

Surface Mount

Voltage Controlled Oscillator

ROS-1990+

Linear Tuning 1800 to 1990 MHz

Features

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



CASE STYLE: CK605

Applications

- digital cordless telephones
- PCS
- CDMA
- DCS

+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. | Typ. | Vcc (volts) | Current (mA) |
| | | | | | | | | | Min. | Max. | | | | | | | | | | | | |
| ROS-1990+ | 1800 | 1990 | +6 | -75 | -101 | -122 | -143 | 1 | 11 | 37-44 | 40 | 270 | -90 | -30 | -16 | 5 | 1.3 | 8 | 30 | | | |

Pin Connections

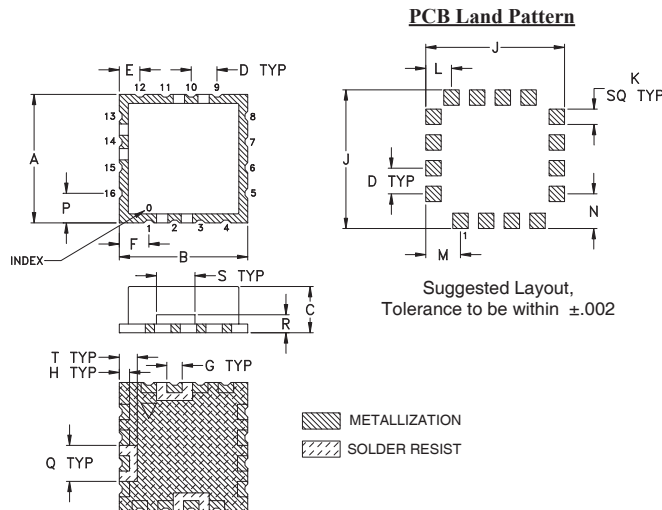
| | |
|--------|--------------------------------|
| RF OUT | 10 |
| VCC | 14 |
| V-TUNE | 2 |
| GROUND | 1,3,4,5,6,7,8,9,11,12,13,15,16 |

Maximum Ratings

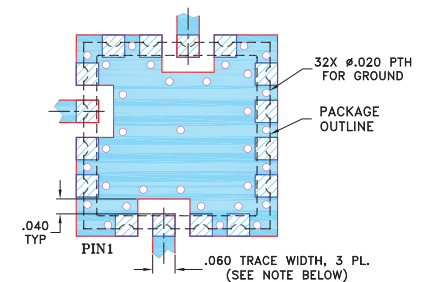
| | |
|--------------------------------------|----------------|
| Operating Temperature | -55°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc) | 10V |
| Absolute Max. Tuning Voltage (Vtune) | 13V |
| All specifications | 50 ohm system |

