

# Voltage Controlled Oscillator

**ROS-2770C+**

Low Noise 2715 to 2770 MHz

## Features

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

## Applications

- wireless communications
- base station



CASE STYLE: CK1113

PRICE: \$ 25.95 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 (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. |                            |                 | Max.               | Typ. | Max. | Vcc (volts) | Current (mA) |
|            |             |      |                    |                                                  |      |      |      |        |                   |       |                       |               |                             |                                 |      |                            |                 |                    |      |      |             |              |
| ROS-2770C+ | 2715        | 2770 | +0.4               | -83                                              | -110 | -132 | -152 | 0.5    | 4.5               | 28-32 | 16                    | 90            | -90                         | -25                             | -15  | 0.3                        | 0.7             | 5                  | 38   |      |             |              |

## Pin Connections

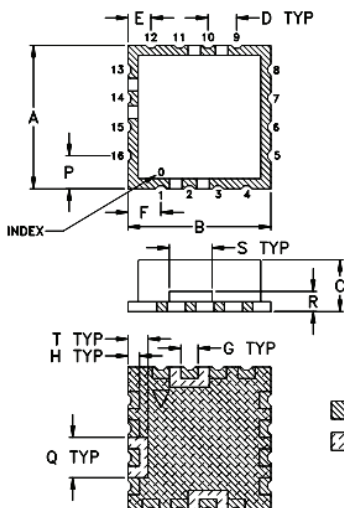
|        |                                |
|--------|--------------------------------|
| RF OUT | 10                             |
| VCC    | 14                             |
| V-TUNE | 2                              |
| GROUND | 1,3,4,5,6,7,8,9,11,12,13,15,16 |

## Maximum Ratings

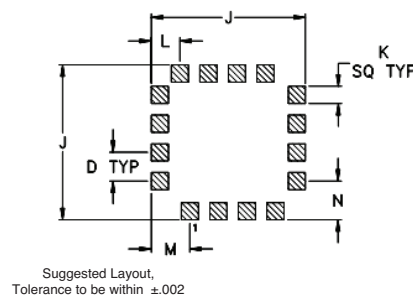
|                                      |                |
|--------------------------------------|----------------|
| Operating Temperature                | -55°C to 85°C  |
| Storage Temperature                  | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc)   | 7V             |
| Absolute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

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

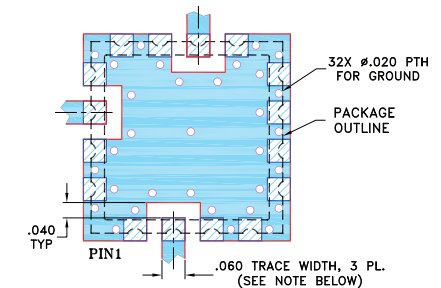
## Outline Drawing



## PCB Land Pattern



## 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 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  | .220 | .100 | .080 | .115 | .060 | .040 | .540  | .060 | .100 | .135 | .135 | .115 | .140 | .070 | .150 | .070 | grams |
| 12.70 | 12.70 | 5.59 | 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 | 1.2   |



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)

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. B  
M139652  
EDR-9100F1  
ROS-2770C+  
RAV  
121205  
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# Performance Data & Curves\*

