

Voltage Controlled Oscillator

ROS-2500-2919+

Wide Band 1550 to 2500 MHz

Features

- high power output +9.5 dBm typ.
- low phase noise
- low pulling
- low pushing
- aqueous washable

Applications

- wireless communications
- CATV



CASE STYLE: CK829

+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. | Typ. | | | | VOLTAGE RANGE (V) | SENSI- TIVITY (MHz/V) | PORT CAP (pF) | 3 dB MODULATION BANDWIDTH (MHz) | | Typ. | Typ. | | | Max. | Typ. | Vcc (volts) | Current (mA) |
| | | | | | 1 | 10 | 100 | 1000 | | | | | | | | | | | | | |
| ROS-2500-2919+ | 1550 | 2500 | +9.5 | -73 | -99 | -121 | -141 | 2 | 22 | 36-68 | 50 | 30 | -90 | -17 | - | 1.7 | 1.3 | 10 | 35 | | |

Pin Connections

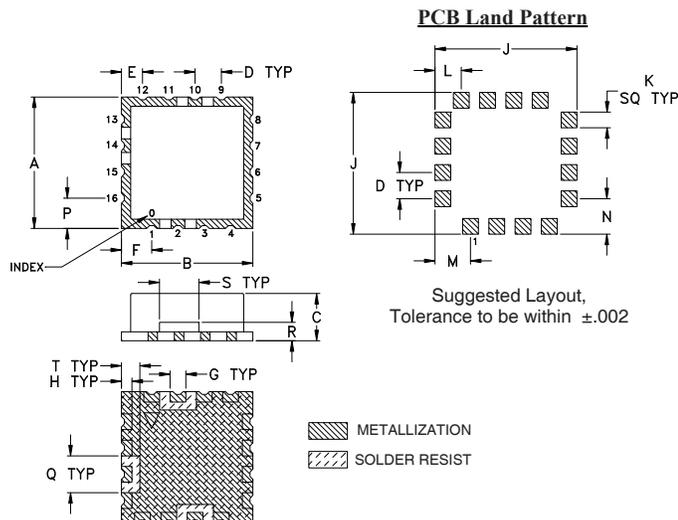
| | |
|--------|--------------------------------|
| RF OUT | 10 |
| VCC | 14 |
| V-TUNE | 2 |
| GROUND | 1,3,4,5,6,7,8,9,11,12,13,15,16 |