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

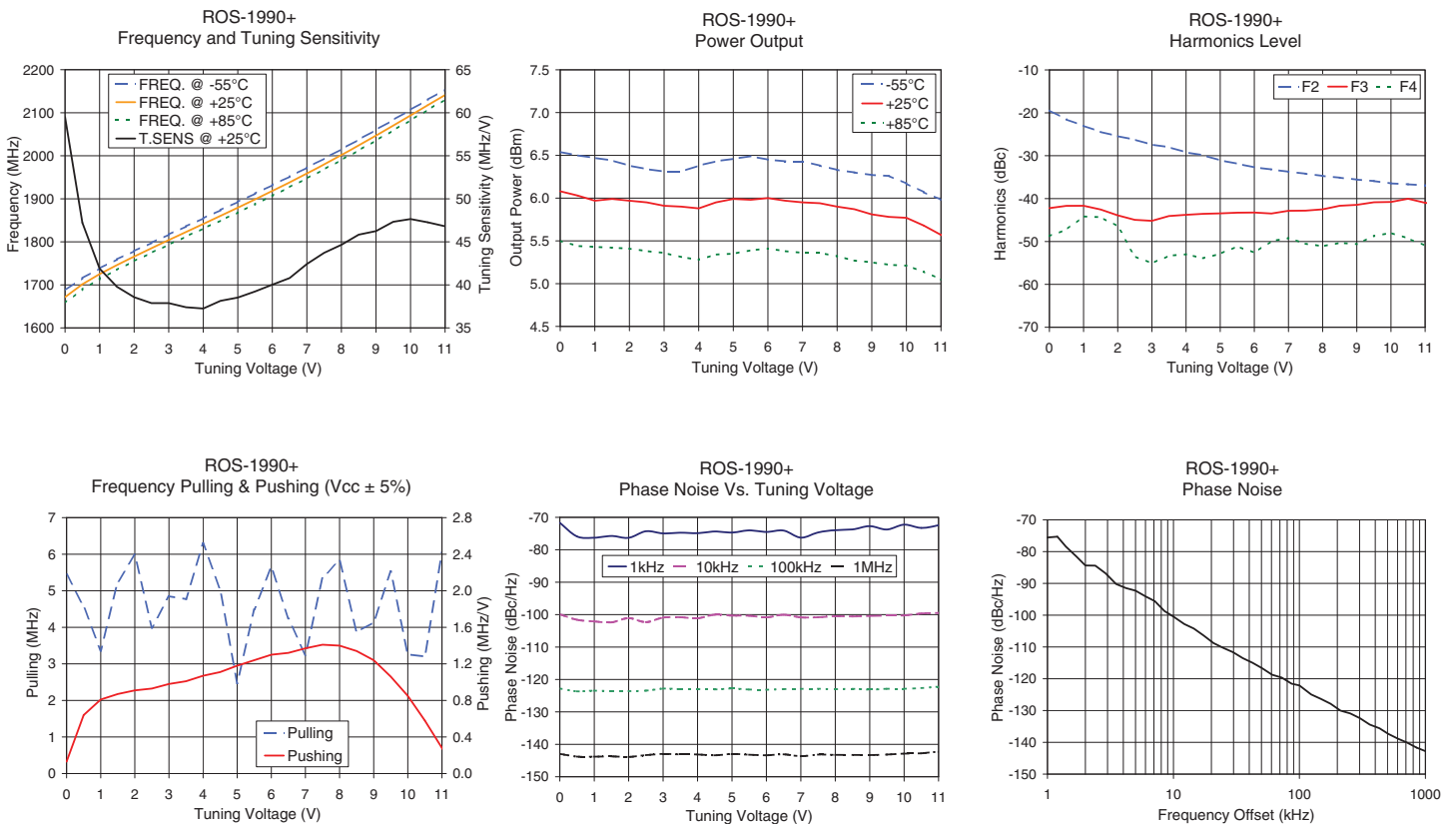
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Performance Data & Curves*

