

## Voltage Controlled Oscillator

ROS-716LV-1SC9+

Linear Tuning 534 to 716 MHz

## Features

- very low phase noise
- linear tuning characteristics
- low pulling
- low pushing
- aqueous washable

## Applications

- wireless communications
- wireless broadband access



CASE STYLE: CK605

PRICE: \$ 15.95 ea. QTY (5-49)

## +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 <sub>r</sub> (MHz) | PUSHING (MHz/V) | DC OPERATING POWER      |              |      |
|-----------------|-------------|------|--------------------|--------------------------------------------------|------|------|------|-------------------|------|----------------------------|------|---------------------------------|-----------------------------|-----------------|------|-----------------------------------------|-----------------|-------------------------|--------------|------|
|                 |             |      |                    | Typ.                                             |      |      |      | VOLTAGE RANGE (V) |      | SENSI- TIVITY (MHz/V) (pF) |      | 3 dB MODULATION BANDWIDTH (MHz) |                             |                 |      |                                         |                 | V <sub>cc</sub> (volts) | Current (mA) |      |
|                 | Min.        | Max. |                    | 1                                                | 10   | 100  | 1000 | Min.              | Max. | Typ.                       | Typ. | Typ.                            |                             | Typ.            | Typ. |                                         |                 | Max.                    | Typ.         | Typ. |
| ROS-716LV-1SC9+ | 534         | 716  | -2.6               | -84                                              | -113 | -133 | -153 | 0.5               | 11.5 | 15                         | 21   | 57                              | 10                          | -90             | -26  | -10                                     | 0.3             | 1                       | 3.3          | 20   |

## Pin Connections

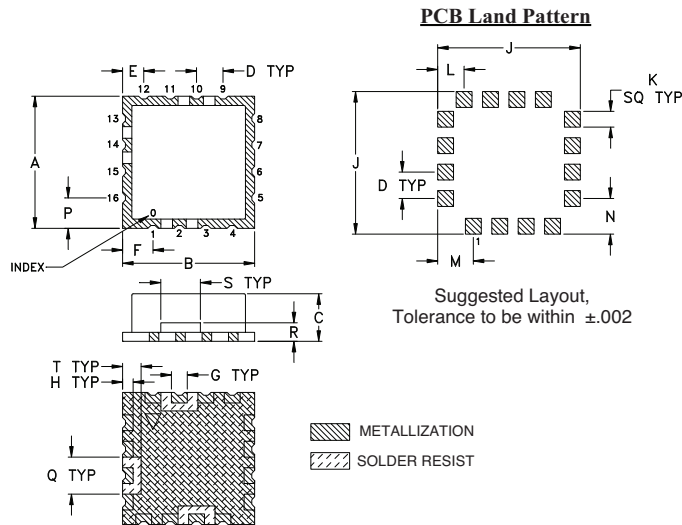
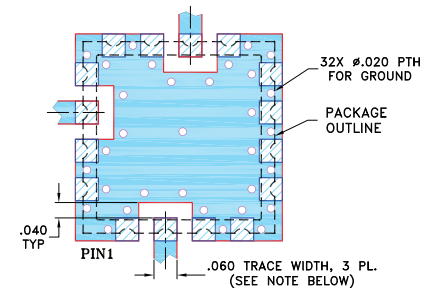
|        |                                |
|--------|--------------------------------|
| RF OUT | 10                             |
| VCC    | 14                             |
| V-TUNE | 2                              |
| GROUND | 1,3,4,5,6,7,8,9,11,12,13,15,16 |

## Maximum Ratings

|                                      |                |
|--------------------------------------|----------------|
| Operating Temperature                | -55°C to 85°C  |
| Storage Temperature                  | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc)   | 5V             |
| Absolute Max. Tuning Voltage (Vtune) | 14V            |
| All specifications                   | 50 ohm system  |

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

## Outline Drawing

Demo Board MCL P/N: TB-10  
Suggested PCB Layout (PL-012)

