

# Voltage Controlled Oscillator

## ROS-3100C+

### Linear Tuning 2875 to 3100 MHz

#### Features

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

#### Applications

- wireless communications
- point-to-point
- military



CASE STYLE: CK1113

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 |      |      |             |              |
|------------|-------------|------|--------------------|--------------------------------------------------|------|------|------|--------|-------------------|-----------------------|---------------|---------------------------------|-----------------------------|-----------------|------|------------------------------------------|-----------------|--------------------|------|------|-------------|--------------|
|            | Min.        | Max. |                    | Typ.                                             | 1    | 10   | 100  | 1000   | VOLTAGE RANGE (V) | SENSI- TIVITY (MHz/V) | PORT CAP (pF) | 3 dB MODULATION BANDWIDTH (MHz) |                             | Typ.            | Typ. |                                          |                 | Max.               | Typ. | Typ. | Vcc (volts) | Current (mA) |
|            |             |      |                    |                                                  |      |      |      |        |                   |                       |               |                                 |                             |                 |      |                                          |                 |                    |      |      |             |              |
| ROS-3100C+ | 2875        | 3100 | +1.2               | -78                                              | -105 | -126 | -146 | 0.5    | 11                | 29-37                 | 17            | 100                             | -90                         | -35             | -20  | 0.6                                      | 0.3             | 8                  | 37   |      |             |              |

#### Pin Connections

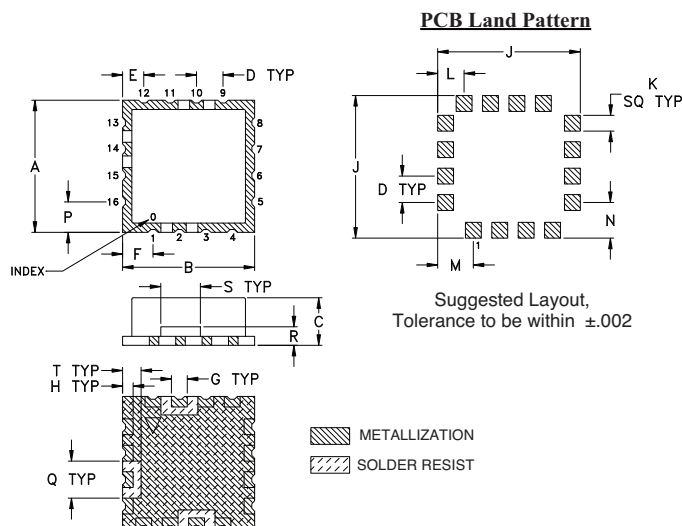
|        |                                |
|--------|--------------------------------|
| RF OUT | 10                             |
| VCC    | 14                             |
| V-TUNE | 2                              |
| GROUND | 1,3,4,5,6,7,8,9,11,12,13,15,16 |

#### Maximum Ratings

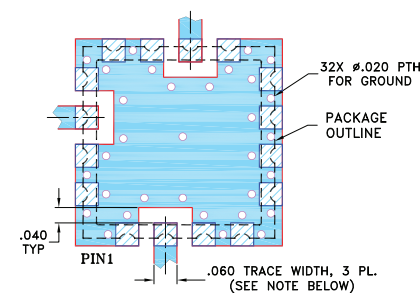
|                                      |                |
|--------------------------------------|----------------|
| Operating Temperature                | -55°C to 85°C  |
| Storage Temperature                  | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc)   | 8.5V           |
| Absolute Max. Tuning Voltage (Vtune) | 13.0V          |
| 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:

1. 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.
  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   |



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REV. OR  
M119741  
EDR-8896F1  
ROS-3100C+  
RAV  
121002  
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# Performance Data & Curves\*

