

Surface Mount

# Voltage Controlled Oscillator

**ROS-995-119+**

5V Tuning for PLL IC's 965 to 995 MHz

## Features

- Linear tuning characteristics
- Low phase noise
- Low pushing
- Low pulling
- Aqueous washable

## Applications

- Wireless communication



CASE STYLE: CK605

PRICE: \$19.95 ea. QTY (5-49)

**+ RoHS compliant in accordance with EU Directive (2002/95/EC)**

*The +suffix has been added in order to identify 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. | Typ.            | Max. | Typ.                        | Typ.            | Vcc (volts)        | Current (mA) |
| ROS-995-119(+) | 965         | 995  | +4.5               |   | -87 | -111 | -132 | -152   | 0.5               | 5                     | 16            | 45                              | 90                          | -90  | -24             | -10  | 0.8                         | 0.5             | 5                  | 32           |

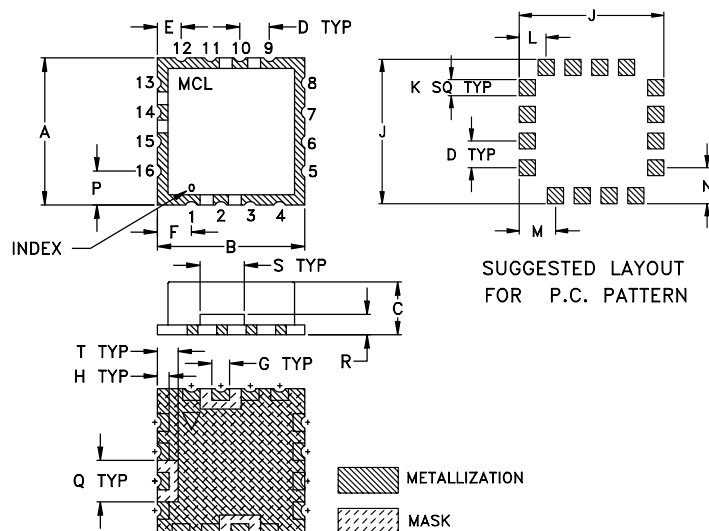
## Pin Connections

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

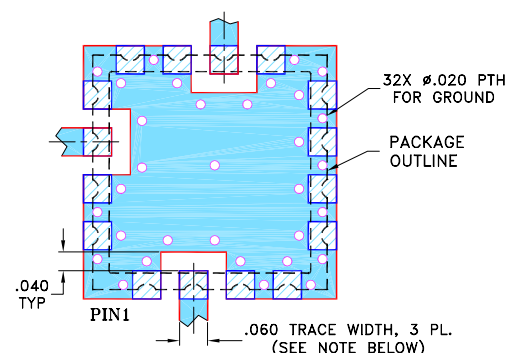
## Maximum Ratings

|                                      |                |
|--------------------------------------|----------------|
| Operating Temperature                | -55°C to 85°C  |
| Storage Temperature                  | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc)   | 6V             |
| Absolute Max. Tuning Voltage (Vtune) | 7V             |
| All specifications                   | 50 ohm system  |

## Outline Drawing



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



- NOTES:**
1. TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
  2. BOTTOM SIDE OF THE PCB 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   |

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REV. OR  
M105590  
EDR-7141  
ROS-995-119+  
RAV  
060606  
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# Performance Data & Curves\*

