

Voltage Controlled Oscillator

ROS-200-619+

5V Tuning for PLL IC's 155 to 200 MHz

Features

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



CASE STYLE: CK605

Applications

- cellular infrastructure UMTS
- mobile radio services
- radar

+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. | Max. | Typ. | Typ. | Vcc (volts) | Current (mA) |
| | Min. | Max. | | | | | | | Min. | Max. | | | | | | | | | | | | | |
| ROS-200-619+ | 155 | 200 | +1 | -90 | -114 | -134 | -154 | 0.5 | 5 | 12 - 16 | 790 | 4 | -90 | -17 | - | 0.07 | 0.3 | 5 | 21 | | | | |

Pin Connections

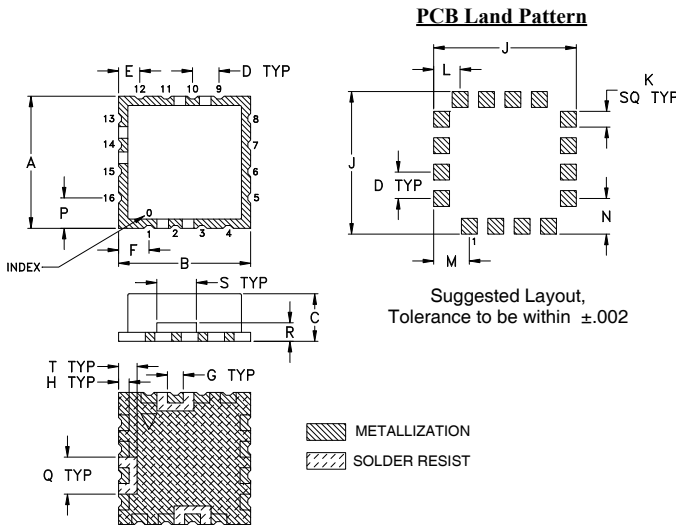
| | |
|--------|--------------------------------|
| RF OUT | 10 |
| VCC | 14 |
| V-TUNE | 2 |
| GROUND | 1,3,4,5,6,7,8,9,11,12,13,15,16 |

Maximum Ratings

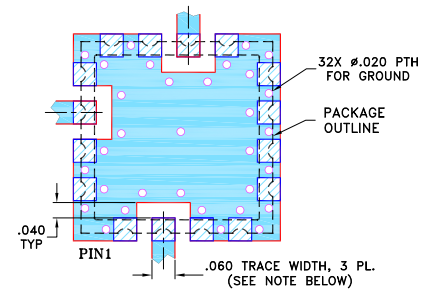
| | |
|--------------------------------------|----------------|
| Operating Temperature | -55°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc) | 7V |
| Absolute Max. Tuning Voltage (Vtune) | 7V |
| All specifications | 50 ohm system |

