

Coaxial

# Voltage Controlled Oscillator

ZX95-1000CA+

Ultra Low Noise 1000 MHz

## Features

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

## Applications

- r & d
- lab
- instrumentation
- wireless communication
- military & avionics
- test equipment



CASE STYLE: GB956

| Connectors | Model          | Price       | Qty.  |
|------------|----------------|-------------|-------|
| SMA        | ZX95-1000CA-S+ | \$51.95 ea. | (1-9) |

### +RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

## Electrical Specifications

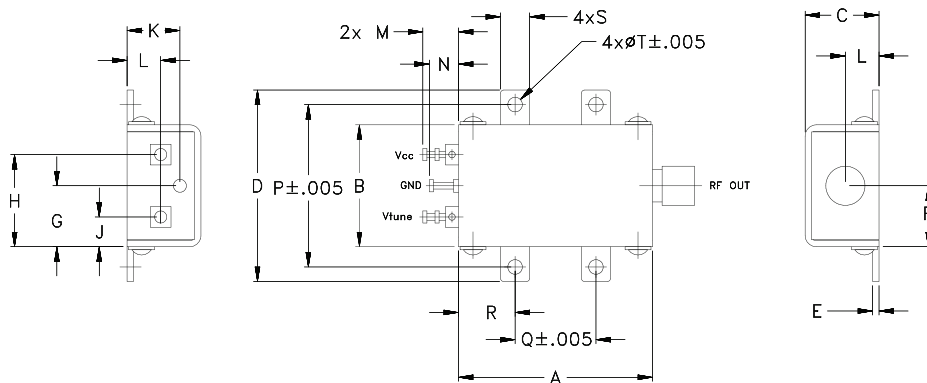
| MODEL NO.    | FREQ. (MHz) |     | POWER OUTPUT (dBm) | PHASE NOISE dBc/Hz SSB at offset frequencies,kHz |      |      |      | TUNING            |                       |               |                                 |      | NON HARMONIC SPURIOUS (dBc) | HARMONICS (dBc) |      | PULLING pk-pk @12 dB (MHz) | PUSHING (MHz/V) | DC OPERATING POWER |      |             |              |
|--------------|-------------|-----|--------------------|--------------------------------------------------|------|------|------|-------------------|-----------------------|---------------|---------------------------------|------|-----------------------------|-----------------|------|----------------------------|-----------------|--------------------|------|-------------|--------------|
|              | Min         | Max |                    | Typ.                                             |      |      |      | VOLTAGE RANGE (V) | SENSI- TIVITY (MHz/V) | PORT CAP (pF) | 3 dB MODULATION BANDWIDTH (MHz) | Typ. |                             | Typ.            | Max. |                            |                 | Typ.               | Typ. | Vcc (volts) | Current (mA) |
|              |             |     |                    | 1                                                | 10   | 100  | 1000 | Min.              | Max.                  | Typ.          | Typ.                            |      |                             |                 |      |                            |                 |                    |      |             |              |
| ZX95-1000CA+ | 1000        |     | -1                 | -98                                              | -125 | -145 | -164 | 0.5               | 5                     | 5             | 20                              | 80   | -90                         | -22             | -14  | 0.06                       | 0.01            | 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  | .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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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).

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REV. OR  
M119372  
EDR-9115F2  
ZX95-1000CA+  
RAV  
120902  
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# Performance Data & Curves\*

