

Voltage Controlled Oscillator

ROS-4240-119+

5V Tuning for PLL IC's 4120 to 4240 MHz

Features

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

Applications

- wireless communications
- industrial communications
- wireless microphones
- radio altimetry



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) | SENSITIVITY (MHz/V) | PORT CAP (pF) | 3 dB MODULATION BANDWIDTH (MHz) | | Typ. | Typ. | | | Max. | Typ. | Max. | Vcc (volts) | Current (mA) |
| | Typ. | | | | | | | | | | | | | | | | | | | | | |
| ROS-4240-119+ | 4120 | 4240 | +4 | -69 | -97 | -118 | -138 | 0.5 | 5 | 57-68 | 10 | 120 | -90 | -27 | -18 | 1.6 | 2 | 5 | 50 | | | |

Pin Connections

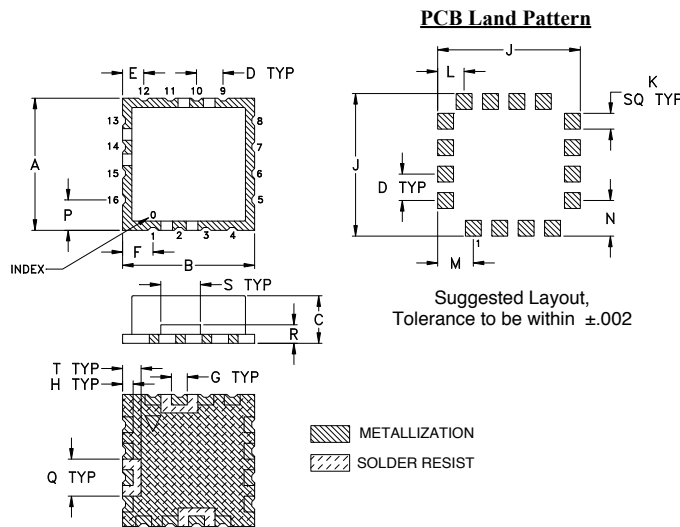
| | |
|--------|--------------------------------|
| RF OUT | 10 |
| VCC | 14 |
| V-TUNE | 2 |
| GROUND | 1,3,4,5,6,7,8,9,11,12,13,15,16 |

Maximum Ratings

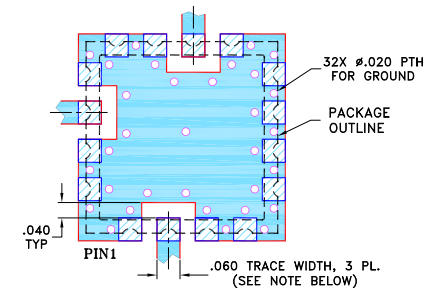
| | |
|--------------------------------------|----------------|
| Operating Temperature | -55°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc) | 6V |
| Absolute Max. Tuning Voltage (Vtune) | 7V |
| All specifications | 50 ohm system |

