

Voltage Controlled Oscillator

ROS-1631-119+

5V Tuning for PLL IC's 1460 to 1631 MHz

Features

- low phase noise
- low pulling
- low pushing
- aqueous washable

Applications

- wireless communications
- military



CASE STYLE: CK605

+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. | Vcc (volts) | Current (mA) |
| | | | | | | | | | Min. | Max. | | | | | | | | | | | | |
| ROS-1631-119+ | 1460 | 1631 | 0 | -74 | -101 | -122 | -142 | 0.5 | 5 | 59-78 | 20 | 170 | -90 | -21 | -12 | 2 | 0.5 | 5 | 28 | | | |

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) | 7V |
| All specifications | 50 ohm system |

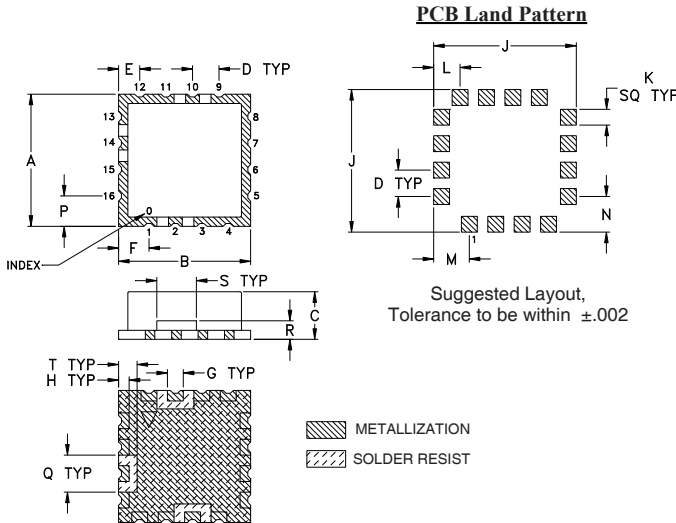
Permanent damage may occur if any of these limits are exceeded.

Tape & Reel: F37

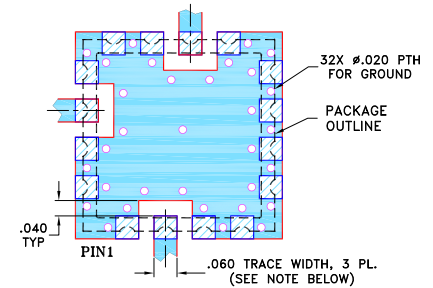
13" Reels with 20, 50, 100, 200, 500 devices

