

# Voltage Controlled Oscillator

## ROS-2432-119+

Wide Band 1662 to 2432 MHz

### Features

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



CASE STYLE: CK605

### Applications

- wireless communications
- cable TV headend

**+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.            | Typ. |                            |                 | Typ.               | Typ. |
| ROS-2432-119+ | 1662        | 2432 | +5.5               | -71   | -99 | -122 | -142 | 1      | 28                | 27-52                 | 34            | 50                              | -90                         | -24             | -12  | 6.5                        | 1               | 10                 | 30   |

### Pin Connections

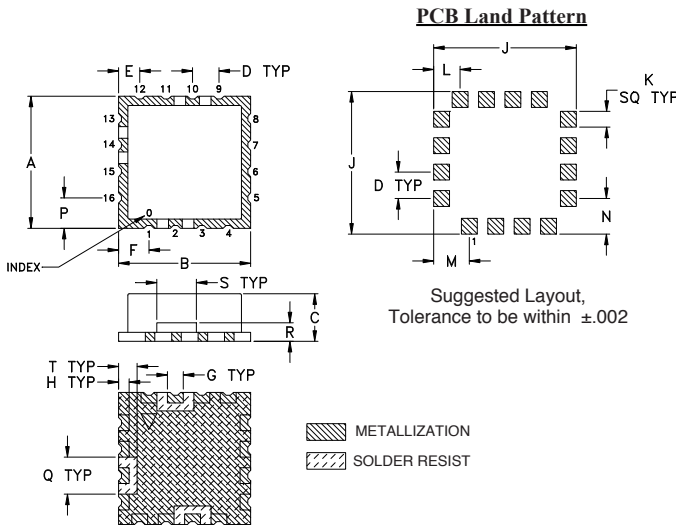
|        |                                |
|--------|--------------------------------|
| RF OUT | 10                             |
| VCC    | 14                             |
| V-TUNE | 2                              |
| GROUND | 1,3,4,5,6,7,8,9,11,12,13,15,16 |

### Maximum Ratings

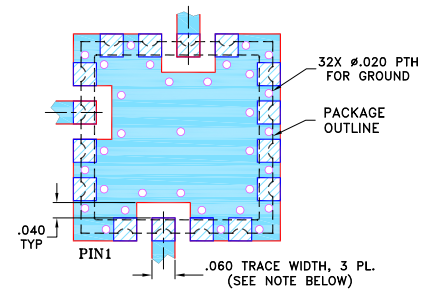
|                                      |                |
|--------------------------------------|----------------|
| Operating Temperature                | -55°C to 85°C  |
| Storage Temperature                  | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc)   | 12V            |
| Absolute Max. Tuning Voltage (Vtune) | 30V            |
| 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" ± .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  | .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   |

