

Voltage Controlled Oscillator

ROS-1215-119+

5V Tuning for PLL IC's 1205 to 1260 MHz

Features

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



CASE STYLE: CK605

Applications

- point-to-point radio
- wireless communication

+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. | | | | | | | Min. | Max. | | | | | | | | | | | | |
| ROS-1215-119+ | 1205 | 1260 | +3 | -84 | -108 | -129 | -149 | 0.5 | 5 | 24 | 40 | 100 | -90 | -28 | -22 | 0.7 | 0.5 | 5 | 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) | 6V |
| Absolute Max. Tuning Voltage (Vtune) | 7V |
| All specifications | 50 ohm system |

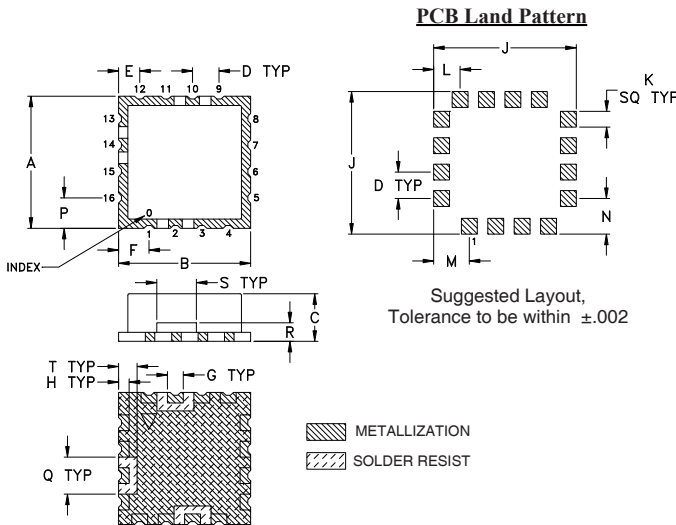
Permanent damage may occur if any of these limits are exceeded.

Tape & Reel: F37

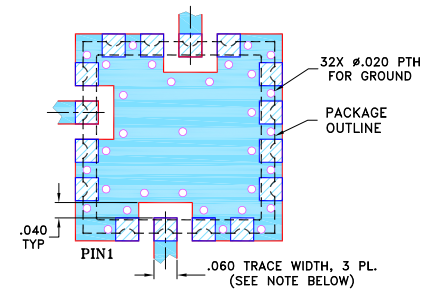
13" Reels with 20, 50, 100, 200, 500 devices