## ZX95-1000CA+

| 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>1002 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      | 6.30                    | 989.7              | 986.7  | 984.5  | -1.13                 | -1.15 | -1.66 | 22.85       | -21.7           | -36.2 | -34.7 | 0.12                     | 0.05                   | -95.4                              | -122.7 | -144.3 | -164.6 | 1.0                     | -97.83                                    |
| 0.50      | 5.35                    | 992.6              | 989.7  | 987.6  | -1.10                 | -1.11 | -1.62 | 22.96       | -21.7           | -35.8 | -34.6 | 0.04                     | 0.05                   | -97.9                              | -124.0 | -145.0 | -164.6 | 2.0                     | -105.84                                   |
| 0.75      | 5.17                    | 993.9              | 991.0  | 988.9  | -1.08                 | -1.09 | -1.60 | 23.01       | -21.7           | -35.6 | -34.4 | 0.02                     | 0.05                   | -96.5                              | -124.2 | -144.8 | -164.0 | 3.5                     | -113.27                                   |
| 1.00      | 5.08                    | 995.2              | 992.3  | 990.2  | -1.06                 | -1.08 | -1.57 | 23.06       | -21.7           | -35.4 | -34.1 | 0.01                     | 0.05                   | -98.2                              | -124.3 | -145.1 | -165.4 | 6.0                     | -119.46                                   |
| 1.25      | 5.04                    | 996.5              | 993.6  | 991.5  | -1.04                 | -1.06 | -1.56 | 23.11       | -21.7           | -35.2 | -33.9 | 0.00                     | 0.05                   | -98.4                              | -124.5 | -145.9 | -164.7 | 8.5                     | -123.32                                   |
| 1.50      | 5.03                    | 997.8              | 994.9  | 992.7  | -1.02                 | -1.05 | -1.54 | 23.15       | -21.8           | -34.9 | -33.6 | 0.01                     | 0.06                   | -98.8                              | -124.6 | -145.5 | -164.7 | 10.0                    | -124.99                                   |
| 1.75      | 5.05                    | 999.0              | 996.1  | 994.0  | -1.00                 | -1.03 | -1.52 | 23.19       | -21.8           | -34.7 | -33.2 | 0.01                     | 0.06                   | -96.9                              | -124.5 | -146.1 | -164.9 | 20.8                    | -131.94                                   |
| 2.00      | 5.08                    | 1000.3             | 997.4  | 995.2  | -0.98                 | -1.01 | -1.50 | 23.24       | -21.8           | -34.4 | -32.9 | 0.01                     | 0.06                   | -98.1                              | -124.8 | -145.9 | -164.7 | 35.5                    | -136.60                                   |
| 2.25      | 5.12                    | 1001.6             | 998.7  | 996.5  | -0.96                 | -1.00 | -1.48 | 23.29       | -21.9           | -34.1 | -32.5 | 0.01                     | 0.06                   | -99.1                              | -124.9 | -146.0 | -163.5 | 60.7                    | -140.91                                   |
| 2.50      | 5.15                    | 1002.9             | 999.9  | 997.7  | -0.94                 | -0.98 | -1.46 | 23.33       | -21.9           | -33.9 | -32.1 | 0.01                     | 0.06                   | -97.9                              | -124.9 | -145.9 | -164.8 | 86.7                    | -144.13                                   |
| 2.75      | 5.17                    | 1004.2             | 1001.2 | 999.0  | -0.92                 | -0.97 | -1.44 | 23.37       | -21.9           | -33.8 | -31.7 | 0.01                     | 0.06                   | -97.9                              | -124.9 | -146.0 | -164.8 | 100.0                   | -145.62                                   |
| 3.00      | 5.18                    | 1005.5             | 1002.5 | 1000.3 | -0.90                 | -0.96 | -1.42 | 23.43       | -21.9           | -33.5 | -31.4 | 0.00                     | 0.07                   | -98.7                              | -124.8 | -146.0 | -164.1 | 148.1                   | -149.08                                   |
| 3.25      | 5.17                    | 1006.8             | 1003.8 | 1001.6 | -0.88                 | -0.94 | -1.40 | 23.47       | -21.9           | -33.5 | -31.1 | 0.02                     | 0.07                   | -96.7                              | -124.7 | -145.3 | -164.5 | 177.0                   | -150.86                                   |
| 3.50      | 5.15                    | 1008.1             | 1005.1 | 1002.9 | -0.87                 | -0.93 | -1.38 | 23.51       | -21.9           | -33.4 | -30.8 | 0.03                     | 0.07                   | -97.7                              | -124.7 | -145.3 | -163.8 | 211.6                   | -152.31                                   |
| 3.75      | 5.11                    | 1009.4             | 1006.4 | 1004.2 | -0.85                 | -0.92 | -1.36 | 23.55       | -21.8           | -33.3 | -30.5 | 0.05                     | 0.07                   | -97.3                              | -124.2 | -145.2 | -164.7 | 302.4                   | -155.70                                   |
| 4.00      | 5.06                    | 1010.7             | 1007.7 | 1005.4 | -0.84                 | -0.91 | -1.35 | 23.59       | -21.8           | -33.1 | -30.2 | 0.07                     | 0.07                   | -97.8                              | -123.9 | -145.1 | -164.5 | 361.5                   | -157.70                                   |
| 4.25      | 4.99                    | 1012.0             | 1008.9 | 1006.7 | -0.83                 | -0.90 | -1.33 | 23.63       | -21.7           | -33.2 | -30.0 | 0.09                     | 0.07                   | -96.3                              | -123.6 | -145.0 | -164.8 | 507.5                   | -160.40                                   |
| 4.50      | 4.92                    | 1013.2             | 1010.2 | 1008.0 | -0.82                 | -0.89 | -1.31 | 23.66       | -21.7           | -33.1 | -29.8 | 0.11                     | 0.07                   | -96.9                              | -123.6 | -144.9 | -163.6 | 606.7                   | -162.53                                   |
| 4.75      | 4.84                    | 1014.5             | 1011.4 | 1009.2 | -0.81                 | -0.89 | -1.29 | 23.69       | -21.6           | -33.0 | -29.8 | 0.12                     | 0.07                   | -97.5                              | -123.3 | -144.7 | -163.7 | 851.6                   | -163.72                                   |
| 5.00      | 4.75                    | 1015.7             | 1012.6 | 1010.4 | -0.81                 | -0.88 | -1.27 | 23.72       | -21.6           | -33.0 | -29.8 | 0.14                     | 0.07                   | -97.9                              | -123.2 | -144.9 | -163.3 | 1000.0                  | -163.88                                   |

\*at 25°C unless mentioned otherwise

