

Voltage Controlled Oscillator

ROS-2470-119+

5V Tuning for PLL IC's 2430 to 2470 MHz

Features

- high power output, +9.5 dBm typ.
- linear tuning characteristics
- low phase noise
- low pushing
- aqueous washable



CASE STYLE: CK605

Applications

- Wireless communications
- Badge detection

+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 dBr (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. |
| ROS-2470-119+ | 2430 | 2470 | +9.5 | -80 | -106 | -126 | -146 | 0.5 | 5 | 28-40 | 30 | 100 | -90 | -22 | -11 | 2 | 0.5 | 8 | 43 |

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

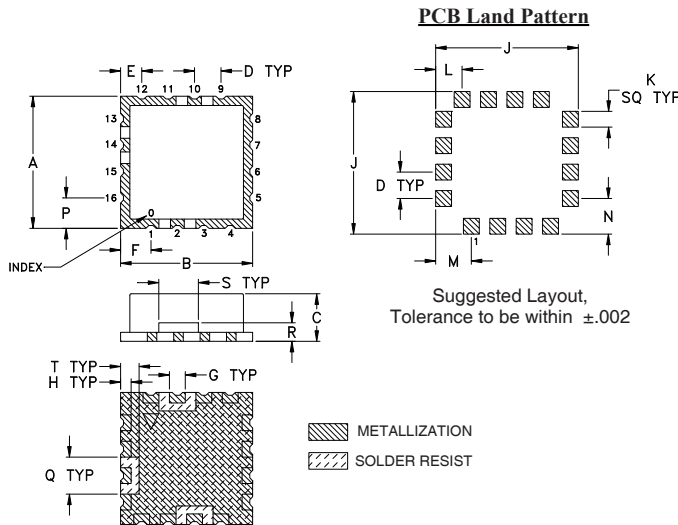
Permanent damage may occur if any of these limits are exceeded.

Tape & Reel: F37

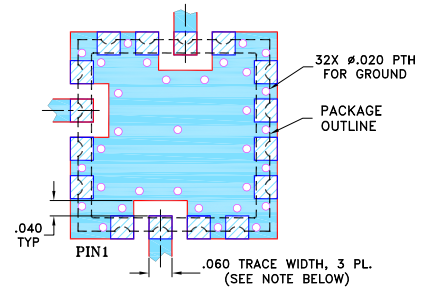
7" Reels with 10, 20, 50, 100 devices
13" Reels with 200, 500 devices

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" \pm .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

