.47               | 0.19             | -80.1                           | -105.5 | -127.2 | -147.0 | 100.0             | -127.46                          |
| 2.75   | 15.58             | 2861.5          | 2852.1 | 2845.1 | 4.59               | 4.48  | 3.94  | 32.46    | -25.8           | -24.3 | -38.1 | 1.48               | 0.26             | -78.1                           | -104.3 | -127.0 | -146.3 | 148.1             | -130.40                          |
| 3.00   | 15.45             | 2865.4          | 2856.0 | 2848.9 | 4.68               | 4.55  | 4.04  | 32.50    | -25.5           | -24.4 | -38.5 | 1.50               | 0.32             | -78.1                           | -106.2 | -126.6 | -145.9 | 211.6             | -133.89                          |
| 3.25   | 15.22             | 2869.2          | 2859.9 | 2852.7 | 4.76               | 4.62  | 4.12  | 32.54    | -25.4           | -24.9 | -39.0 | 1.52               | 0.36             | -78.6                           | -106.0 | -126.9 | -146.2 | 302.4             | -136.50                          |
| 3.50   | 15.05             | 2873.0          | 2863.7 | 2856.5 | 4.85               | 4.70  | 4.18  | 32.58    | -25.4           | -25.2 | -39.5 | 1.53               | 0.39             | -77.2                           | -105.6 | -127.6 | -146.1 | 361.5             | -137.87                          |
| 3.75   | 14.95             | 2876.7          | 2867.5 | 2860.2 | 4.94               | 4.79  | 4.26  | 32.62    | -25.4           | -25.5 | -39.7 | 1.54               | 0.40             | -76.9                           | -104.8 | -127.6 | -146.5 | 432.2             | -139.53                          |
| 4.00   | 14.83             | 2880.4          | 2871.2 | 2864.0 | 5.03               | 4.87  | 4.34  | 32.67    | -25.3           | -25.5 | -39.9 | 1.56               | 0.40             | -76.9                           | -105.0 | -127.9 | -145.2 | 507.5             | -140.93                          |
| 4.25   | 14.71             | 2884.1          | 2874.9 | 2867.7 | 5.12               | 4.96  | 4.42  | 32.71    | -25.3           | -25.7 | -39.9 | 1.58               | 0.39             | -75.3                           | -105.4 | -127.2 | -146.9 | 712.4             | -144.12                          |
| 4.50   | 14.68             | 2887.9          | 2878.6 | 2871.4 | 5.20               | 5.04  | 4.51  | 32.75    | -25.3           | -25.9 | -39.9 | 1.58               | 0.37             | -79.0                           | -105.2 | -127.4 | -146.2 | 851.6             | -145.77                          |
| 5.00   | 15.11             | 2895.5          | 2885.9 | 2878.7 | 5.38               | 5.21  | 4.69  | 32.81    | -24.7           | -25.5 | -40.9 | 1.59               | 0.30             | -79.0                           | -105.3 | -127.0 | -146.2 | 1000.0            | -146.91                          |

\*at 25°C unless mentioned otherwise



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