#### Notes

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 B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.  
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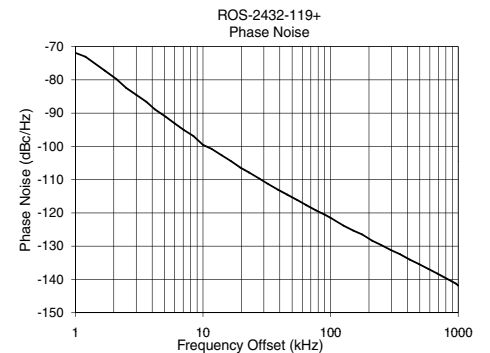
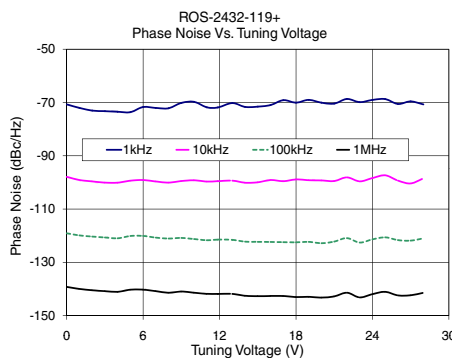
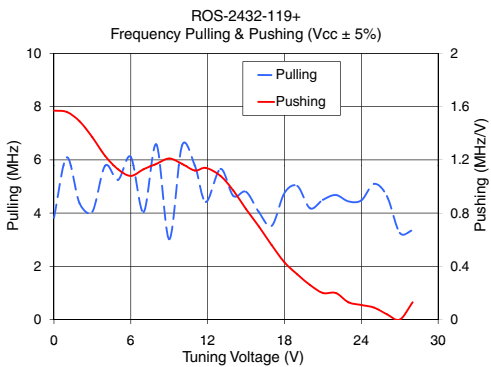
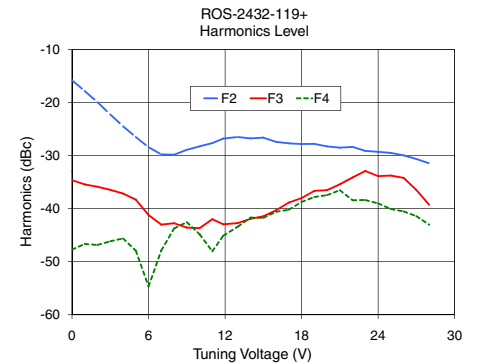
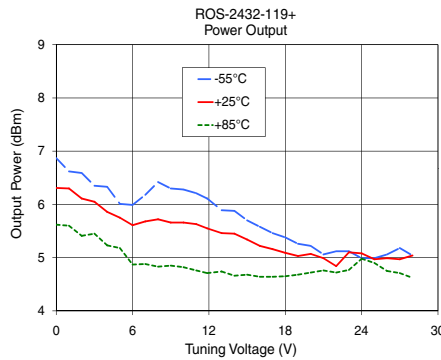
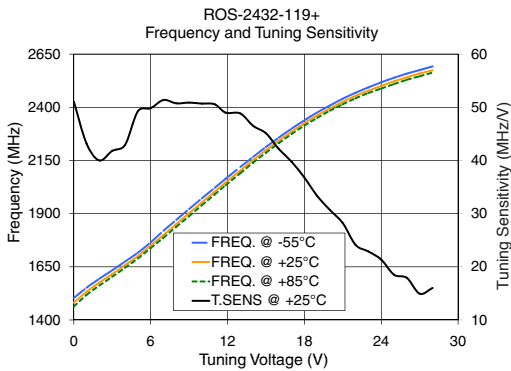


