

5V Tuning for PLL IC's 2200 to 2495 MHz

Features

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



CASE STYLE: CK605

Applications

- wireless communications
- WiMAX 2.5 GHz
- transmission radio

+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-2500-2319+ | 2200 | 2495 | +4.5 | -68 | -96 | -119 | -139 | 0.6 | 4.5 | 130 | 10 | 100 | -90 | -25 | -15 | 6 | 2 | 5 | 35 | | | |

Pin Connections

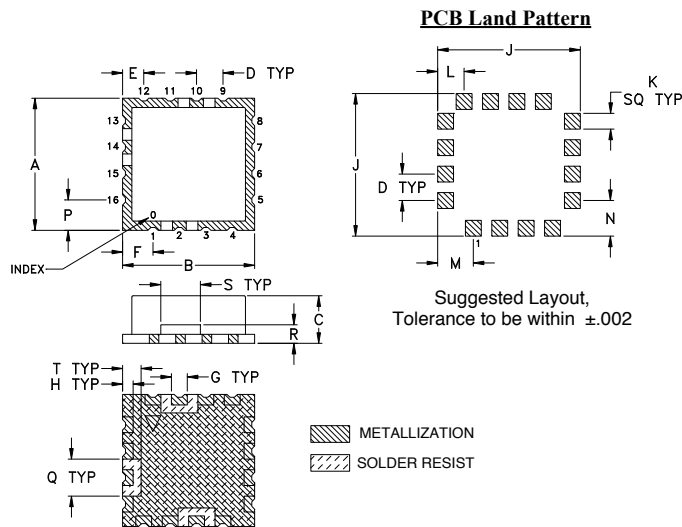
| | |
|--------|--------------------------------|
| RF OUT | 10 |
| VCC | 14 |
| V-TUNE | 2 |
| GROUND | 1,3,4,5,6,7,8,9,11,12,13,15,16 |

Maximum Ratings

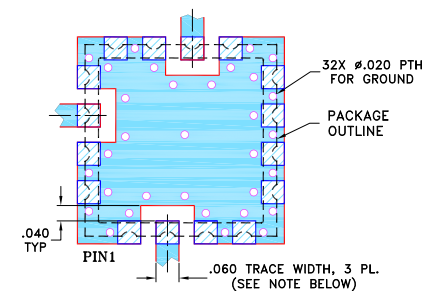
| | |
|--------------------------------------|----------------|
| Operating Temperature | -55°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc) | 6V |
| Absolute Max. Tuning Voltage (Vtune) | 7V |
| All specifications | 50 ohm system |

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:

- 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.
 - 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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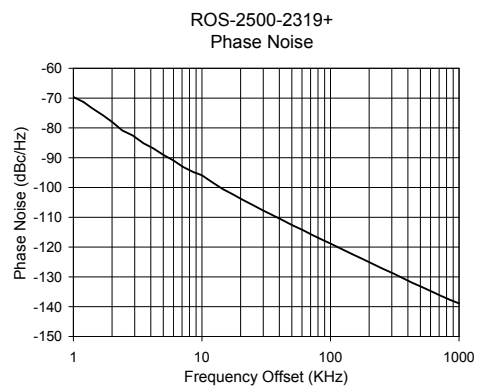
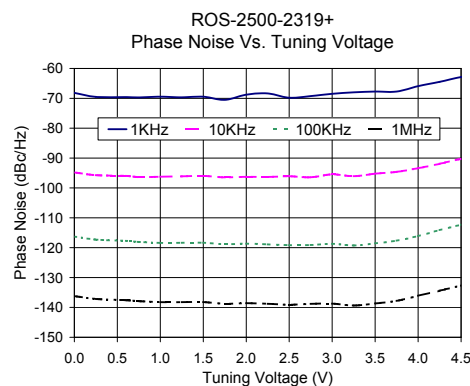
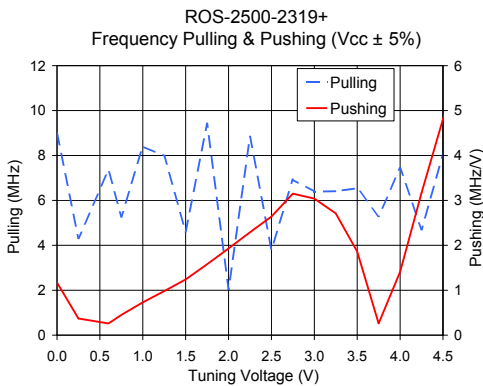
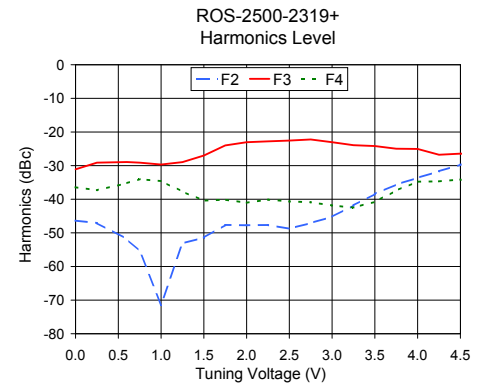
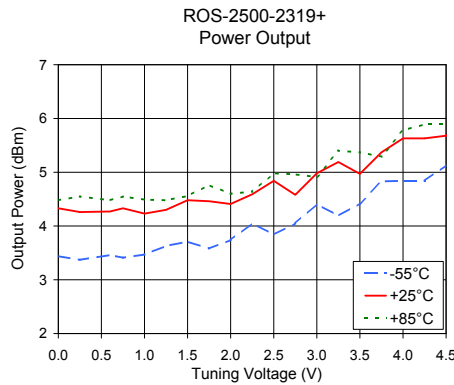
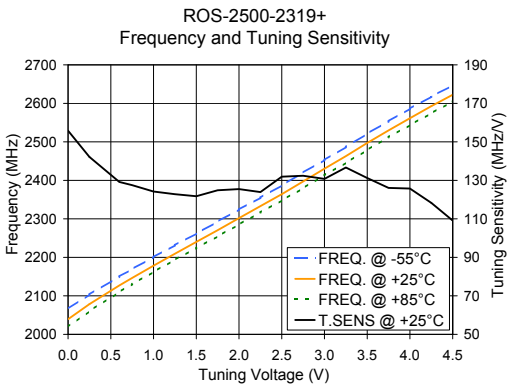