# ROS-2770C+

| 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>2743 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      | 30.52                   | 2676.5             | 2670.8 | 2666.0 | -1.27                 | -0.99 | -0.97 | 28.79       | -28.1           | -45.6 | -39.6 | 0.35                     | 0.46                   | -82.5                              | -108.8 | -130.6 | -149.8 | 1.0                     | -82.35                                    |
| 0.25      | 28.67                   | 2683.9             | 2678.5 | 2673.8 | -1.05                 | -0.73 | -0.69 | 29.04       | -27.5           | -45.0 | -40.6 | 0.40                     | 0.38                   | -83.2                              | -109.4 | -131.0 | -150.0 | 2.0                     | -91.71                                    |
| 0.50      | 27.63                   | 2691.0             | 2685.6 | 2681.0 | -0.83                 | -0.52 | -0.48 | 29.27       | -26.9           | -46.4 | -40.7 | 0.43                     | 0.27                   | -83.2                              | -109.8 | -131.2 | -150.0 | 3.5                     | -99.59                                    |
| 0.75      | 27.06                   | 2697.8             | 2692.6 | 2688.0 | -0.62                 | -0.31 | -0.28 | 29.49       | -26.5           | -52.6 | -41.1 | 0.45                     | 0.20                   | -83.3                              | -109.7 | -132.0 | -150.5 | 6.0                     | -105.23                                   |
| 1.00      | 26.79                   | 2704.5             | 2699.3 | 2694.7 | -0.40                 | -0.12 | -0.11 | 29.71       | -26.2           | -49.8 | -41.7 | 0.47                     | 0.19                   | -82.8                              | -109.8 | -132.2 | -150.3 | 8.5                     | -108.73                                   |
| 1.25      | 26.78                   | 2711.2             | 2706.0 | 2701.4 | -0.21                 | 0.07  | 0.05  | 29.93       | -26.2           | -49.1 | -41.9 | 0.49                     | 0.26                   | -82.7                              | -109.9 | -131.7 | -150.6 | 10.0                    | -110.06                                   |
| 1.50      | 27.04                   | 2717.9             | 2712.7 | 2708.1 | -0.04                 | 0.23  | 0.20  | 30.13       | -26.4           | -51.1 | -42.6 | 0.51                     | 0.33                   | -82.8                              | -109.4 | -132.0 | -150.6 | 20.8                    | -118.38                                   |
| 1.75      | 27.52                   | 2724.7             | 2719.5 | 2714.8 | 0.11                  | 0.34  | 0.29  | 30.30       | -26.1           | -50.7 | -42.8 | 0.54                     | 0.37                   | -82.5                              | -109.9 | -132.5 | -152.3 | 35.5                    | -123.40                                   |
| 2.00      | 28.19                   | 2731.6             | 2726.4 | 2721.7 | 0.28                  | 0.41  | 0.34  | 30.44       | -25.8           | -49.1 | -42.2 | 0.57                     | 0.37                   | -82.7                              | -110.3 | -132.6 | -151.8 | 60.7                    | -128.23                                   |
| 2.25      | 28.95                   | 2738.6             | 2733.4 | 2728.8 | 0.40                  | 0.47  | 0.37  | 30.55       | -25.8           | -49.2 | -41.7 | 0.61                     | 0.40                   | -82.5                              | -110.1 | -132.5 | -151.1 | 86.7                    | -131.47                                   |
| 2.50      | 29.78                   | 2745.8             | 2740.6 | 2736.0 | 0.47                  | 0.48  | 0.39  | 30.64       | -25.8           | -45.8 | -39.7 | 0.65                     | 0.40                   | -82.5                              | -110.6 | -133.0 | -151.6 | 100.0                   | -132.85                                   |
| 2.75      | 30.72                   | 2753.2             | 2748.1 | 2743.4 | 0.49                  | 0.45  | 0.37  | 30.70       | -26.1           | -44.4 | -39.6 | 0.69                     | 0.37                   | -82.7                              | -110.8 | -133.8 | -153.3 | 148.1                   | -135.92                                   |
| 3.00      | 31.49                   | 2760.8             | 2755.8 | 2751.1 | 0.48                  | 0.42  | 0.34  | 30.73       | -26.8           | -44.7 | -38.3 | 0.71                     | 0.32                   | -82.5                              | -111.2 | -134.3 | -153.7 | 211.6                   | -137.58                                   |
| 3.25      | 32.30                   | 2768.7             | 2763.6 | 2758.9 | 0.36                  | 0.38  | 0.34  | 30.73       | -27.3           | -41.3 | -38.0 | 0.70                     | 0.30                   | -82.7                              | -111.0 | -134.2 | -153.1 | 302.4                   | -139.83                                   |
| 3.50      | 33.57                   | 2777.0             | 2771.7 | 2766.9 | 0.23                  | 0.29  | 0.31  | 30.66       | -28.3           | -40.4 | -36.8 | 0.66                     | 0.30                   | -82.1                              | -111.1 | -134.3 | -153.4 | 361.5                   | -140.96                                   |
| 3.75      | 34.14                   | 2785.3             | 2780.1 | 2775.2 | 0.12                  | 0.16  | 0.26  | 30.52       | -29.3           | -40.4 | -39.0 | 0.58                     | 0.28                   | -82.2                              | -111.1 | -133.5 | -152.3 | 507.5                   | -145.23                                   |
| 4.00      | 33.22                   | 2793.7             | 2788.6 | 2783.6 | -0.02                 | 0.10  | 0.26  | 30.52       | -30.0           | -38.5 | -36.1 | 0.39                     | 0.38                   | -82.0                              | -111.3 | -133.3 | -152.5 | 606.7                   | -147.06                                   |
| 4.25      | 32.41                   | 2802.0             | 2796.9 | 2791.9 | -0.16                 | 0.06  | 0.29  | 30.59       | -30.5           | -37.5 | -39.1 | 0.17                     | 0.42                   | -81.0                              | -109.9 | -131.9 | -152.7 | 851.6                   | -150.23                                   |
| 4.50      | 31.27                   | 2810.1             | 2805.0 | 2799.9 | -0.30                 | 0.00  | 0.30  | 30.64       | -31.3           | -36.9 | -38.9 | 0.08                     | 0.40                   | -80.0                              | -109.2 | -132.0 | -152.4 | 1000.0                  | -151.22                                   |

\*at 25°C unless mentioned otherwise