# Performance Data & Curves\*

# ROS-2432-119+

| V TUNE | TUNE SENS (MHz/V) | FREQUENCY (MHz) |        |        | POWER OUTPUT (dBm) |       |       | Icc (mA) | HARMONICS (dBc) |       |       | FREQ. PUSH (MHz/V) | FREQ. PULL (MHz) | PHASE NOISE (dBc/Hz) at offsets |        |        |        | FREQ OFFSET (kHz) | PHASE NOISE at 2047 MHz (dBc/Hz) |
|--------|-------------------|-----------------|--------|--------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|----------------------------------|
|        |                   | -55°C           | +25°C  | +85°C  | -55°C              | +25°C | +85°C |          | F2              | F3    | F4    |                    |                  | 1kHz                            | 10kHz  | 100kHz | 1MHz   |                   |                                  |
| 0.00   | 51.09             | 1503.4          | 1481.6 | 1463.6 | 6.87               | 6.31  | 5.62  | 23.63    | -15.8           | -34.7 | -47.7 | 1.57               | 3.83             | -70.70                          | -97.9  | -119.1 | -139.2 | 1.0               | -71.87                           |
| 1.00   | 43.15             | 1552.1          | 1532.7 | 1518.2 | 6.62               | 6.30  | 5.60  | 23.58    | -17.9           | -35.5 | -46.7 | 1.56               | 6.09             | -72.03                          | -99.1  | -119.9 | -140.0 | 2.5               | -82.42                           |
| 2.00   | 40.01             | 1593.8          | 1575.8 | 1562.1 | 6.59               | 6.11  | 5.41  | 23.56    | -20.0           | -35.9 | -46.9 | 1.49               | 4.37             | -73.04                          | -99.6  | -120.3 | -140.5 | 5.1               | -91.07                           |
| 3.00   | 41.81             | 1633.7          | 1615.8 | 1603.1 | 6.35               | 6.05  | 5.45  | 23.50    | -22.3           | -36.5 | -46.2 | 1.37               | 4.05             | -73.27                          | -100.1 | -120.7 | -140.8 | 7.1               | -95.10                           |
| 4.00   | 42.92             | 1674.5          | 1657.7 | 1645.8 | 6.33               | 5.86  | 5.23  | 23.47    | -24.5           | -37.2 | -45.6 | 1.23               | 5.78             | -73.49                          | -100.1 | -121.0 | -141.1 | 8.4               | -96.85                           |
| 5.00   | 49.25             | 1716.6          | 1700.6 | 1689.2 | 6.01               | 5.75  | 5.18  | 23.38    | -26.5           | -38.3 | -47.9 | 1.13               | 5.25             | -73.63                          | -99.4  | -120.1 | -140.3 | 10.0              | -99.53                           |
| 6.00   | 49.83             | 1765.0          | 1749.8 | 1737.8 | 5.99               | 5.61  | 4.87  | 23.38    | -28.4           | -41.2 | -54.7 | 1.08               | 6.11             | -71.70                          | -99.1  | -120.1 | -140.3 | 23.1              | -107.89                          |
| 8.00   | 50.74             | 1870.8          | 1851.0 | 1837.9 | 6.42               | 5.72  | 4.83  | 23.41    | -29.9           | -42.8 | -43.7 | 1.17               | 6.58             | -72.15                          | -100.1 | -121.1 | -141.4 | 32.5              | -111.34                          |
| 10.00  | 50.71             | 1971.9          | 1952.6 | 1939.8 | 6.28               | 5.66  | 4.82  | 23.39    | -28.3           | -43.7 | -44.8 | 1.17               | 6.54             | -69.75                          | -99.2  | -121.2 | -141.4 | 45.6              | -114.47                          |
| 11.00  | 50.57             | 2021.4          | 2003.4 | 1990.4 | 6.21               | 5.63  | 4.76  | 23.39    | -27.7           | -42.0 | -48.0 | 1.12               | 5.79             | -71.81                          | -99.7  | -121.7 | -141.8 | 89.8              | -120.49                          |
| 14.00  | 46.52             | 2166.8          | 2151.5 | 2139.7 | 5.88               | 5.45  | 4.66  | 23.43    | -26.8           | -41.9 | -41.7 | 0.97               | 4.65             | -71.65                          | -100.1 | -122.2 | -142.5 | 100.0             | -121.46                          |
| 16.00  | 42.17             | 2257.6          | 2243.1 | 2231.7 | 5.58               | 5.22  | 4.64  | 23.46    | -27.4           | -40.3 | -40.6 | 0.70               | 4.04             | -70.95                          | -99.1  | -122.3 | -142.6 | 126.1             | -123.80                          |
| 18.00  | 36.79             | 2339.0          | 2325.1 | 2314.0 | 5.38               | 5.09  | 4.65  | 23.51    | -27.8           | -38.0 | -38.8 | 0.43               | 4.76             | -70.06                          | -98.9  | -122.5 | -143.0 | 177.0             | -126.48                          |
| 20.00  | 30.66             | 2409.1          | 2395.2 | 2384.4 | 5.22               | 5.07  | 4.72  | 23.60    | -28.3           | -36.5 | -37.5 | 0.26               | 4.18             | -70.08                          | -99.2  | -122.8 | -143.2 | 297.1             | -131.18                          |
| 22.00  | 24.12             | 2468.7          | 2454.0 | 2442.3 | 5.12               | 4.84  | 4.72  | 23.61    | -28.4           | -34.1 | -38.4 | 0.20               | 4.68             | -68.68                          | -98.1  | -120.9 | -141.4 | 348.8             | -132.38                          |
| 24.00  | 21.34             | 2517.8          | 2501.0 | 2488.3 | 4.99               | 5.08  | 4.98  | 23.62    | -29.3           | -33.9 | -39.0 | 0.11               | 4.48             | -69.04                          | -98.4  | -121.4 | -141.9 | 417.0             | -134.02                          |
| 25.00  | 18.51             | 2539.2          | 2522.4 | 2509.5 | 4.99               | 4.97  | 4.90  | 23.60    | -29.5           | -33.8 | -40.1 | 0.09               | 5.10             | -68.72                          | -97.3  | -120.6 | -141.1 | 489.7             | -135.33                          |
| 26.00  | 17.91             | 2558.5          | 2540.9 | 2529.2 | 5.06               | 4.99  | 4.75  | 23.63    | -30.0           | -34.2 | -40.5 | 0.04               | 4.64             | -70.55                          | -99.3  | -121.6 | -142.4 | 585.4             | -136.85                          |
| 27.00  | 14.94             | 2575.2          | 2558.8 | 2546.1 | 5.18               | 4.97  | 4.71  | 23.60    | -30.7           | -36.5 | -41.4 | 0.00               | 3.26             | -69.60                          | -100.4 | -121.8 | -142.4 | 687.4             | -138.25                          |
| 28.00  | 16.02             | 2592.4          | 2573.7 | 2563.0 | 5.04               | 5.04  | 4.62  | 23.55    | -31.5           | -39.3 | -43.0 | 0.13               | 3.36             | -70.72                          | -98.5  | -121.0 | -141.4 | 1000.0            | -141.85                          |

\*at 25°C unless mentioned otherwise



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