Environmental Ratings: ENV65

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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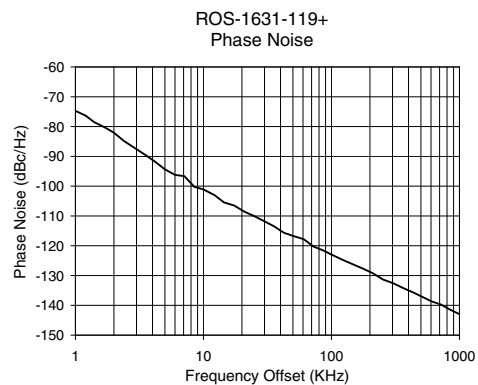
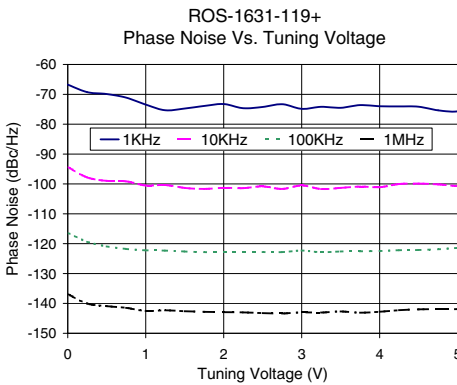
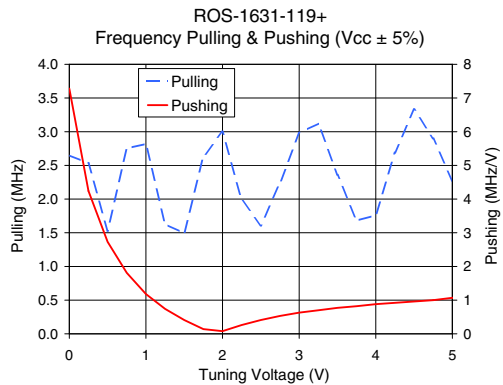
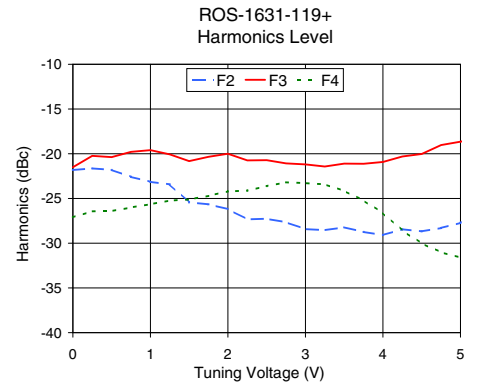
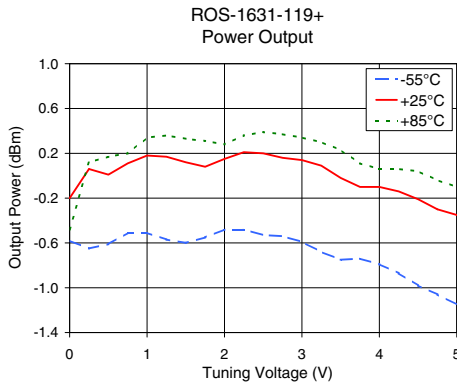
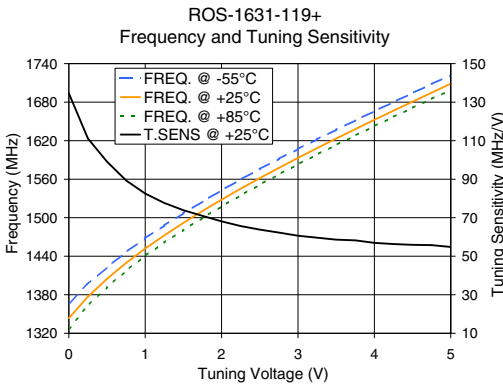