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
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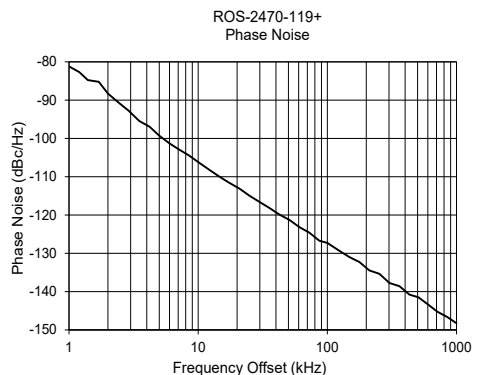
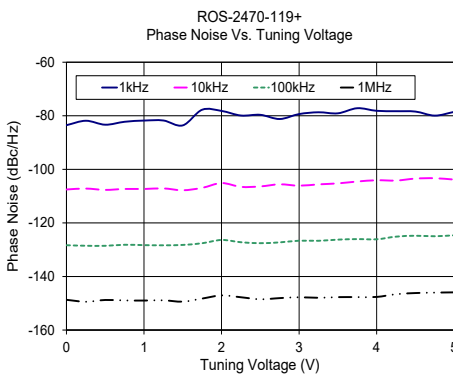
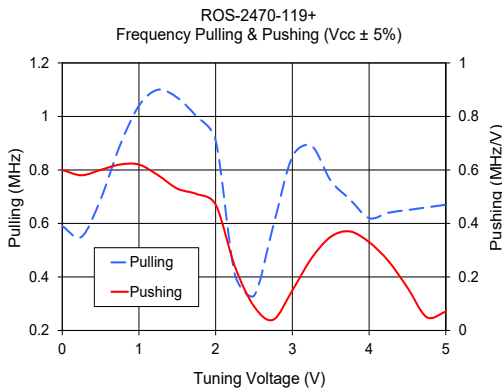
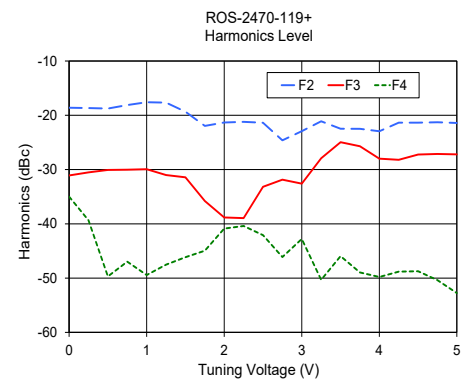
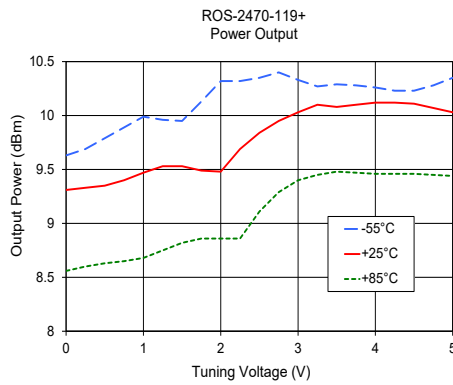
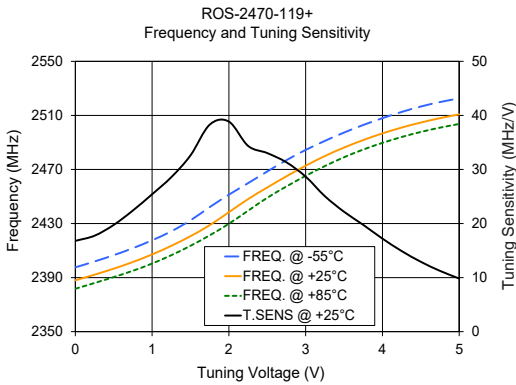