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

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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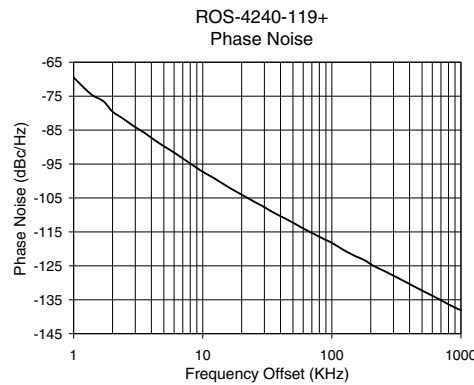
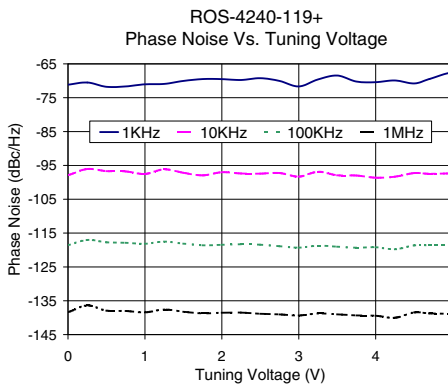
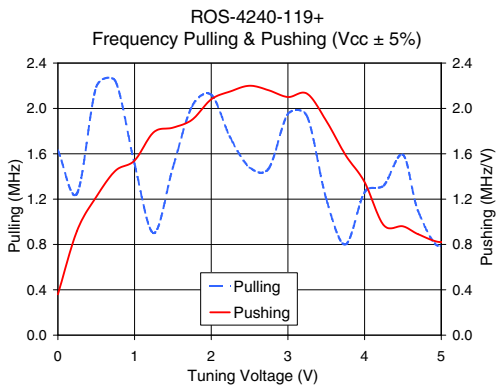
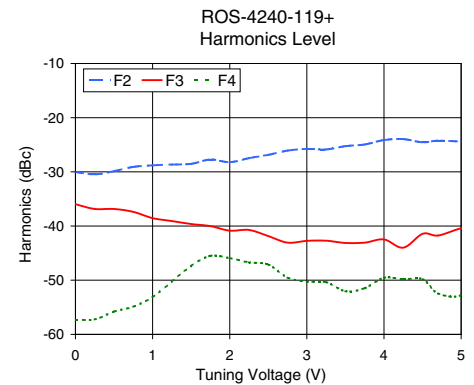
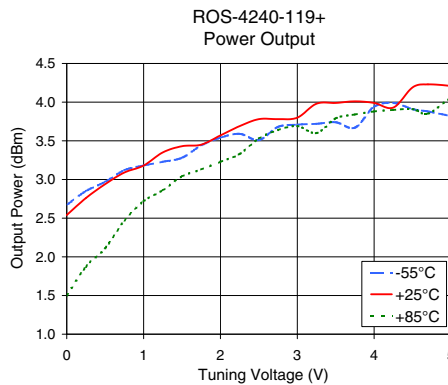
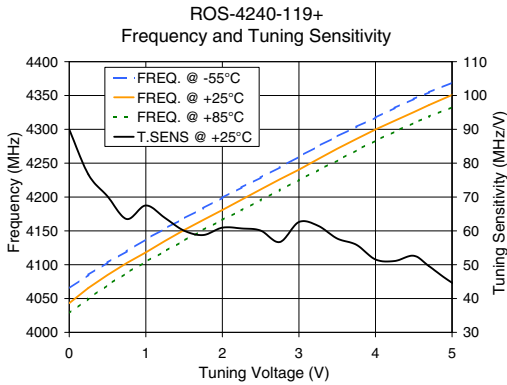