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

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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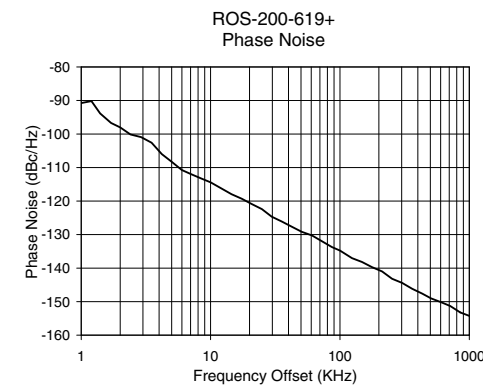
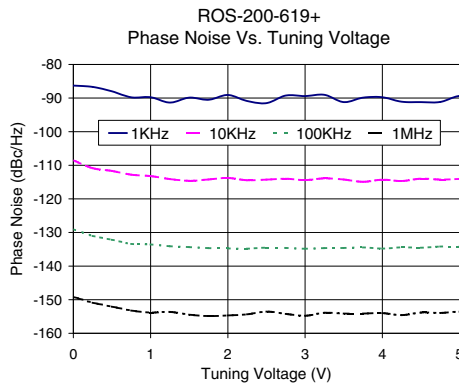
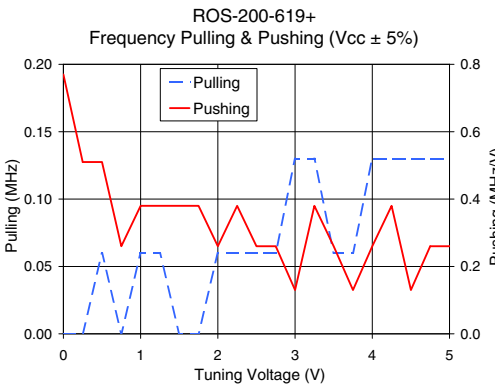
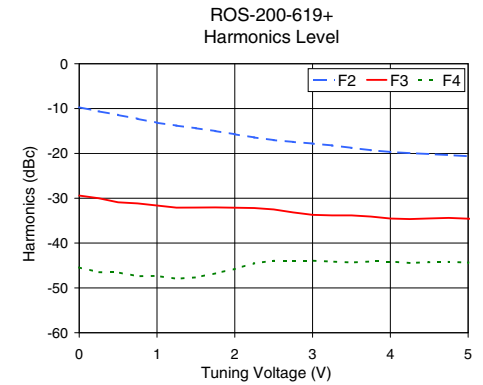
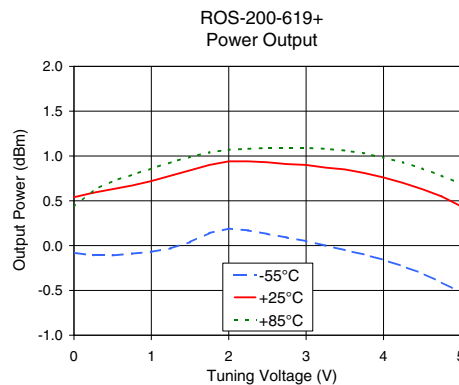
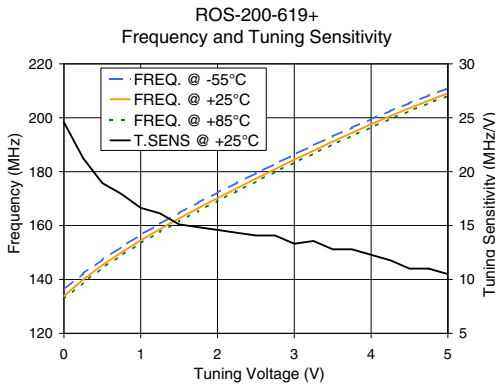