## NOTES:

- TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS .030"  $\pm$  .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
- BOTTOM SIDE OF THE BOTTOM IS CONTINUOUS GROUND PLANE.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

## Outline Dimensions (inch mm)

| A     | B     | C    | D    | E    | F    | G    | H    | J     | K    | L    | M    | N    | P    | Q    | R    | S    | T    | wt.   |
|-------|-------|------|------|------|------|------|------|-------|------|------|------|------|------|------|------|------|------|-------|
| .500  | .500  | .180 | .100 | .080 | .115 | .060 | .040 | .540  | .060 | .100 | .135 | .135 | .115 | .140 | .070 | .150 | .070 | grams |
| 12.70 | 12.70 | 4.57 | 2.54 | 2.03 | 2.92 | 1.52 | 1.02 | 13.72 | 1.52 | 2.54 | 3.43 | 3.43 | 2.92 | 3.56 | 1.78 | 3.81 | 1.78 | 1.0   |



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Provides ACTUAL Data Instantly at [minicircuits.com](http://minicircuits.com)

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REV. OR  
M122533  
EDR-9674/1F1  
ROS-716LV-1SC9+  
RAV  
120910  
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# Performance Data & Curves\*

# ROS-716LV-1SC9+

| 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>625 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      | 28.61                   | 509.1              | 506.6 | 504.7 | -1.80                 | -2.08 | -3.62 | 13.63       | -16.2           | -37.2 | -35.1 | 1.42                     | 0.19                   | -83.9                              | -108.6 | -129.0 | -148.7 | 1.0                     | -86.63                                   |
| 0.50      | 23.78                   | 523.2              | 520.9 | 519.3 | -1.88                 | -1.93 | -2.80 | 13.73       | -17.5           | -36.6 | -41.0 | 0.98                     | 0.21                   | -84.9                              | -110.3 | -130.9 | -151.0 | 2.0                     | -94.62                                   |
| 1.00      | 21.42                   | 535.1              | 532.8 | 531.3 | -1.93                 | -1.86 | -2.45 | 13.81       | -18.7           | -36.5 | -40.1 | 0.80                     | 0.23                   | -86.7                              | -111.7 | -131.9 | -150.8 | 3.5                     | -102.81                                  |
| 1.50      | 20.17                   | 545.8              | 543.5 | 542.0 | -2.00                 | -1.86 | -2.28 | 13.86       | -19.9           | -35.3 | -39.1 | 0.70                     | 0.25                   | -88.0                              | -112.8 | -133.5 | -151.9 | 6.0                     | -108.65                                  |
| 2.00      | 19.53                   | 555.8              | 553.6 | 552.0 | -2.10                 | -1.90 | -2.20 | 13.89       | -21.6           | -34.6 | -37.9 | 0.62                     | 0.26                   | -87.6                              | -112.8 | -133.1 | -152.7 | 8.5                     | -112.01                                  |
| 2.50      | 19.23                   | 565.6              | 563.4 | 561.7 | -2.24                 | -1.97 | -2.18 | 13.91       | -23.5           | -34.1 | -37.0 | 0.55                     | 0.26                   | -86.4                              | -113.1 | -133.9 | -152.8 | 10.0                    | -113.51                                  |
| 3.00      | 19.02                   | 575.3              | 573.0 | 571.3 | -2.40                 | -2.06 | -2.21 | 13.91       | -25.3           | -33.0 | -37.1 | 0.49                     | 0.24                   | -87.6                              | -113.3 | -134.1 | -152.5 | 20.8                    | -120.53                                  |
| 4.00      | 18.84                   | 594.3              | 591.9 | 590.1 | -2.68                 | -2.26 | -2.33 | 13.88       | -29.1           | -31.6 | -36.4 | 0.48                     | 0.14                   | -86.5                              | -113.3 | -134.0 | -154.8 | 35.5                    | -125.43                                  |