Performance Data & Curves*

ROS-4240-119+

| 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 984 MHz (dBc/Hz) |
|--------|-------------------|-----------------|--------|--------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|-------|--------|--------|-------------------|---------------------------------|
| | | -55°C | +25°C | +85°C | -55°C | +25°C | +85°C | | F2 | F3 | F4 | | | 1kHz | 10kHz | 100kHz | 1MHz | | |
| 0.00 | 89.98 | 4064.9 | 4043.1 | 4028.2 | 2.67 | 2.54 | 1.50 | 34.10 | -30.0 | -36.0 | -57.3 | 0.36 | 1.63 | -71.2 | -97.9 | -118.6 | -138.4 | 1.0 | -69.52 |
| 0.25 | 76.67 | 4085.0 | 4065.6 | 4049.7 | 2.85 | 2.76 | 1.87 | 34.12 | -30.5 | -36.9 | -57.2 | 0.92 | 1.25 | -70.5 | -96.1 | -117.0 | -136.4 | 2.0 | -79.56 |
| 0.50 | 70.20 | 4103.3 | 4084.8 | 4069.9 | 2.97 | 2.94 | 2.11 | 34.23 | -29.9 | -36.9 | -55.8 | 1.22 | 2.19 | -71.8 | -96.7 | -117.7 | -137.9 | 4.2 | -87.86 |
| 0.75 | 63.50 | 4119.8 | 4102.4 | 4087.8 | 3.12 | 3.09 | 2.47 | 34.32 | -29.1 | -37.4 | -54.9 | 1.45 | 2.24 | -71.7 | -96.8 | -117.9 | -138.0 | 6.0 | -91.63 |
| 1.00 | 67.51 | 4137.4 | 4118.2 | 4104.4 | 3.18 | 3.18 | 2.72 | 34.41 | -28.8 | -38.5 | -53.1 | 1.54 | 1.51 | -71.0 | -97.5 | -118.2 | -138.4 | 8.5 | -95.52 |
| 1.25 | 63.81 | 4153.3 | 4135.1 | 4119.9 | 3.23 | 3.35 | 2.86 | 34.44 | -28.7 | -39.1 | -50.2 | 1.79 | 0.90 | -70.9 | -96.2 | -117.5 | -137.6 | 10.0 | -97.28 |
| 1.50 | 60.05 | 4168.4 | 4151.1 | 4135.6 | 3.28 | 3.43 | 3.04 | 34.57 | -28.5 | -39.6 | -47.4 | 1.83 | 1.48 | -70.0 | -97.2 | -118.1 | -138.3 | 20.8 | -104.41 |
| 1.75 | 58.75 | 4183.5 | 4166.1 | 4151.4 | 3.44 | 3.45 | 3.13 | 34.70 | -27.7 | -40.0 | -45.5 | 1.90 | 2.02 | -69.5 | -98.0 | -118.6 | -138.7 | 42.5 | -110.87 |
| 2.00 | 60.93 | 4198.8 | 4180.8 | 4166.2 | 3.54 | 3.57 | 3.23 | 34.78 | -28.2 | -40.9 | -45.9 | 2.08 | 2.12 | -69.5 | -97.0 | -118.5 | -138.5 | 60.7 | -114.08 |
| 2.25 | 60.71 | 4214.1 | 4196.0 | 4180.4 | 3.59 | 3.69 | 3.33 | 34.88 | -27.5 | -40.7 | -46.7 | 2.15 | 1.74 | -69.8 | -97.4 | -118.3 | -138.5 | 86.7 | -117.11 |
| 2.50 | 60.09 | 4228.7 | 4211.2 | 4195.3 | 3.51 | 3.78 | 3.53 | 34.99 | -26.9 | -41.9 | -47.1 | 2.20 | 1.48 | -69.2 | -97.4 | -118.4 | -138.9 | 100.0 | -118.23 |
| 2.75 | 56.69 | 4243.9 | 4226.2 | 4210.2 | 3.68 | 3.78 | 3.64 | 35.14 | -26.1 | -43.1 | -49.5 | 2.16 | 1.47 | -70.0 | -97.3 | -118.9 | -139.0 | 148.1 | -121.95 |
| 3.00 | 62.60 | 4259.6 | 4240.4 | 4225.1 | 3.71 | 3.80 | 3.69 | 35.25 | -25.8 | -42.7 | -50.3 | 2.10 | 1.95 | -71.7 | -98.3 | -119.3 | -139.4 | 211.6 | -125.04 |
| 3.25 | 61.50 | 4275.0 | 4256.0 | 4239.7 | 3.72 | 3.98 | 3.60 | 35.32 | -25.9 | -42.7 | -50.4 | 2.13 | 1.93 | -69.6 | -96.9 | -118.7 | -138.8 | 302.4 | -127.96 |
| 3.50 | 57.71 | 4289.5 | 4271.4 | 4253.8 | 3.74 | 3.99 | 3.79 | 35.49 | -25.3 | -43.1 | -52.1 | 1.89 | 1.20 | -68.4 | -97.9 | -119.0 | -139.0 | 432.2 | -131.06 |
| 3.75 | 55.89 | 4303.8 | 4285.8 | 4269.0 | 3.67 | 4.01 | 3.84 | 35.65 | -25.0 | -43.1 | -51.5 | 1.59 | 0.80 | -70.2 | -98.0 | -119.3 | -139.3 | 507.5 | -132.41 |
| 4.00 | 51.55 | 4317.2 | 4299.8 | 4283.2 | 3.94 | 3.99 | 3.88 | 35.79 | -24.1 | -42.5 | -49.5 | 1.35 | 1.26 | -70.4 | -98.6 | -119.2 | -139.4 | 606.7 | -133.90 |
| 4.50 | 52.64 | 4344.9 | 4325.5 | 4309.4 | 3.91 | 4.19 | 3.91 | 35.90 | -24.6 | -41.4 | -49.8 | 0.96 | 1.59 | -70.8 | -97.3 | -118.6 | -138.5 | 712.4 | -135.28 |
| 4.70 | 49.55 | 4354.8 | 4336.0 | 4318.8 | 3.88 | 4.23 | 3.85 | 35.96 | -24.2 | -41.8 | -52.5 | 0.89 | 1.09 | -69.5 | -97.5 | -118.6 | -138.7 | 851.6 | -136.88 |
| 5.00 | 44.68 | 4369.0 | 4350.8 | 4332.7 | 3.82 | 4.21 | 4.05 | 36.11 | -24.4 | -40.4 | -52.8 | 0.82 | 0.79 | -67.5 | -97.4 | -118.6 | -138.9 | 1000.0 | -138.12 |

*at 25°C unless mentioned otherwise



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