Performance Data & Curves*

ROS-200-619+

| 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 174 MHz (dBc/Hz) |
|--------|-------------------|-----------------|-------|-------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|---------------------------------|
| | | -55°C | +25°C | +85°C | -55°C | +25°C | +85°C | | F2 | F3 | F4 | | | 1kHz | 10kHz | 100kHz | 1MHz | | |
| 0.00 | 24.58 | 136.3 | 133.8 | 132.7 | -0.08 | 0.54 | 0.43 | 14.43 | -9.7 | -29.4 | -45.4 | 0.77 | 0.00 | -86.3 | -108.5 | -129.0 | -149.2 | 1.0 | -90.77 |
| 0.25 | 21.25 | 142.2 | 140.0 | 138.8 | -0.11 | 0.59 | 0.62 | 14.62 | -10.6 | -30.0 | -46.5 | 0.51 | 0.00 | -86.7 | -110.9 | -131.0 | -150.9 | 2.0 | -98.04 |
| 0.50 | 18.94 | 147.3 | 145.3 | 144.3 | -0.11 | 0.63 | 0.72 | 14.77 | -11.4 | -30.9 | -46.5 | 0.51 | 0.06 | -88.0 | -111.7 | -132.2 | -152.1 | 3.5 | -102.60 |
| 0.75 | 17.92 | 152.1 | 150.0 | 149.0 | -0.09 | 0.67 | 0.79 | 14.90 | -12.3 | -31.2 | -47.4 | 0.26 | 0.00 | -89.8 | -112.8 | -133.4 | -153.2 | 6.0 | -110.75 |
| 1.00 | 16.64 | 156.5 | 154.5 | 153.5 | -0.07 | 0.72 | 0.86 | 15.03 | -13.2 | -31.6 | -47.3 | 0.38 | 0.06 | -89.8 | -113.2 | -133.6 | -153.8 | 8.5 | -113.28 |
| 1.25 | 16.13 | 160.6 | 158.7 | 157.6 | -0.03 | 0.78 | 0.93 | 15.14 | -13.8 | -32.1 | -48.0 | 0.38 | 0.06 | -91.4 | -114.1 | -134.1 | -153.6 | 10.0 | -114.41 |
| 1.50 | 15.10 | 164.7 | 162.7 | 161.6 | 0.04 | 0.84 | 0.99 | 15.25 | -14.4 | -32.1 | -47.7 | 0.38 | 0.00 | -89.9 | -114.6 | -134.4 | -154.5 | 20.8 | -120.89 |
| 1.75 | 14.85 | 168.5 | 166.5 | 165.4 | 0.14 | 0.90 | 1.04 | 15.34 | -15.0 | -32.0 | -46.8 | 0.38 | 0.00 | -90.5 | -114.2 | -134.7 | -154.9 | 35.5 | -126.10 |
| 2.00 | 14.59 | 172.2 | 170.2 | 169.2 | 0.19 | 0.94 | 1.07 | 15.42 | -15.7 | -32.1 | -45.8 | 0.26 | 0.06 | -89.1 | -113.8 | -134.8 | -154.7 | 60.7 | -130.24 |
| 2.25 | 14.34 | 175.8 | 173.8 | 172.7 | 0.17 | 0.94 | 1.08 | 15.49 | -16.5 | -32.2 | -44.5 | 0.38 | 0.06 | -90.9 | -114.5 | -134.8 | -154.4 | 86.7 | -133.72 |
| 2.50 | 14.08 | 179.4 | 177.4 | 176.3 | 0.13 | 0.93 | 1.09 | 15.57 | -17.0 | -32.5 | -43.9 | 0.26 | 0.06 | -91.5 | -114.3 | -134.5 | -153.5 | 100.0 | -134.78 |
| 2.75 | 14.08 | 182.8 | 180.9 | 179.9 | 0.09 | 0.91 | 1.09 | 15.64 | -17.4 | -33.2 | -44.0 | 0.26 | 0.06 | -89.3 | -114.0 | -134.6 | -154.2 | 123.9 | -137.04 |
| 3.00 | 13.31 | 186.4 | 184.4 | 183.4 | 0.05 | 0.90 | 1.09 | 15.72 | -17.8 | -33.7 | -43.9 | 0.13 | 0.13 | -89.4 | -114.4 | -134.8 | -154.8 | 177.0 | -139.71 |
| 3.25 | 13.57 | 189.8 | 187.8 | 186.7 | 0.00 | 0.87 | 1.08 | 15.79 | -18.2 | -33.8 | -44.1 | 0.38 | 0.13 | -89.0 | -113.9 | -134.7 | -153.9 | 211.6 | -141.00 |
| 3.50 | 12.80 | 193.1 | 191.2 | 190.1 | -0.05 | 0.85 | 1.06 | 15.86 | -18.8 | -33.8 | -44.3 | 0.26 | 0.06 | -91.2 | -114.2 | -134.6 | -154.1 | 302.4 | -144.41 |
| 3.75 | 12.80 | 196.3 | 194.4 | 193.3 | -0.10 | 0.81 | 1.03 | 15.92 | -19.3 | -34.1 | -44.1 | 0.13 | 0.06 | -89.9 | -114.9 | -134.4 | -154.1 | 361.5 | -146.16 |
| 4.00 | 12.29 | 199.5 | 197.6 | 196.4 | -0.16 | 0.76 | 0.98 | 15.97 | -19.7 | -34.5 | -44.1 | 0.26 | 0.13 | -89.8 | -114.3 | -134.8 | -154.0 | 507.5 | -149.04 |
| 4.25 | 11.78 | 202.5 | 200.6 | 199.6 | -0.23 | 0.70 | 0.93 | 16.01 | -19.9 | -34.7 | -44.5 | 0.38 | 0.13 | -91.1 | -114.7 | -134.4 | -154.6 | 606.7 | -150.19 |
| 4.50 | 11.01 | 205.4 | 203.6 | 202.5 | -0.31 | 0.63 | 0.86 | 16.04 | -20.1 | -34.5 | -44.3 | 0.13 | 0.13 | -91.2 | -114.0 | -134.5 | -153.8 | 851.6 | -153.22 |
| 5.00 | 10.50 | 210.9 | 209.1 | 208.1 | -0.52 | 0.44 | 0.69 | 16.08 | -20.6 | -34.6 | -44.3 | 0.26 | 0.13 | -89.4 | -114.1 | -134.2 | -153.6 | 1000.0 | -154.25 |

*at 25°C unless mentioned otherwise



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