Maximum Ratings

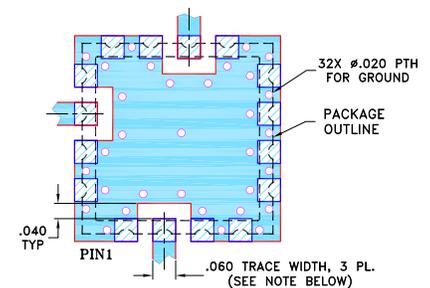
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|--------------------------------------|----------------|
| Operating Temperature | -55°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc) | 12V |
| Absolute Max. Tuning Voltage (Vtune) | 24V |
| All specifications | 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 | .100 | .100 | .080 | .115 | .060 | .040 | .540 | .060 | .100 | .135 | .135 | .115 | .140 | .070 | .150 | .070 | grams |
| 12.70 | 12.70 | 2.54 | 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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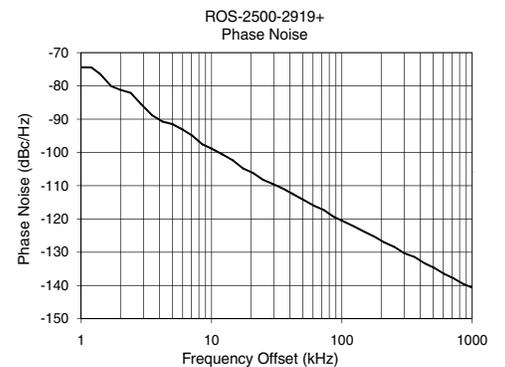
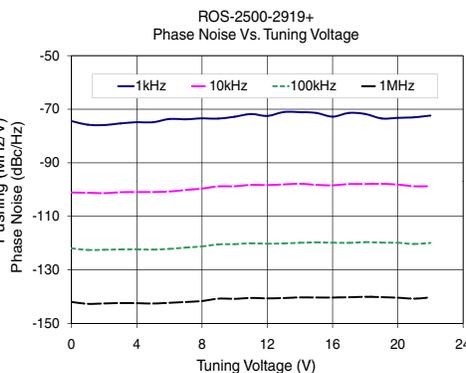
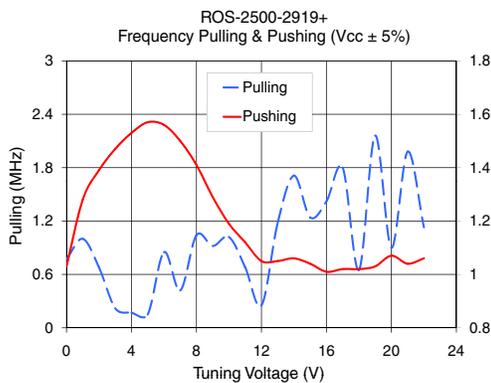
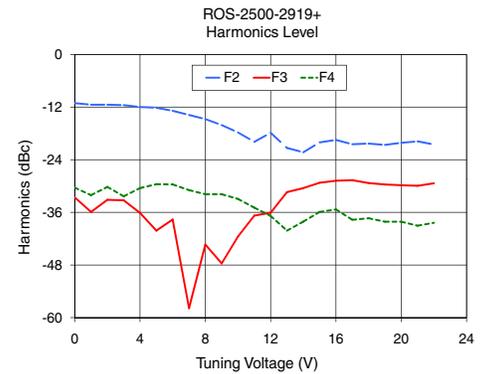
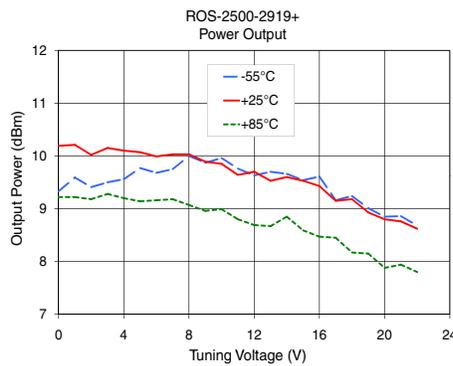
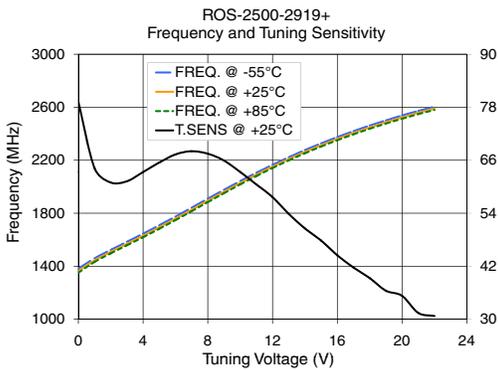