# ROS-3100C+

| 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>2988 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      | 58.40                   | 2800.1             | 2787.3 | 2780.2 | -1.35                 | -1.49 | -1.85 | 31.17       | -26.5           | -44.9 | -36.9 | 1.72                     | 0.53                   | -76.2                              | -103.4 | -125.4 | -145.2 | 1.0                     | -77.71                                    |
| 0.50      | 47.73                   | 2828.1             | 2816.5 | 2810.3 | -0.63                 | -0.80 | -1.20 | 31.20       | -30.7           | -51.8 | -36.7 | 1.02                     | 0.30                   | -78.3                              | -104.9 | -126.6 | -145.7 | 2.0                     | -86.58                                    |
| 1.00      | 42.51                   | 2851.5             | 2840.4 | 2834.4 | -0.20                 | -0.27 | -0.65 | 31.20       | -34.5           | -57.7 | -35.8 | 0.79                     | 0.55                   | -77.5                              | -105.1 | -126.9 | -146.3 | 3.5                     | -93.27                                    |
| 1.50      | 39.41                   | 2872.5             | 2861.6 | 2855.8 | 0.02                  | 0.06  | -0.26 | 31.19       | -34.9           | -53.0 | -35.2 | 0.67                     | 0.41                   | -77.6                              | -105.1 | -127.1 | -147.0 | 6.0                     | -99.51                                    |
| 2.00      | 37.25                   | 2892.1             | 2881.3 | 2875.5 | 0.26                  | 0.24  | -0.09 | 31.17       | -42.3           | -49.3 | -34.6 | 0.60                     | 0.24                   | -76.2                              | -104.8 | -126.8 | -146.6 | 8.5                     | -103.15                                   |
| 2.50      | 35.57                   | 2910.5             | 2899.9 | 2894.1 | 0.63                  | 0.44  | 0.05  | 31.15       | -50.2           | -46.1 | -34.1 | 0.55                     | 0.53                   | -77.7                              | -105.0 | -126.5 | -146.6 | 10.0                    | -104.90                                   |
| 3.00      | 34.33                   | 2928.2             | 2917.7 | 2911.9 | 0.95                  | 0.77  | 0.31  | 31.13       | -51.9           | -45.5 | -34.2 | 0.51                     | 0.72                   | -79.0                              | -104.7 | -126.7 | -146.8 | 20.8                    | -112.31                                   |
| 4.00      | 32.66                   | 2962.0             | 2951.6 | 2945.8 | 1.20                  | 1.11  | 0.69  | 31.08       | -54.2           | -42.5 | -33.2 | 0.44                     | 0.49                   | -78.5                              | -104.8 | -126.6 | -146.7 | 35.5                    | -117.27                                   |
| 4.50      | 32.05                   | 2978.3             | 2967.9 | 2962.1 | 1.25                  | 1.15  | 0.72  | 31.06       | -50.4           | -41.4 | -32.9 | 0.40                     | 0.57                   | -76.9                              | -104.3 | -126.5 | -146.7 | 60.7                    | -121.92                                   |
| 5.00      | 31.43                   | 2994.2             | 2983.9 | 2978.1 | 1.29                  | 1.15  | 0.71  | 31.04       | -47.8           | -40.3 | -33.3 | 0.36                     | 0.82                   | -78.5                              | -104.8 | -126.4 | -146.4 | 86.7                    | -125.39                                   |
| 5.50      | 30.86                   | 3009.8             | 2999.7 | 2993.9 | 1.39                  | 1.18  | 0.68  | 31.02       | -55.8           | -39.8 | -34.3 | 0.33                     | 0.61                   | -77.7                              | -104.9 | -126.5 | -146.9 | 100.0                   | -126.60                                   |
| 6.00      | 30.44                   | 3025.2             | 3015.1 | 3009.4 | 1.55                  | 1.23  | 0.69  | 31.00       | -53.0           | -38.5 | -35.6 | 0.29                     | 0.33                   | -76.9                              | -104.6 | -126.4 | -146.4 | 148.1                   | -130.16                                   |
| 6.50      | 30.09                   | 3040.3             | 3030.3 | 3024.7 | 1.67                  | 1.35  | 0.77  | 30.99       | -59.6           | -37.7 | -37.1 | 0.25                     | 0.42                   | -78.4                              | -105.1 | -126.5 | -146.4 | 177.0                   | -131.47                                   |
| 7.00      | 29.80                   | 3055.3             | 3045.3 | 3039.7 | 1.70                  | 1.42  | 0.84  | 30.98       | -55.4           | -37.0 | -39.5 | 0.22                     | 0.80                   | -78.4                              | -104.7 | -126.3 | -146.4 | 211.6                   | -133.14                                   |
| 7.50      | 29.50                   | 3070.1             | 3060.2 | 3054.7 | 1.65                  | 1.43  | 0.84  | 30.97       | -58.6           | -37.4 | -43.2 | 0.18                     | 0.88                   | -77.3                              | -104.5 | -126.3 | -146.3 | 302.4                   | -136.21                                   |
| 8.00      | 29.31                   | 3084.9             | 3075.0 | 3069.5 | 1.55                  | 1.35  | 0.78  | 30.96       | -57.7           | -37.2 | -48.2 | 0.15                     | 0.69                   | -78.6                              | -104.9 | -126.0 | -147.1 | 361.5                   | -137.46                                   |
| 8.50      | 28.97                   | 3099.4             | 3089.7 | 3084.2 | 1.44                  | 1.24  | 0.64  | 30.95       | -50.1           | -36.3 | -53.9 | 0.11                     | 0.74                   | -77.3                              | -105.1 | -126.2 | -145.8 | 507.5                   | -140.56                                   |
| 9.00      | 28.60                   | 3113.7             | 3104.1 | 3098.8 | 1.39                  | 1.08  | 0.47  | 30.95       | -45.8           | -37.0 | -48.0 | 0.08                     | 0.74                   | -78.0                              | -104.5 | -126.2 | -146.5 | 606.7                   | -142.34                                   |
| 10.00     | 27.74                   | 3141.9             | 3132.5 | 3127.3 | 1.54                  | 1.06  | 0.30  | 30.94       | -43.6           | -36.5 | -42.1 | 0.05                     | 0.87                   | -77.9                              | -104.5 | -126.1 | -146.0 | 851.6                   | -145.25                                   |
| 11.00     | 26.86                   | 3169.4             | 3160.1 | 3155.0 | 1.40                  | 1.05  | 0.28  | 30.93       | -43.3           | -36.3 | -40.0 | 0.05                     | 0.60                   | -79.3                              | -104.6 | -125.3 | -146.0 | 1000.0                  | -146.28                                   |

\*at 25°C unless mentioned otherwise