Performance Data & Curves*

ROS-2470-119+

| 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 2450 MHz (dBc/Hz) |
|--------|-------------------|-----------------|--------|--------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|----------------------------------|
| | | -55°C | +25°C | +85°C | -55°C | +25°C | +85°C | | F2 | F3 | F4 | | | 1kHz | 10kHz | 100kHz | 1MHz | | |
| 0.00 | 16.80 | 2397.6 | 2388.0 | 2381.7 | 9.63 | 9.31 | 8.56 | 36.38 | -18.6 | -31.1 | -35.0 | 0.60 | 0.59 | -83.50 | -107.5 | -128.3 | -148.7 | 1.0 | -81.19 |
| 0.50 | 19.75 | 2406.6 | 2396.6 | 2390.4 | 9.79 | 9.35 | 8.63 | 36.44 | -18.8 | -30.1 | -49.7 | 0.60 | 0.69 | -83.32 | -107.7 | -128.6 | -148.8 | 2.0 | -88.29 |
| 0.75 | 22.42 | 2411.8 | 2401.5 | 2395.1 | 9.89 | 9.40 | 8.65 | 36.47 | -18.1 | -30.0 | -47.0 | 0.62 | 0.89 | -82.23 | -107.3 | -128.2 | -149.0 | 3.5 | -95.45 |
| 1.00 | 25.42 | 2417.6 | 2407.1 | 2400.4 | 9.99 | 9.47 | 8.68 | 36.49 | -17.6 | -29.9 | -49.4 | 0.62 | 1.04 | -81.78 | -107.3 | -128.3 | -149.0 | 6.0 | -101.29 |
| 1.25 | 28.58 | 2424.3 | 2413.5 | 2406.6 | 9.96 | 9.53 | 8.75 | 36.51 | -17.7 | -31.0 | -47.5 | 0.58 | 1.10 | -81.75 | -107.1 | -128.4 | -148.9 | 8.5 | -104.44 |
| 1.50 | 32.61 | 2432.4 | 2420.6 | 2413.5 | 9.95 | 9.53 | 8.82 | 36.52 | -19.3 | -31.4 | -46.2 | 0.53 | 1.07 | -83.57 | -107.8 | -128.2 | -149.4 | 10.0 | -106.17 |
| 1.75 | 38.29 | 2442.1 | 2428.8 | 2421.3 | 10.13 | 9.49 | 8.86 | 36.49 | -22.0 | -35.8 | -45.0 | 0.51 | 1.00 | -77.74 | -106.9 | -127.6 | -148.3 | 20.8 | -113.08 |
| 2.00 | 38.86 | 2451.3 | 2438.4 | 2429.8 | 10.32 | 9.48 | 8.86 | 36.46 | -21.3 | -38.8 | -40.9 | 0.47 | 0.91 | -78.19 | -105.1 | -126.4 | -147.1 | 35.5 | -118.13 |
| 2.25 | 34.37 | 2459.9 | 2448.1 | 2439.5 | 10.32 | 9.69 | 8.86 | 36.57 | -21.2 | -38.9 | -40.4 | 0.24 | 0.41 | -79.90 | -106.5 | -127.2 | -147.8 | 60.7 | -123.15 |
| 2.50 | 33.04 | 2468.5 | 2456.7 | 2449.1 | 10.35 | 9.84 | 9.11 | 36.69 | -21.4 | -33.2 | -42.1 | 0.09 | 0.33 | -79.64 | -106.4 | -127.6 | -148.5 | 86.7 | -126.71 |
| 2.75 | 31.32 | 2476.9 | 2464.9 | 2457.5 | 10.40 | 9.95 | 9.29 | 36.76 | -24.6 | -31.9 | -46.1 | 0.04 | 0.59 | -81.20 | -105.6 | -127.3 | -148.1 | 100.0 | -127.29 |
| 3.00 | 28.68 | 2484.4 | 2472.8 | 2465.3 | 10.33 | 10.03 | 9.40 | 36.80 | -22.9 | -32.6 | -42.8 | 0.15 | 0.85 | -79.36 | -106.1 | -126.7 | -147.8 | 148.1 | -130.98 |
| 3.25 | 25.07 | 2491.1 | 2479.9 | 2472.5 | 10.27 | 10.10 | 9.45 | 36.83 | -21.1 | -27.9 | -50.3 | 0.27 | 0.89 | -78.69 | -105.6 | -126.7 | -148.0 | 177.0 | -132.26 |
| 3.50 | 22.18 | 2497.3 | 2486.2 | 2479.0 | 10.29 | 10.08 | 9.48 | 36.86 | -22.5 | -25.0 | -46.0 | 0.35 | 0.76 | -79.08 | -105.2 | -126.3 | -147.7 | 211.6 | -134.46 |
| 3.75 | 19.77 | 2502.9 | 2491.8 | 2484.7 | 10.28 | 10.10 | 9.47 | 36.86 | -22.5 | -25.7 | -49.0 | 0.37 | 0.69 | -77.18 | -104.5 | -126.1 | -147.7 | 302.4 | -137.76 |
| 4.00 | 17.22 | 2507.9 | 2496.7 | 2489.7 | 10.26 | 10.12 | 9.46 | 36.85 | -22.9 | -28.0 | -49.8 | 0.33 | 0.62 | -78.15 | -104.1 | -126.1 | -147.6 | 361.5 | -138.59 |
| 4.25 | 14.92 | 2512.5 | 2501.0 | 2494.0 | 10.23 | 10.12 | 9.46 | 36.83 | -21.4 | -28.2 | -48.8 | 0.26 | 0.64 | -78.29 | -104.2 | -125.1 | -146.6 | 507.5 | -141.49 |
| 4.50 | 12.93 | 2516.5 | 2504.7 | 2497.7 | 10.23 | 10.11 | 9.46 | 36.80 | -21.4 | -27.2 | -48.7 | 0.16 | 0.65 | -78.43 | -103.5 | -124.8 | -146.2 | 606.7 | -143.46 |
| 4.75 | 11.25 | 2519.9 | 2508.0 | 2500.9 | 10.28 | 10.07 | 9.45 | 36.77 | -21.3 | -27.1 | -50.4 | 0.05 | 0.66 | -79.93 | -103.3 | -125.0 | -146.0 | 851.6 | -146.67 |
| 5.00 | 9.83 | 2522.6 | 2510.8 | 2503.7 | 10.35 | 10.03 | 9.44 | 36.74 | -21.4 | -27.2 | -52.8 | 0.07 | 0.67 | -78.54 | -103.8 | -124.6 | -145.9 | 1000.0 | -148.26 |

*at 25°C unless mentioned otherwise



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