

Surface Mount

Voltage Controlled Oscillator

ROS-1000C-519+

Ultra Low Noise 1000 MHz

Features

- ultra low phase noise
- linear tuning characteristics
- very low pushing
- very low pulling
- 5V tuning voltage range
- aqueous washable

Applications

- wireless communications
- military & avionics
- test equipment



CASE STYLE: CK1113

+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. |
| ROS-1000C-519+ | 1000 | | -1 | -98 | -125 | -145 | -164 | 0.5 | 5 | 5 | 20 | 80 | -90 | -22 | -14 | 0.06 | 0.01 | 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) | 7V |
| Absolute Max. Tuning Voltage (Vtune) | 7V |
| All specifications | 50 ohm system |

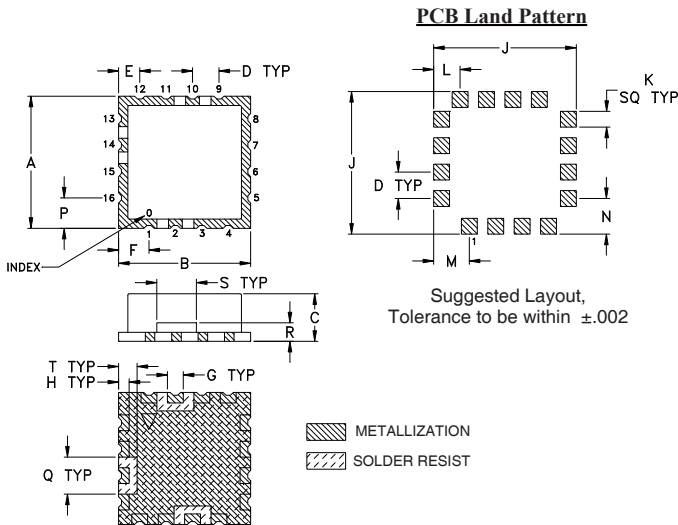
Permanent damage may occur if any of these limits are exceeded.

Tape & Reel: F37

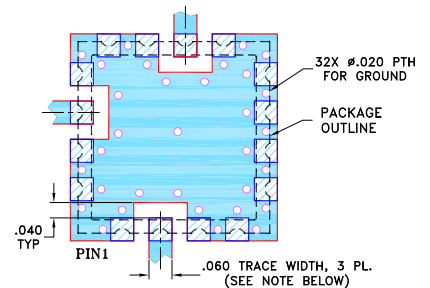
13" Reels with 20, 50, 100, 200, 500 devices

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 | .220 | .100 | .080 | .115 | .060 | .040 | .540 | .060 | .100 | .135 | .135 | .115 | .140 | .070 | .150 | .070 | grams |
| 12.70 | 12.70 | 5.59 | 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 | 1.2 |