| 5.00      | 19.05                   | 613.3              | 610.8 | 608.9 | -2.87                 | -2.46 | -2.51 | 13.82       | -29.7           | -30.2 | -36.7 | 0.46                     | 0.14                   | -86.7                              | -113.0 | -134.0 | -153.0 | 60.7                    | -130.02                                  |
| 5.50      | 19.20                   | 622.9              | 620.3 | 618.4 | -2.95                 | -2.56 | -2.60 | 13.78       | -29.4           | -29.7 | -35.8 | 0.46                     | 0.25                   | -86.9                              | -113.2 | -134.2 | -153.6 | 86.7                    | -133.26                                  |
| 6.00      | 19.32                   | 632.4              | 629.9 | 628.0 | -3.02                 | -2.66 | -2.70 | 13.75       | -28.8           | -29.6 | -36.5 | 0.50                     | 0.35                   | -86.4                              | -113.8 | -134.6 | -153.1 | 100.0                   | -134.52                                  |
| 6.50      | 19.35                   | 642.0              | 639.6 | 637.7 | -3.07                 | -2.76 | -2.81 | 13.72       | -28.0           | -29.3 | -37.4 | 0.58                     | 0.41                   | -86.3                              | -113.9 | -135.0 | -153.8 | 148.1                   | -137.97                                  |
| 7.00      | 19.22                   | 651.6              | 649.3 | 647.4 | -3.10                 | -2.85 | -2.91 | 13.69       | -27.6           | -28.9 | -37.6 | 0.70                     | 0.46                   | -87.0                              | -113.6 | -135.0 | -152.7 | 177.0                   | -139.54                                  |
| 8.00      | 18.71                   | 670.3              | 668.4 | 666.7 | -3.07                 | -3.00 | -3.08 | 13.65       | -26.4           | -28.5 | -37.9 | 1.03                     | 0.34                   | -86.4                              | -113.4 | -134.9 | -155.0 | 211.6                   | -141.21                                  |
| 9.00      | 17.82                   | 688.7              | 686.9 | 685.3 | -2.99                 | -3.03 | -3.14 | 13.65       | -25.4           | -28.1 | -42.0 | 1.55                     | 0.19                   | -85.2                              | -113.4 | -134.7 | -153.4 | 302.4                   | -144.28                                  |
| 9.50      | 17.28                   | 697.7              | 695.8 | 694.2 | -2.95                 | -3.03 | -3.16 | 13.65       | -24.8           | -27.9 | -42.9 | 1.87                     | 0.25                   | -84.3                              | -113.3 | -135.0 | -150.8 | 361.5                   | -145.98                                  |
| 10.00     | 16.68                   | 706.4              | 704.4 | 702.9 | -2.91                 | -3.01 | -3.18 | 13.65       | -24.3           | -27.4 | -44.5 | 2.19                     | 0.37                   | -85.0                              | -113.0 | -134.7 | -153.2 | 507.5                   | -148.79                                  |
| 10.50     | 16.01                   | 714.8              | 712.8 | 711.2 | -2.87                 | -3.01 | -3.20 | 13.65       | -24.2           | -26.9 | -41.9 | 2.48                     | 0.47                   | -84.0                              | -112.8 | -134.1 | -152.5 | 606.7                   | -150.25                                  |
| 11.00     | 15.32                   | 722.9              | 720.8 | 719.3 | -2.83                 | -3.01 | -3.23 | 13.65       | -24.1           | -26.5 | -42.7 | 2.73                     | 0.52                   | -85.3                              | -112.3 | -133.5 | -153.0 | 851.6                   | -152.44                                  |
| 11.50     | 14.62                   | 730.6              | 728.4 | 726.9 | -2.79                 | -3.00 | -3.26 | 13.65       | -23.9           | -26.2 | -41.5 | 2.95                     | 0.54                   | -85.7                              | -111.6 | -133.0 | -152.4 | 1000.0                  | -153.92                                  |

\*at 25°C unless mentioned otherwise

