

## Voltage Controlled Oscillator

ROS-2117+

Linear Tuning 2063 to 2117 MHz

## Features

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

## Applications

- point-to-point radio
- wireless communications



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 dBr (MHz) | PUSHING (MHz/V) | DC OPERATING POWER |              |
|-----------|-------------|------|--------------------|--------------------------------------------------|------|------|------|-------------------|-----------------------|---------------|---------------------------------|------|-----------------------------|-----------------|------|-----------------------------|-----------------|--------------------|--------------|
|           |             |      |                    |                                                  |      |      |      | VOLTAGE RANGE (V) | SENSI- TIVITY (MHz/V) | PORT CAP (pF) | 3 dB MODULATION BANDWIDTH (MHz) |      |                             |                 |      |                             |                 |                    |              |
|           | Min.        | Max. |                    | Typ.                                             | 1    | 10   | 100  | 1000              | Min.                  | Max.          | Typ.                            | Typ. | Typ.                        | Typ.            | Max. | Typ.                        | Typ.            | Vcc (volts)        | Current (mA) |
| ROS-2117+ | 2063        | 2117 | +6                 | -83                                              | -106 | -127 | -147 | 0.5               | 6                     | 19            | 20                              | 160  | -90                         | -30             | -22  | 0.7                         | 1               | 5                  | 35           |

## Pin Connections

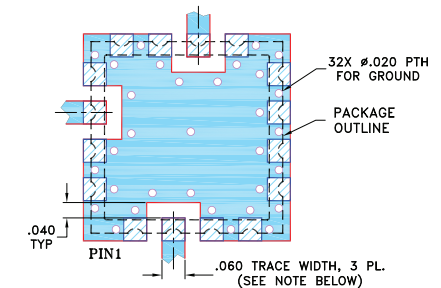
|        |                                |
|--------|--------------------------------|
| RF OUT | 10                             |
| VCC    | 14                             |
| V-TUNE | 2                              |
| GROUND | 1,3,4,5,6,7,8,9,11,12,13,15,16 |

## Maximum Ratings

|                                      |                |
|--------------------------------------|----------------|
| Operating Temperature                | -55°C to 85°C  |
| Storage Temperature                  | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc)   | 5.5V           |
| Absolute Max. Tuning Voltage (Vtune) | 8.0V           |
| 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   |