Notes

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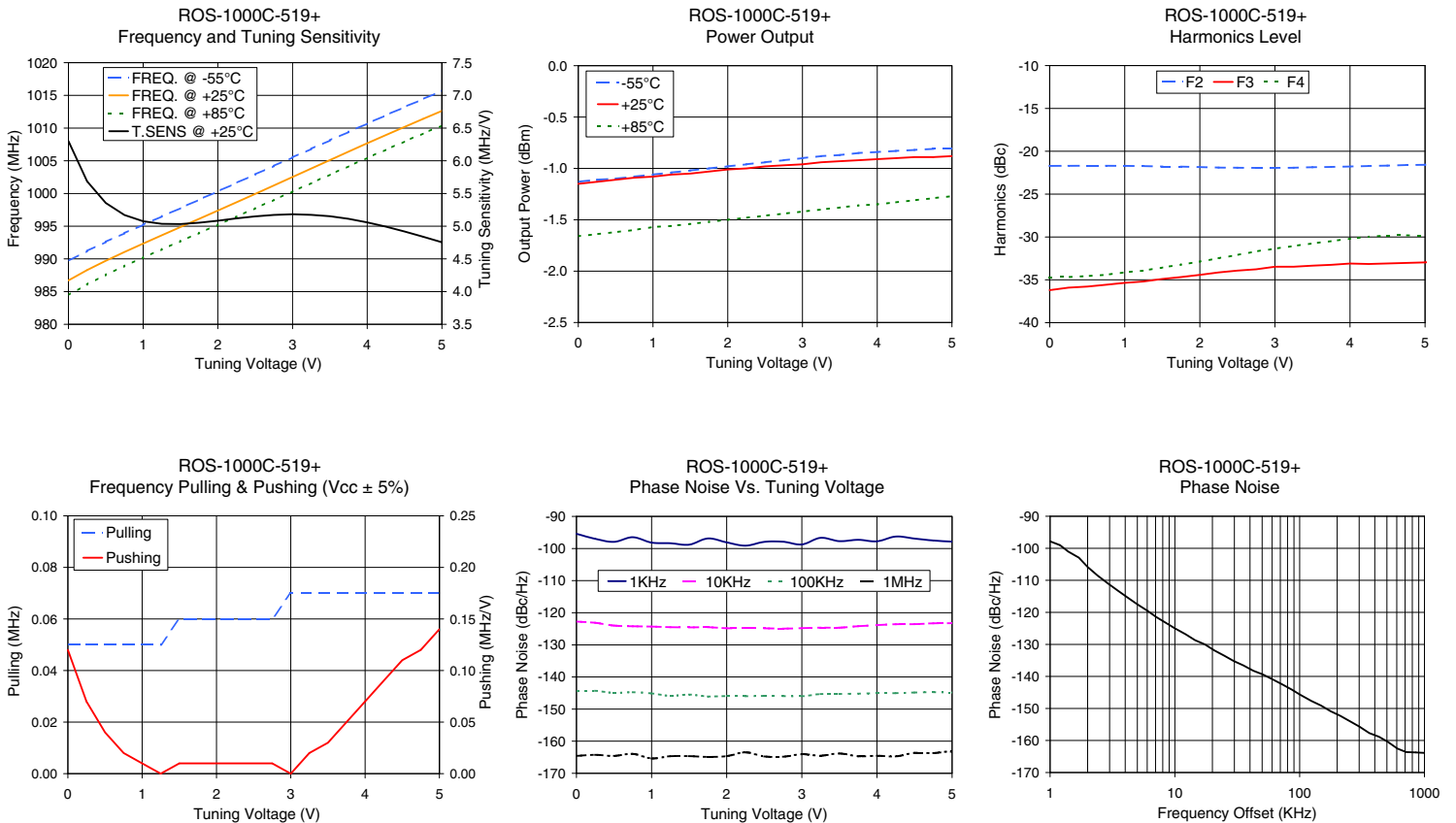
NON-CATALOG