# ROS-995-119+

| 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>980 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      | 17.38                   | 941.6              | 938.2  | 935.4  | 4.63                  | 4.82  | 4.24  | 24.96       | -24.3           | -33.7 | -41.7 | 0.37                     | 0.60                   | -87.6                              | -111.6 | -132.0 | -152.5 | 1.0                     | -88.76                                   |
| 0.50      | 15.18                   | 949.7              | 946.5  | 944.0  | 4.69                  | 4.90  | 4.24  | 25.01       | -24.3           | -33.3 | -40.8 | 0.28                     | 0.79                   | -87.0                              | -112.5 | -132.6 | -152.9 | 2.0                     | -96.48                                   |
| 0.75      | 14.82                   | 953.5              | 950.3  | 947.8  | 4.71                  | 4.91  | 4.31  | 25.03       | -24.4           | -33.1 | -40.7 | 0.26                     | 0.71                   | -85.3                              | -111.9 | -132.4 | -152.3 | 3.5                     | -99.70                                   |
| 1.00      | 14.70                   | 957.2              | 954.0  | 951.5  | 4.72                  | 4.92  | 4.35  | 25.04       | -24.4           | -32.9 | -40.4 | 0.26                     | 0.54                   | -87.5                              | -111.5 | -132.0 | -149.0 | 6.0                     | -106.79                                  |
| 1.25      | 14.69                   | 960.9              | 957.7  | 955.1  | 4.73                  | 4.93  | 4.38  | 25.06       | -24.4           | -32.9 | -39.9 | 0.27                     | 0.30                   | -88.6                              | -112.1 | -132.3 | -151.2 | 8.5                     | -109.56                                  |
| 1.50      | 14.79                   | 964.6              | 961.4  | 958.8  | 4.73                  | 4.94  | 4.40  | 25.07       | -24.4           | -32.7 | -39.7 | 0.28                     | 0.05                   | -86.4                              | -112.6 | -132.6 | -152.7 | 10.0                    | -111.23                                  |
| 1.75      | 15.03                   | 968.4              | 965.1  | 962.4  | 4.71                  | 4.93  | 4.41  | 25.08       | -24.4           | -32.6 | -39.4 | 0.30                     | 0.32                   | -87.5                              | -112.0 | -132.3 | -151.7 | 20.8                    | -118.64                                  |
| 2.00      | 15.26                   | 972.2              | 968.8  | 966.1  | 4.68                  | 4.92  | 4.42  | 25.09       | -24.4           | -32.5 | -39.2 | 0.33                     | 0.57                   | -87.9                              | -112.0 | -131.8 | -152.1 | 35.5                    | -122.34                                  |
| 2.25      | 15.39                   | 976.0              | 972.6  | 969.9  | 4.71                  | 4.89  | 4.44  | 25.11       | -24.4           | -32.4 | -38.7 | 0.36                     | 0.74                   | -85.9                              | -111.7 | -131.8 | -150.8 | 60.7                    | -127.32                                  |
| 2.50      | 15.56                   | 979.9              | 976.5  | 973.7  | 4.76                  | 4.94  | 4.47  | 25.14       | -24.3           | -32.4 | -38.8 | 0.39                     | 0.79                   | -86.4                              | -110.6 | -131.9 | -151.7 | 86.7                    | -130.30                                  |
| 2.75      | 15.80                   | 983.9              | 980.4  | 977.6  | 4.77                  | 4.97  | 4.46  | 25.15       | -24.4           | -32.1 | -38.2 | 0.44                     | 0.75                   | -88.7                              | -111.5 | -131.7 | -152.0 | 100.0                   | -131.46                                  |
| 3.00      | 16.03                   | 987.9              | 984.3  | 981.5  | 4.75                  | 4.96  | 4.42  | 25.16       | -24.3           | -32.2 | -37.9 | 0.50                     | 0.60                   | -89.2                              | -109.8 | -131.4 | -152.0 | 148.1                   | -135.00                                  |
| 3.25      | 16.17                   | 991.9              | 988.3  | 985.5  | 4.73                  | 4.95  | 4.39  | 25.16       | -24.3           | -32.1 | -37.5 | 0.56                     | 0.35                   | -88.0                              | -110.6 | -131.1 | -151.4 | 177.0                   | -136.04                                  |
| 3.50      | 16.32                   | 996.0              | 992.4  | 989.5  | 4.69                  | 4.92  | 4.41  | 25.17       | -24.4           | -32.0 | -37.7 | 0.63                     | 0.04                   | -88.3                              | -110.6 | -131.1 | -151.5 | 211.6                   | -138.01                                  |
| 3.75      | 16.37                   | 1000.2             | 996.5  | 993.5  | 4.63                  | 4.87  | 4.41  | 25.17       | -24.3           | -31.9 | -37.8 | 0.69                     | 0.35                   | -88.4                              | -109.7 | -130.8 | -150.6 | 302.4                   | -141.58                                  |
| 4.00      | 16.29                   | 1004.3             | 1000.6 | 997.6  | 4.60                  | 4.82  | 4.38  | 25.18       | -24.2           | -31.8 | -37.5 | 0.76                     | 0.63                   | -86.9                              | -110.5 | -129.9 | -151.0 | 361.5                   | -142.04                                  |
| 4.25      | 16.31                   | 1008.4             | 1004.6 | 1001.6 | 4.54                  | 4.80  | 4.37  | 25.18       | -24.2           | -31.7 | -37.3 | 0.83                     | 0.81                   | -87.8                              | -109.5 | -130.3 | -149.7 | 507.5                   | -145.94                                  |
| 4.50      | 16.04                   | 1012.5             | 1008.7 | 1005.6 | 4.53                  | 4.75  | 4.37  | 25.20       | -24.2           | -31.7 | -37.0 | 0.90                     | 0.86                   | -87.2                              | -108.9 | -129.9 | -150.2 | 606.7                   | -147.63                                  |
| 4.75      | 15.68                   | 1016.5             | 1012.7 | 1009.6 | 4.54                  | 4.72  | 4.35  | 25.23       | -24.1           | -31.6 | -36.8 | 0.94                     | 0.74                   | -85.8                              | -108.9 | -129.5 | -149.3 | 851.6                   | -150.26                                  |
| 5.00      | 15.54                   | 1020.4             | 1016.6 | 1013.6 | 4.51                  | 4.74  | 4.32  | 25.24       | -24.1           | -31.7 | -36.9 | 1.00                     | 0.55                   | -86.0                              | -108.2 | -129.3 | -149.5 | 1000.0                  | -151.79                                  |

\*at 25°C unless mentioned otherwise