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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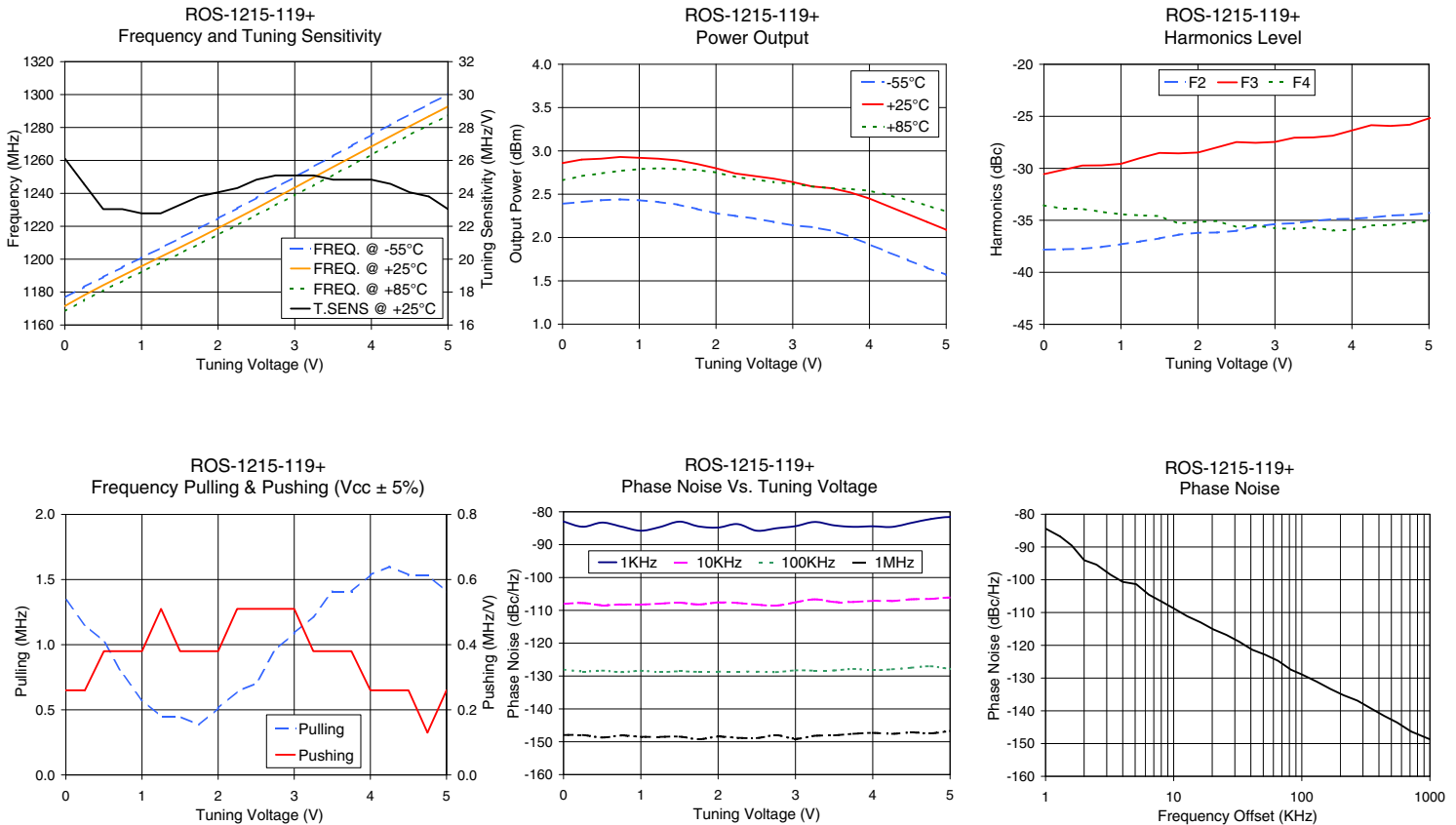