Performance Data & Curves*

ROS-1000C-519+

| 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 1002 MHz (dBc/Hz) |
|--------|-------------------|-----------------|--------|--------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|----------------------------------|
| | | -55°C | +25°C | +85°C | -55°C | +25°C | +85°C | | F2 | F3 | F4 | | | 1kHz | 10kHz | 100kHz | 1MHz | | |
| 0.00 | 6.30 | 989.7 | 986.7 | 984.5 | -1.13 | -1.15 | -1.66 | 22.85 | -21.7 | -36.2 | -34.7 | 0.12 | 0.05 | -95.4 | -122.7 | -144.3 | -164.6 | 1.0 | -97.83 |
| 0.50 | 5.35 | 992.6 | 989.7 | 987.6 | -1.10 | -1.11 | -1.62 | 22.96 | -21.7 | -35.8 | -34.6 | 0.04 | 0.05 | -97.9 | -124.0 | -145.0 | -164.6 | 2.0 | -105.84 |
| 0.75 | 5.17 | 993.9 | 991.0 | 988.9 | -1.08 | -1.09 | -1.60 | 23.01 | -21.7 | -35.6 | -34.4 | 0.02 | 0.05 | -96.5 | -124.2 | -144.8 | -164.0 | 3.5 | -113.27 |
| 1.00 | 5.08 | 995.2 | 992.3 | 990.2 | -1.06 | -1.08 | -1.57 | 23.06 | -21.7 | -35.4 | -34.1 | 0.01 | 0.05 | -98.2 | -124.3 | -145.1 | -165.4 | 6.0 | -119.46 |
| 1.25 | 5.04 | 996.5 | 993.6 | 991.5 | -1.04 | -1.06 | -1.56 | 23.11 | -21.7 | -35.2 | -33.9 | 0.00 | 0.05 | -98.4 | -124.5 | -145.9 | -164.7 | 8.5 | -123.32 |
| 1.50 | 5.03 | 997.8 | 994.9 | 992.7 | -1.02 | -1.05 | -1.54 | 23.15 | -21.8 | -34.9 | -33.6 | 0.01 | 0.06 | -98.8 | -124.6 | -145.5 | -164.7 | 10.0 | -124.99 |
| 1.75 | 5.05 | 999.0 | 996.1 | 994.0 | -1.00 | -1.03 | -1.52 | 23.19 | -21.8 | -34.7 | -33.2 | 0.01 | 0.06 | -96.9 | -124.5 | -146.1 | -164.9 | 20.8 | -131.94 |
| 2.00 | 5.08 | 1000.3 | 997.4 | 995.2 | -0.98 | -1.01 | -1.50 | 23.24 | -21.8 | -34.4 | -32.9 | 0.01 | 0.06 | -98.1 | -124.8 | -145.9 | -164.7 | 35.5 | -136.60 |
| 2.25 | 5.12 | 1001.6 | 998.7 | 996.5 | -0.96 | -1.00 | -1.48 | 23.29 | -21.9 | -34.1 | -32.5 | 0.01 | 0.06 | -99.1 | -124.9 | -146.0 | -163.5 | 60.7 | -140.91 |
| 2.50 | 5.15 | 1002.9 | 999.9 | 997.7 | -0.94 | -0.98 | -1.46 | 23.33 | -21.9 | -33.9 | -32.1 | 0.01 | 0.06 | -97.9 | -124.9 | -145.9 | -164.8 | 86.7 | -144.13 |
| 2.75 | 5.17 | 1004.2 | 1001.2 | 999.0 | -0.92 | -0.97 | -1.44 | 23.37 | -21.9 | -33.8 | -31.7 | 0.01 | 0.06 | -97.9 | -124.9 | -146.0 | -164.8 | 100.0 | -145.62 |
| 3.00 | 5.18 | 1005.5 | 1002.5 | 1000.3 | -0.90 | -0.96 | -1.42 | 23.43 | -21.9 | -33.5 | -31.4 | 0.00 | 0.07 | -98.7 | -124.8 | -146.0 | -164.1 | 148.1 | -149.08 |
| 3.25 | 5.17 | 1006.8 | 1003.8 | 1001.6 | -0.88 | -0.94 | -1.40 | 23.47 | -21.9 | -33.5 | -31.1 | 0.02 | 0.07 | -96.7 | -124.7 | -145.3 | -164.5 | 177.0 | -150.86 |
| 3.50 | 5.15 | 1008.1 | 1005.1 | 1002.9 | -0.87 | -0.93 | -1.38 | 23.51 | -21.9 | -33.4 | -30.8 | 0.03 | 0.07 | -97.7 | -124.7 | -145.3 | -163.8 | 211.6 | -152.31 |
| 3.75 | 5.11 | 1009.4 | 1006.4 | 1004.2 | -0.85 | -0.92 | -1.36 | 23.55 | -21.8 | -33.3 | -30.5 | 0.05 | 0.07 | -97.3 | -124.2 | -145.2 | -164.7 | 302.4 | -155.70 |
| 4.00 | 5.06 | 1010.7 | 1007.7 | 1005.4 | -0.84 | -0.91 | -1.35 | 23.59 | -21.8 | -33.1 | -30.2 | 0.07 | 0.07 | -97.8 | -123.9 | -145.1 | -164.5 | 361.5 | -157.70 |
| 4.25 | 4.99 | 1012.0 | 1008.9 | 1006.7 | -0.83 | -0.90 | -1.33 | 23.63 | -21.7 | -33.2 | -30.0 | 0.09 | 0.07 | -96.3 | -123.6 | -145.0 | -164.8 | 507.5 | -160.40 |
| 4.50 | 4.92 | 1013.2 | 1010.2 | 1008.0 | -0.82 | -0.89 | -1.31 | 23.66 | -21.7 | -33.1 | -29.8 | 0.11 | 0.07 | -96.9 | -123.6 | -144.9 | -163.6 | 606.7 | -162.53 |
| 4.75 | 4.84 | 1014.5 | 1011.4 | 1009.2 | -0.81 | -0.89 | -1.29 | 23.69 | -21.6 | -33.0 | -29.8 | 0.12 | 0.07 | -97.5 | -123.3 | -144.7 | -163.7 | 851.6 | -163.72 |
| 5.00 | 4.75 | 1015.7 | 1012.6 | 1010.4 | -0.81 | -0.88 | -1.27 | 23.72 | -21.6 | -33.0 | -29.8 | 0.14 | 0.07 | -97.9 | -123.2 | -144.9 | -163.3 | 1000.0 | -163.88 |

*at 25°C unless mentioned otherwise



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