ROS-1990+

| 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 1865 MHz (dBc/Hz) |
|--------|-------------------|-----------------|--------|--------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|----------------------------------|
| | | -55°C | +25°C | +85°C | -55°C | +25°C | +85°C | | F2 | F3 | F4 | | | 1kHz | 10kHz | 100kHz | 1MHz | | |
| 0.00 | 59.50 | 1687.1 | 1671.6 | 1657.9 | 6.54 | 6.08 | 5.50 | 25.95 | -19.4 | -42.2 | -48.7 | 0.13 | 5.45 | -71.7 | -99.9 | -122.8 | -142.9 | 1.0 | -75.55 |
| 0.50 | 47.22 | 1715.4 | 1701.4 | 1689.4 | 6.50 | 6.03 | 5.44 | 25.96 | -21.5 | -41.7 | -47.2 | 0.64 | 4.57 | -75.9 | -101.6 | -123.7 | -143.8 | 2.0 | -84.36 |
| 1.00 | 41.89 | 1738.1 | 1725.0 | 1713.8 | 6.47 | 5.97 | 5.43 | 25.95 | -23.0 | -41.7 | -44.2 | 0.81 | 3.36 | -76.3 | -102.1 | -123.5 | -143.8 | 3.5 | -90.20 |
| 2.00 | 38.57 | 1778.5 | 1765.8 | 1755.1 | 6.38 | 5.97 | 5.41 | 25.89 | -25.4 | -43.9 | -46.4 | 0.91 | 5.98 | -76.3 | -101.1 | -123.6 | -143.9 | 6.0 | -94.07 |
| 2.50 | 37.88 | 1797.5 | 1785.1 | 1774.5 | 6.34 | 5.95 | 5.38 | 25.87 | -26.3 | -45.0 | -53.5 | 0.93 | 3.99 | -74.3 | -102.3 | -123.5 | -143.3 | 8.5 | -98.71 |
| 3.00 | 37.88 | 1816.8 | 1804.0 | 1793.3 | 6.31 | 5.91 | 5.36 | 25.84 | -27.4 | -45.2 | -55.1 | 0.98 | 4.85 | -75.0 | -100.9 | -122.8 | -143.0 | 10.0 | -100.46 |
| 3.50 | 37.40 | 1835.8 | 1823.0 | 1812.2 | 6.31 | 5.90 | 5.31 | 25.84 | -28.0 | -44.1 | -53.3 | 1.01 | 4.77 | -74.7 | -100.8 | -123.0 | -143.1 | 20.8 | -108.79 |
| 4.00 | 37.25 | 1854.5 | 1841.7 | 1830.9 | 6.38 | 5.88 | 5.28 | 25.85 | -29.2 | -43.8 | -53.0 | 1.07 | 6.30 | -74.9 | -101.1 | -123.0 | -143.1 | 35.5 | -113.51 |
| 4.50 | 38.15 | 1873.6 | 1860.3 | 1849.4 | 6.43 | 5.95 | 5.34 | 25.84 | -29.9 | -43.6 | -53.9 | 1.11 | 5.04 | -74.4 | -100.0 | -123.1 | -143.4 | 60.7 | -118.73 |
| 5.00 | 38.53 | 1892.9 | 1879.4 | 1868.2 | 6.46 | 5.99 | 5.35 | 25.83 | -31.1 | -43.5 | -52.9 | 1.18 | 2.47 | -74.7 | -100.3 | -122.8 | -143.0 | 86.7 | -121.56 |
| 6.00 | 40.02 | 1931.8 | 1918.3 | 1907.0 | 6.45 | 6.00 | 5.41 | 25.82 | -32.7 | -43.2 | -52.6 | 1.30 | 5.65 | -74.5 | -100.8 | -123.2 | -143.4 | 100.0 | -122.11 |
| 6.50 | 40.79 | 1951.7 | 1938.3 | 1927.0 | 6.43 | 5.97 | 5.38 | 25.81 | -33.2 | -43.5 | -49.9 | 1.32 | 4.24 | -74.1 | -100.1 | -123.0 | -143.1 | 148.1 | -126.36 |
| 7.00 | 42.42 | 1972.3 | 1958.7 | 1947.4 | 6.43 | 5.95 | 5.36 | 25.78 | -33.7 | -42.8 | -49.2 | 1.37 | 3.24 | -76.3 | -100.8 | -122.9 | -143.7 | 177.0 | -127.88 |
| 7.50 | 43.73 | 1993.6 | 1979.9 | 1968.4 | 6.38 | 5.94 | 5.36 | 25.74 | -34.2 | -42.8 | -50.5 | 1.41 | 5.35 | -74.7 | -100.8 | -122.9 | -143.2 | 211.6 | -130.02 |
| 8.00 | 44.66 | 2015.3 | 2001.7 | 1990.3 | 6.33 | 5.90 | 5.32 | 25.72 | -34.7 | -42.5 | -51.1 | 1.40 | 5.84 | -73.9 | -100.5 | -123.0 | -143.3 | 302.4 | -132.40 |
| 8.50 | 45.83 | 2037.6 | 2024.1 | 2012.7 | 6.30 | 5.87 | 5.27 | 25.69 | -35.1 | -41.7 | -50.3 | 1.34 | 3.87 | -73.7 | -100.6 | -122.9 | -143.3 | 361.5 | -134.42 |
| 9.00 | 46.25 | 2060.2 | 2047.0 | 2035.6 | 6.27 | 5.81 | 5.25 | 25.65 | -35.6 | -41.5 | -50.6 | 1.24 | 4.14 | -72.7 | -100.4 | -123.1 | -143.3 | 507.5 | -137.36 |
| 10.00 | 47.65 | 2106.8 | 2093.8 | 2082.6 | 6.17 | 5.77 | 5.21 | 25.55 | -36.5 | -40.8 | -48.0 | 0.85 | 3.26 | -72.3 | -100.3 | -122.9 | -142.9 | 606.7 | -138.89 |
| 10.50 | 47.26 | 2130.2 | 2117.6 | 2106.7 | 6.07 | 5.68 | 5.14 | 25.52 | -36.7 | -40.0 | -49.3 | 0.58 | 3.20 | -73.3 | -99.7 | -122.7 | -142.8 | 851.6 | -141.67 |
| 11.00 | 46.81 | 2153.5 | 2141.2 | 2130.6 | 5.98 | 5.57 | 5.05 | 25.47 | -36.9 | -41.0 | -51.0 | 0.28 | 6.04 | -72.4 | -99.5 | -122.3 | -142.3 | 1000.0 | -142.78 |

*at 25°C unless mentioned otherwise



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