Performance Data & Curves*

ROS-1215-119+

| 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 1233 MHz (dBc/Hz) |
|--------|-------------------|-----------------|--------|--------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|----------------------------------|
| | | -55°C | +25°C | +85°C | -55°C | +25°C | +85°C | | F2 | F3 | F4 | | | 1kHz | 10kHz | 100kHz | 1MHz | | |
| 0.00 | 26.11 | 1176.7 | 1171.5 | 1168.3 | 2.39 | 2.86 | 2.66 | 25.96 | -37.8 | -30.6 | -33.6 | 0.26 | 1.34 | -83.0 | -108.0 | -128.0 | -148.0 | 1.0 | -84.36 |
| 0.50 | 23.04 | 1189.1 | 1184.2 | 1181.0 | 2.43 | 2.91 | 2.74 | 26.05 | -37.7 | -29.7 | -33.9 | 0.38 | 1.02 | -83.3 | -108.5 | -128.3 | -148.7 | 2.5 | -95.39 |
| 0.75 | 23.04 | 1195.1 | 1190.0 | 1186.8 | 2.44 | 2.93 | 2.77 | 26.10 | -37.6 | -29.7 | -34.2 | 0.38 | 0.77 | -84.5 | -108.2 | -128.8 | -148.1 | 5.1 | -101.34 |
| 1.00 | 22.78 | 1200.9 | 1195.7 | 1192.3 | 2.43 | 2.92 | 2.79 | 26.13 | -37.3 | -29.6 | -34.4 | 0.38 | 0.58 | -85.8 | -108.2 | -128.4 | -148.5 | 10.0 | -108.73 |
| 1.25 | 22.78 | 1206.7 | 1201.4 | 1197.9 | 2.41 | 2.91 | 2.80 | 26.17 | -37.0 | -29.0 | -34.5 | 0.51 | 0.45 | -84.6 | -108.0 | -128.8 | -148.5 | 16.2 | -113.00 |
| 1.50 | 23.30 | 1212.7 | 1207.1 | 1203.5 | 2.38 | 2.89 | 2.79 | 26.20 | -36.7 | -28.5 | -34.6 | 0.38 | 0.45 | -83.0 | -107.7 | -128.6 | -148.5 | 10.0 | -108.73 |
| 1.75 | 23.81 | 1218.6 | 1212.9 | 1209.2 | 2.33 | 2.85 | 2.78 | 26.24 | -36.4 | -28.6 | -35.3 | 0.38 | 0.38 | -84.5 | -108.2 | -128.8 | -149.3 | 20.4 | -115.15 |
| 2.00 | 24.06 | 1224.8 | 1218.9 | 1214.9 | 2.28 | 2.80 | 2.75 | 26.28 | -36.2 | -28.5 | -35.2 | 0.38 | 0.51 | -84.8 | -107.6 | -128.7 | -148.5 | 41.0 | -121.35 |
| 2.25 | 24.32 | 1230.9 | 1224.9 | 1220.7 | 2.25 | 2.74 | 2.70 | 26.32 | -36.2 | -28.0 | -35.1 | 0.51 | 0.64 | -83.8 | -107.8 | -128.6 | -148.8 | 65.2 | -124.73 |
| 2.50 | 24.83 | 1237.2 | 1231.0 | 1226.8 | 2.22 | 2.71 | 2.67 | 26.37 | -36.0 | -27.5 | -35.6 | 0.51 | 0.70 | -85.8 | -108.3 | -128.7 | -148.9 | 82.2 | -127.46 |
| 2.75 | 25.09 | 1243.5 | 1237.2 | 1232.8 | 2.18 | 2.68 | 2.64 | 26.41 | -35.6 | -27.6 | -35.5 | 0.51 | 0.96 | -85.0 | -108.6 | -128.8 | -148.0 | 100.0 | -128.89 |
| 3.00 | 25.09 | 1249.9 | 1243.5 | 1238.9 | 2.14 | 2.64 | 2.62 | 26.46 | -35.4 | -27.5 | -35.8 | 0.51 | 1.09 | -84.4 | -107.6 | -128.3 | -149.1 | 130.7 | -131.10 |
| 3.25 | 25.09 | 1256.3 | 1249.7 | 1245.1 | 2.12 | 2.59 | 2.59 | 26.50 | -35.3 | -27.1 | -35.8 | 0.38 | 1.22 | -83.1 | -106.7 | -128.4 | -148.2 | 167.8 | -133.35 |
| 3.50 | 24.83 | 1262.7 | 1256.0 | 1251.2 | 2.08 | 2.57 | 2.57 | 26.55 | -35.1 | -27.0 | -35.7 | 0.38 | 1.41 | -84.1 | -107.4 | -128.3 | -148.1 | 211.6 | -135.24 |
| 3.75 | 24.83 | 1269.1 | 1262.2 | 1257.3 | 2.01 | 2.52 | 2.56 | 26.60 | -34.9 | -26.9 | -36.0 | 0.38 | 1.41 | -84.6 | -107.4 | -127.8 | -147.6 | 271.7 | -136.88 |
| 4.00 | 24.83 | 1275.5 | 1268.4 | 1263.4 | 1.92 | 2.45 | 2.54 | 26.65 | -34.9 | -26.4 | -35.9 | 0.26 | 1.54 | -84.4 | -107.1 | -128.2 | -147.3 | 342.7 | -139.18 |
| 4.25 | 24.58 | 1281.8 | 1274.6 | 1269.5 | 1.83 | 2.36 | 2.49 | 26.69 | -34.7 | -25.9 | -35.5 | 0.26 | 1.60 | -84.6 | -107.2 | -128.0 | -147.6 | 440.1 | -141.56 |
| 4.50 | 24.06 | 1288.0 | 1280.8 | 1275.5 | 1.74 | 2.27 | 2.43 | 26.74 | -34.5 | -25.9 | -35.5 | 0.26 | 1.54 | -83.4 | -106.6 | -127.5 | -147.2 | 554.9 | -143.58 |
| 4.75 | 23.81 | 1294.1 | 1286.8 | 1281.5 | 1.65 | 2.18 | 2.37 | 26.79 | -34.5 | -25.8 | -35.2 | 0.13 | 1.54 | -82.2 | -106.5 | -127.0 | -147.5 | 712.4 | -146.30 |
| 5.00 | 23.04 | 1300.1 | 1292.7 | 1287.2 | 1.57 | 2.09 | 2.30 | 26.84 | -34.3 | -25.2 | -35.0 | 0.26 | 1.41 | -81.6 | -106.1 | -127.8 | -146.8 | 1000.0 | -148.71 |

*at 25°C unless mentioned otherwise



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