Performance Data & Curves*

ROS-1631-119+

| 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 1546 MHz (dBc/Hz) |
|--------|-------------------|-----------------|--------|--------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|----------------------------------|
| | | -55°C | +25°C | +85°C | -55°C | +25°C | +85°C | | F2 | F3 | F4 | | | 1kHz | 10kHz | 100kHz | 1MHz | | |
| 0.00 | 134.59 | 1366.8 | 1343.4 | 1327.2 | -0.58 | -0.20 | -0.48 | 21.58 | -21.8 | -21.5 | -27.1 | 7.28 | 2.65 | -66.8 | -94.3 | -116.4 | -136.8 | 1.0 | -74.73 |
| 0.50 | 99.09 | 1422.9 | 1404.9 | 1392.0 | -0.61 | 0.01 | 0.17 | 22.21 | -21.8 | -20.4 | -26.4 | 2.73 | 1.53 | -69.9 | -99.0 | -120.9 | -140.9 | 2.0 | -82.07 |
| 0.75 | 89.34 | 1446.4 | 1429.6 | 1417.5 | -0.51 | 0.11 | 0.20 | 22.39 | -22.6 | -19.8 | -26.0 | 1.81 | 2.75 | -71.1 | -99.1 | -121.8 | -141.5 | 3.5 | -89.46 |
| 1.00 | 82.51 | 1467.9 | 1452.0 | 1440.5 | -0.51 | 0.18 | 0.34 | 22.57 | -23.1 | -19.6 | -25.6 | 1.18 | 2.82 | -73.5 | -100.5 | -122.2 | -142.5 | 6.0 | -96.22 |
| 1.25 | 77.64 | 1487.9 | 1472.6 | 1461.5 | -0.57 | 0.17 | 0.36 | 22.71 | -23.4 | -20.1 | -25.2 | 0.74 | 1.63 | -75.3 | -100.4 | -122.3 | -142.3 | 8.5 | -100.24 |
| 1.50 | 73.87 | 1507.0 | 1492.0 | 1481.1 | -0.60 | 0.12 | 0.33 | 22.82 | -25.4 | -20.8 | -25.1 | 0.41 | 1.49 | -74.8 | -101.3 | -122.6 | -142.6 | 10.0 | -101.10 |
| 1.75 | 70.96 | 1525.2 | 1510.5 | 1499.8 | -0.55 | 0.08 | 0.31 | 22.90 | -25.7 | -20.3 | -24.7 | 0.14 | 2.63 | -73.9 | -101.7 | -122.8 | -142.8 | 20.8 | -108.52 |
| 2.00 | 68.11 | 1542.7 | 1528.2 | 1517.7 | -0.48 | 0.15 | 0.28 | 22.99 | -26.2 | -20.0 | -24.2 | 0.08 | 3.00 | -73.3 | -101.3 | -122.9 | -142.9 | 35.5 | -113.45 |
| 2.25 | 65.65 | 1559.5 | 1545.2 | 1534.9 | -0.48 | 0.21 | 0.36 | 23.08 | -27.3 | -20.7 | -24.1 | 0.26 | 1.99 | -74.7 | -101.4 | -122.8 | -143.0 | 60.7 | -117.79 |
| 2.50 | 63.81 | 1575.7 | 1561.7 | 1551.4 | -0.53 | 0.20 | 0.39 | 23.14 | -27.3 | -20.7 | -23.6 | 0.41 | 1.61 | -74.2 | -100.8 | -122.8 | -143.2 | 86.7 | -121.60 |
| 2.75 | 62.28 | 1591.6 | 1577.6 | 1567.4 | -0.54 | 0.16 | 0.37 | 23.18 | -27.7 | -21.1 | -23.2 | 0.53 | 2.24 | -73.3 | -101.7 | -122.8 | -143.4 | 100.0 | -122.96 |
| 3.00 | 60.65 | 1607.0 | 1593.2 | 1583.0 | -0.59 | 0.14 | 0.34 | 23.20 | -28.4 | -21.2 | -23.3 | 0.63 | 2.98 | -74.9 | -100.5 | -122.3 | -143.0 | 148.1 | -126.28 |
| 3.25 | 59.64 | 1622.1 | 1608.3 | 1598.3 | -0.68 | 0.09 | 0.30 | 23.22 | -28.5 | -21.4 | -23.4 | 0.70 | 3.12 | -74.2 | -101.7 | -122.9 | -143.1 | 177.0 | -127.69 |
| 3.50 | 58.61 | 1636.9 | 1623.2 | 1613.2 | -0.75 | -0.02 | 0.23 | 23.21 | -28.2 | -21.1 | -24.2 | 0.77 | 2.36 | -74.5 | -101.3 | -122.6 | -142.7 | 211.6 | -129.28 |
| 3.75 | 58.25 | 1651.6 | 1637.9 | 1627.9 | -0.74 | -0.10 | 0.11 | 23.19 | -28.7 | -21.1 | -25.2 | 0.82 | 1.68 | -73.6 | -100.9 | -122.6 | -143.1 | 302.4 | -132.55 |
| 4.00 | 56.94 | 1665.9 | 1652.5 | 1642.5 | -0.79 | -0.10 | 0.06 | 23.19 | -29.1 | -20.9 | -26.6 | 0.88 | 1.76 | -74.0 | -101.1 | -122.5 | -142.8 | 361.5 | -134.15 |
| 4.25 | 56.34 | 1680.0 | 1666.7 | 1656.9 | -0.87 | -0.14 | 0.06 | 23.18 | -28.4 | -20.3 | -28.6 | 0.92 | 2.69 | -74.0 | -100.0 | -122.2 | -142.3 | 507.5 | -137.05 |
| 4.50 | 55.93 | 1694.0 | 1680.8 | 1671.0 | -0.98 | -0.21 | 0.04 | 23.15 | -28.7 | -20.0 | -30.0 | 0.96 | 3.33 | -74.1 | -99.9 | -122.1 | -142.0 | 606.7 | -138.69 |
| 4.75 | 55.76 | 1708.1 | 1694.8 | 1685.0 | -1.06 | -0.30 | -0.04 | 23.12 | -28.3 | -19.0 | -31.0 | 1.00 | 2.90 | -75.4 | -100.2 | -121.9 | -141.9 | 851.6 | -141.50 |
| 5.00 | 54.81 | 1722.0 | 1708.7 | 1698.7 | -1.15 | -0.35 | -0.10 | 23.10 | -27.7 | -18.7 | -31.6 | 1.07 | 2.27 | -75.7 | -100.7 | -121.4 | -141.9 | 1000.0 | -142.96 |

*at 25°C unless mentioned otherwise



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