Performance Data & Curves*

ROS-2500-2319+

| 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 2348 MHz (dBc/Hz) |
|--------|-------------------|-----------------|--------|--------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|-------|--------|--------|-------------------|----------------------------------|
| | | -55°C | +25°C | +85°C | -55°C | +25°C | +85°C | | F2 | F3 | F4 | | | 1kHz | 10kHz | 100kHz | 1MHz | | |
| 0.00 | 155.81 | 2066.4 | 2039.4 | 2019.6 | 3.44 | 4.33 | 4.48 | 27.48 | -46.4 | -31.1 | -36.4 | 1.17 | 8.98 | -68.2 | -94.8 | -116.3 | -136.2 | 1.0 | -69.63 |
| 0.25 | 142.19 | 2103.6 | 2078.4 | 2060.2 | 3.37 | 4.26 | 4.55 | 27.55 | -47.1 | -29.1 | -37.3 | 0.37 | 4.32 | -69.5 | -95.7 | -117.3 | -137.2 | 2.0 | -77.98 |
| 0.60 | 129.19 | 2150.1 | 2127.0 | 2110.2 | 3.46 | 4.27 | 4.48 | 27.68 | -51.8 | -28.9 | -35.2 | 0.26 | 7.34 | -69.6 | -96.0 | -117.7 | -137.6 | 3.5 | -85.14 |
| 0.75 | 127.49 | 2169.4 | 2146.5 | 2130.4 | 3.41 | 4.33 | 4.55 | 27.73 | -55.5 | -29.1 | -34.0 | 0.45 | 5.28 | -69.7 | -96.4 | -118.1 | -137.9 | 6.0 | -90.92 |
| 1.00 | 124.20 | 2200.8 | 2178.4 | 2162.2 | 3.47 | 4.23 | 4.49 | 27.80 | -71.3 | -29.7 | -34.6 | 0.73 | 8.40 | -69.5 | -96.3 | -118.4 | -138.2 | 8.5 | -94.75 |
| 1.25 | 122.82 | 2231.6 | 2209.4 | 2193.6 | 3.63 | 4.30 | 4.48 | 27.90 | -53.1 | -29.0 | -37.7 | 0.98 | 7.98 | -69.7 | -96.1 | -118.4 | -138.2 | 10.0 | -95.90 |
| 1.50 | 121.76 | 2261.7 | 2240.1 | 2224.3 | 3.71 | 4.48 | 4.56 | 28.03 | -51.4 | -27.0 | -40.4 | 1.24 | 4.62 | -69.5 | -96.0 | -118.3 | -138.2 | 20.8 | -104.15 |
| 1.75 | 124.85 | 2292.9 | 2270.6 | 2254.5 | 3.58 | 4.46 | 4.76 | 28.12 | -47.6 | -24.0 | -40.1 | 1.58 | 9.41 | -70.5 | -96.5 | -118.8 | -138.8 | 35.5 | -109.30 |
| 2.00 | 125.46 | 2324.2 | 2301.8 | 2285.4 | 3.74 | 4.41 | 4.60 | 28.26 | -47.7 | -23.0 | -41.0 | 1.93 | 2.05 | -68.8 | -96.3 | -118.7 | -138.6 | 60.7 | -114.24 |
| 2.25 | 123.93 | 2355.1 | 2333.2 | 2316.8 | 4.05 | 4.59 | 4.64 | 28.46 | -47.7 | -22.8 | -40.1 | 2.29 | 8.83 | -68.4 | -96.3 | -118.9 | -138.8 | 86.7 | -117.58 |
| 2.50 | 131.91 | 2386.9 | 2364.1 | 2348.0 | 3.84 | 4.84 | 4.98 | 28.61 | -48.8 | -22.5 | -40.7 | 2.64 | 3.82 | -69.8 | -96.1 | -119.2 | -139.1 | 100.0 | -118.81 |
| 2.75 | 132.40 | 2420.4 | 2397.1 | 2379.6 | 4.05 | 4.58 | 4.96 | 28.77 | -47.1 | -22.2 | -40.9 | 3.15 | 6.93 | -69.2 | -96.4 | -119.1 | -138.8 | 177.0 | -123.95 |
| 3.00 | 130.77 | 2452.9 | 2430.2 | 2413.3 | 4.41 | 4.98 | 4.91 | 29.06 | -45.2 | -23.0 | -41.9 | 3.04 | 6.39 | -68.5 | -95.5 | -118.7 | -138.7 | 211.6 | -125.57 |
| 3.25 | 136.66 | 2486.8 | 2462.9 | 2445.7 | 4.19 | 5.19 | 5.40 | 29.24 | -41.8 | -23.9 | -42.5 | 2.71 | 6.41 | -68.0 | -96.1 | -119.3 | -139.4 | 302.4 | -128.70 |
| 3.50 | 131.22 | 2521.2 | 2497.1 | 2478.7 | 4.42 | 4.97 | 5.37 | 29.45 | -38.4 | -24.2 | -40.8 | 1.86 | 6.54 | -67.7 | -95.2 | -118.5 | -138.7 | 361.5 | -130.31 |
| 3.75 | 126.07 | 2553.6 | 2529.9 | 2512.4 | 4.83 | 5.37 | 5.29 | 29.78 | -35.7 | -25.0 | -37.4 | 0.26 | 5.30 | -67.7 | -94.6 | -117.7 | -137.8 | 507.5 | -133.28 |
| 4.00 | 125.73 | 2586.2 | 2561.4 | 2543.6 | 4.84 | 5.63 | 5.78 | 29.93 | -33.7 | -25.1 | -34.8 | 1.41 | 7.44 | -65.9 | -93.4 | -116.1 | -136.1 | 606.7 | -134.82 |
| 4.25 | 118.29 | 2617.6 | 2592.8 | 2574.5 | 4.84 | 5.63 | 5.89 | 30.16 | -31.7 | -26.8 | -34.7 | 3.17 | 4.71 | -64.5 | -91.9 | -114.1 | -134.4 | 851.6 | -137.71 |
| 4.50 | 109.12 | 2646.7 | 2622.4 | 2604.5 | 5.13 | 5.68 | 5.89 | 30.44 | -29.7 | -26.5 | -34.1 | 4.81 | 8.03 | -62.9 | -90.3 | -112.4 | -132.7 | 1000.0 | -138.90 |

*at 25°C unless mentioned otherwise



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