# Performance Data & Curves\*

# ROS-2117+

| 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>2090 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      | 23.31                   | 2041.2             | 2036.3 | 2032.0 | 5.79                  | 6.49  | 7.38  | 27.11       | -29.4           | -51.0 | -34.5 | 0.86                     | 0.85                   | -81.3                              | -105.0 | -126.0 | -146.3 | 1.0                     | -82.83                                    |
| 0.25      | 21.43                   | 2046.9             | 2042.1 | 2037.9 | 5.77                  | 6.45  | 7.35  | 27.16       | -29.6           | -49.2 | -33.4 | 0.89                     | 1.02                   | -82.3                              | -105.2 | -125.6 | -146.4 | 2.0                     | -89.60                                    |
| 0.50      | 20.30                   | 2052.2             | 2047.5 | 2043.2 | 5.77                  | 6.43  | 7.32  | 27.20       | -29.7           | -49.0 | -34.2 | 0.91                     | 1.10                   | -83.2                              | -105.6 | -126.2 | -146.2 | 3.5                     | -96.11                                    |
| 0.75      | 19.58                   | 2057.3             | 2052.5 | 2048.2 | 5.76                  | 6.42  | 7.31  | 27.25       | -29.8           | -49.0 | -33.4 | 0.93                     | 1.12                   | -83.0                              | -105.9 | -126.2 | -146.2 | 6.0                     | -101.24                                   |
| 1.00      | 19.19                   | 2062.3             | 2057.4 | 2053.1 | 5.74                  | 6.42  | 7.30  | 27.28       | -29.9           | -48.3 | -32.2 | 0.94                     | 1.10                   | -82.3                              | -105.3 | -126.5 | -146.3 | 8.5                     | -104.11                                   |
| 1.25      | 18.93                   | 2067.2             | 2062.2 | 2057.8 | 5.71                  | 6.40  | 7.29  | 27.32       | -30.2           | -47.4 | -32.2 | 0.96                     | 1.12                   | -82.7                              | -105.4 | -126.9 | -146.5 | 10.0                    | -105.88                                   |
| 1.50      | 18.74                   | 2072.0             | 2067.0 | 2062.4 | 5.67                  | 6.38  | 7.28  | 27.36       | -30.5           | -46.7 | -32.2 | 0.98                     | 1.12                   | -84.2                              | -106.3 | -126.6 | -146.3 | 20.8                    | -112.84                                   |
| 2.00      | 18.51                   | 2081.5             | 2076.3 | 2071.6 | 5.57                  | 6.32  | 7.23  | 27.43       | -29.9           | -45.5 | -32.5 | 0.99                     | 1.00                   | -83.5                              | -106.3 | -126.9 | -146.8 | 35.5                    | -118.10                                   |
| 2.25      | 18.76                   | 2086.3             | 2080.9 | 2076.1 | 5.53                  | 6.29  | 7.20  | 27.47       | -29.7           | -45.7 | -32.2 | 1.01                     | 0.91                   | -82.5                              | -106.2 | -126.6 | -146.5 | 60.7                    | -121.98                                   |
| 2.50      | 18.84                   | 2091.1             | 2085.6 | 2080.6 | 5.49                  | 6.25  | 7.18  | 27.50       | -29.9           | -45.2 | -31.8 | 1.02                     | 0.78                   | -83.3                              | -105.4 | -126.9 | -146.7 | 86.7                    | -125.64                                   |
| 3.00      | 18.97                   | 2100.8             | 2095.0 | 2089.8 | 5.38                  | 6.16  | 7.10  | 27.57       | -30.4           | -43.4 | -32.8 | 1.06                     | 0.47                   | -83.0                              | -106.2 | -126.8 | -146.7 | 100.0                   | -126.66                                   |
| 3.25      | 19.04                   | 2105.7             | 2099.8 | 2094.4 | 5.34                  | 6.10  | 7.05  | 27.60       | -30.5           | -42.6 | -33.3 | 1.06                     | 0.44                   | -82.5                              | -105.6 | -127.1 | -146.3 | 148.1                   | -129.94                                   |
| 3.50      | 19.09                   | 2110.5             | 2104.5 | 2099.1 | 5.29                  | 6.06  | 6.99  | 27.64       | -30.4           | -42.2 | -32.1 | 1.08                     | 0.40                   | -82.6                              | -105.6 | -126.6 | -147.2 | 177.0                   | -131.47                                   |
| 4.00      | 19.38                   | 2120.4             | 2114.1 | 2108.4 | 5.18                  | 5.95  | 6.91  | 27.71       | -29.7           | -41.4 | -32.8 | 1.11                     | 0.60                   | -82.7                              | -105.9 | -126.8 | -146.3 | 211.6                   | -133.08                                   |
| 4.25      | 19.55                   | 2125.4             | 2118.9 | 2113.1 | 5.14                  | 5.90  | 6.86  | 27.74       | -29.8           | -40.4 | -33.4 | 1.13                     | 0.70                   | -82.7                              | -106.1 | -126.9 | -146.4 | 302.4                   | -135.97                                   |
| 4.50      | 19.66                   | 2130.4             | 2123.8 | 2117.8 | 5.12                  | 5.85  | 6.81  | 27.78       | -30.1           | -39.8 | -32.8 | 1.16                     | 0.77                   | -83.0                              | -105.2 | -126.5 | -146.5 | 361.5                   | -137.88                                   |
| 5.00      | 19.65                   | 2140.4             | 2133.6 | 2127.4 | 5.07                  | 5.78  | 6.71  | 27.85       | -30.5           | -38.9 | -32.4 | 1.19                     | 0.84                   | -82.4                              | -105.9 | -127.4 | -146.6 | 507.5                   | -140.79                                   |
| 5.25      | 19.68                   | 2145.5             | 2138.6 | 2132.2 | 5.05                  | 5.76  | 6.67  | 27.89       | -30.2           | -38.7 | -32.8 | 1.21                     | 0.89                   | -81.3                              | -105.1 | -126.6 | -146.6 | 606.7                   | -142.17                                   |
| 5.50      | 19.80                   | 2150.5             | 2143.5 | 2137.1 | 5.04                  | 5.75  | 6.65  | 27.93       | -30.0           | -37.9 | -32.2 | 1.23                     | 0.91                   | -81.9                              | -105.1 | -126.5 | -145.0 | 851.6                   | -144.97                                   |
| 6.00      | 19.92                   | 2160.7             | 2153.4 | 2146.7 | 4.96                  | 5.72  | 6.62  | 28.00       | -30.5           | -36.7 | -32.6 | 1.28                     | 0.82                   | -80.7                              | -104.7 | -126.1 | -145.8 | 1000.0                  | -146.11                                   |

\*at 25°C unless mentioned otherwise