Performance Data & Curves*

ROS-2500-2919+

| 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 2025 MHz (dBc/Hz) |
|--------|-------------------|-----------------|--------|--------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|----------------------------------|
| | | -55°C | +25°C | +85°C | -55°C | +25°C | +85°C | | F2 | F3 | F4 | | | 1kHz | 10kHz | 100kHz | 1MHz | | |
| 0.00 | 87.14 | 1315.0 | 1298.3 | 1283.6 | 10.30 | 9.78 | 8.51 | 25.03 | -15.3 | -26.8 | -34.0 | 0.84 | 0.86 | -72.3 | -98.7 | -119.4 | -138.5 | 1.0 | -73.47 |
| 0.50 | 81.41 | 1357.7 | 1341.8 | 1327.7 | 10.28 | 9.81 | 8.66 | 25.12 | -14.9 | -28.8 | -36.6 | 0.94 | 0.64 | -73.2 | -98.9 | -119.7 | -138.8 | 2.0 | -82.41 |
| 2.00 | 73.20 | 1476.2 | 1461.1 | 1447.3 | 10.24 | 9.87 | 8.95 | 25.38 | -14.2 | -30.4 | -33.3 | 1.14 | 0.65 | -75.7 | -99.6 | -120.4 | -139.5 | 3.5 | -90.08 |
| 3.00 | 73.10 | 1549.8 | 1534.3 | 1520.2 | 10.28 | 9.91 | 9.03 | 25.55 | -14.0 | -28.7 | -33.4 | 1.23 | 0.55 | -75.7 | -100.2 | -120.7 | -139.9 | 6.0 | -95.18 |
| 4.00 | 73.40 | 1623.1 | 1607.4 | 1593.0 | 10.29 | 9.91 | 9.04 | 25.70 | -13.7 | -28.8 | -33.0 | 1.30 | 0.83 | -74.7 | -100.4 | -121.1 | -140.3 | 8.5 | -99.19 |
| 6.00 | 71.79 | 1768.2 | 1753.7 | 1740.2 | 10.26 | 9.74 | 8.86 | 25.93 | -14.3 | -34.6 | -30.7 | 1.40 | 0.96 | -74.8 | -100.9 | -122.1 | -141.1 | 10.0 | -100.29 |
| 7.00 | 70.84 | 1839.6 | 1825.5 | 1812.5 | 10.17 | 9.67 | 8.78 | 25.98 | -15.3 | -37.4 | -32.2 | 1.40 | 0.61 | -75.1 | -100.9 | -122.4 | -141.5 | 20.8 | -108.12 |
| 8.00 | 69.90 | 1910.0 | 1896.4 | 1883.6 | 10.12 | 9.57 | 8.66 | 26.02 | -15.8 | -32.9 | -33.5 | 1.42 | 1.23 | -74.5 | -100.7 | -122.6 | -141.6 | 35.5 | -113.11 |
| 9.00 | 68.99 | 1979.6 | 1966.3 | 1953.8 | 9.99 | 9.41 | 8.57 | 26.06 | -17.5 | -34.0 | -34.7 | 1.40 | 1.17 | -73.1 | -100.6 | -122.5 | -141.8 | 60.7 | -117.39 |
| 10.00 | 67.51 | 2048.2 | 2035.3 | 2023.0 | 9.85 | 9.29 | 8.40 | 26.08 | -18.2 | -35.0 | -33.8 | 1.35 | 1.47 | -73.7 | -100.5 | -122.2 | -141.3 | 86.7 | -121.18 |
| 11.00 | 65.32 | 2115.5 | 2102.8 | 2090.5 | 9.64 | 9.04 | 8.28 | 26.10 | -21.6 | -35.6 | -36.0 | 1.28 | 1.64 | -73.6 | -100.0 | -122.1 | -141.6 | 100.0 | -122.36 |
| 12.00 | 62.10 | 2180.6 | 2168.1 | 2155.8 | 9.40 | 8.97 | 8.24 | 26.10 | -21.1 | -35.8 | -36.7 | 1.21 | 1.41 | -72.7 | -99.9 | -122.0 | -141.6 | 148.1 | -125.90 |
| 13.00 | 58.66 | 2242.5 | 2230.2 | 2218.1 | 9.42 | 9.03 | 8.18 | 26.10 | -22.3 | -33.2 | -40.7 | 1.13 | 0.92 | -72.4 | -100.1 | -122.1 | -141.6 | 177.0 | -127.39 |
| 14.00 | 54.66 | 2300.6 | 2288.9 | 2276.9 | 9.37 | 8.92 | 8.09 | 26.11 | -21.7 | -30.6 | -40.0 | 1.08 | 0.61 | -73.1 | -99.9 | -122.2 | -141.7 | 211.6 | -129.10 |
| 16.00 | 47.95 | 2406.1 | 2394.9 | 2383.0 | 9.03 | 8.67 | 7.93 | 26.08 | -21.8 | -35.3 | -42.7 | 1.13 | 1.96 | -73.6 | -99.5 | -121.9 | -141.8 | 302.4 | -132.13 |
| 17.00 | 43.69 | 2454.2 | 2442.8 | 2430.5 | 8.80 | 8.50 | 7.82 | 26.05 | -23.4 | -36.3 | -42.0 | 1.18 | 0.56 | -73.3 | -99.3 | -121.7 | -141.6 | 361.5 | -133.55 |
| 18.00 | 41.26 | 2497.7 | 2486.5 | 2474.7 | 8.76 | 8.31 | 7.57 | 26.03 | -23.3 | -36.0 | -44.5 | 1.16 | 2.30 | -73.3 | -99.6 | -121.9 | -141.7 | 507.5 | -136.57 |
| 19.00 | 37.50 | 2539.1 | 2527.8 | 2515.7 | 8.51 | 8.08 | 7.46 | 25.99 | -23.0 | -34.6 | -44.2 | 1.19 | 1.24 | -73.4 | -100.1 | -121.9 | -142.1 | 606.7 | -138.26 |
| 20.00 | 35.30 | 2576.7 | 2565.3 | 2553.3 | 8.46 | 8.03 | 7.23 | 25.94 | -23.7 | -33.4 | -45.9 | 1.17 | 2.26 | -72.3 | -99.8 | -121.7 | -142.0 | 851.6 | -141.01 |
| 22.00 | 29.45 | 2644.2 | 2632.5 | 2620.3 | 8.01 | 7.61 | 6.96 | 25.82 | -29.1 | -32.0 | -42.2 | 1.10 | 2.50 | -71.9 | -99.8 | -121.4 | -141.6 | 1000.0 | -141.53 |

*at 25°C unless mentioned otherwise



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