

Voltage Controlled Oscillator

ROS-530+

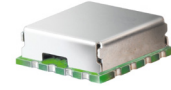
5V Tuning for PLL IC's 500 to 530 MHz

Features

- linear tuning characteristics
- low phase noise
- low pushing
- low pulling
- 0.5-5V tuning voltage range
- aqueous washable

Applications

- PLL circuitry
- frequency synthesizers
- wireless microphones



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. | Max. | | | Typ. | Max. |
| ROS-530+ | 500 | 530 | -0.5 | -90 | -111 | -132 | -151 | 0.5 | 5 | 10-11 | 70 | 80 | -90 | -23 | -15 | 0.4 | 0.1 | 5 | 15 |

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 |

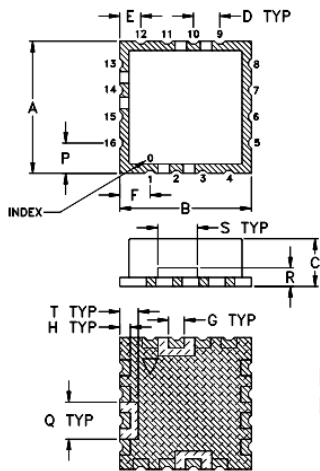
Permanent damage may occur if any of these limits are exceeded.

Tape & Reel: F37

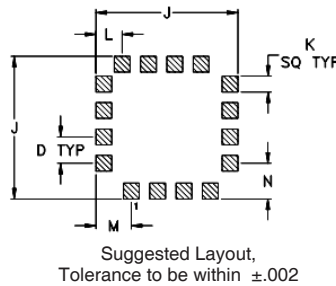
7" Reels with 10, 20, 50, 100 devices
13" Reels with 200, 500 devices

Environmental Ratings: ENV65

Outline Drawing

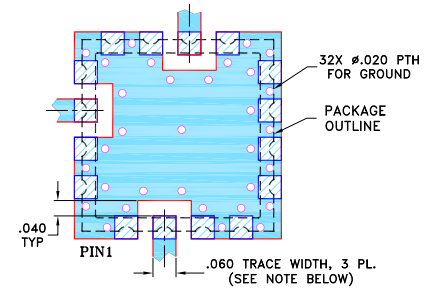


PCB Land Pattern



Metallization
Solder Resist

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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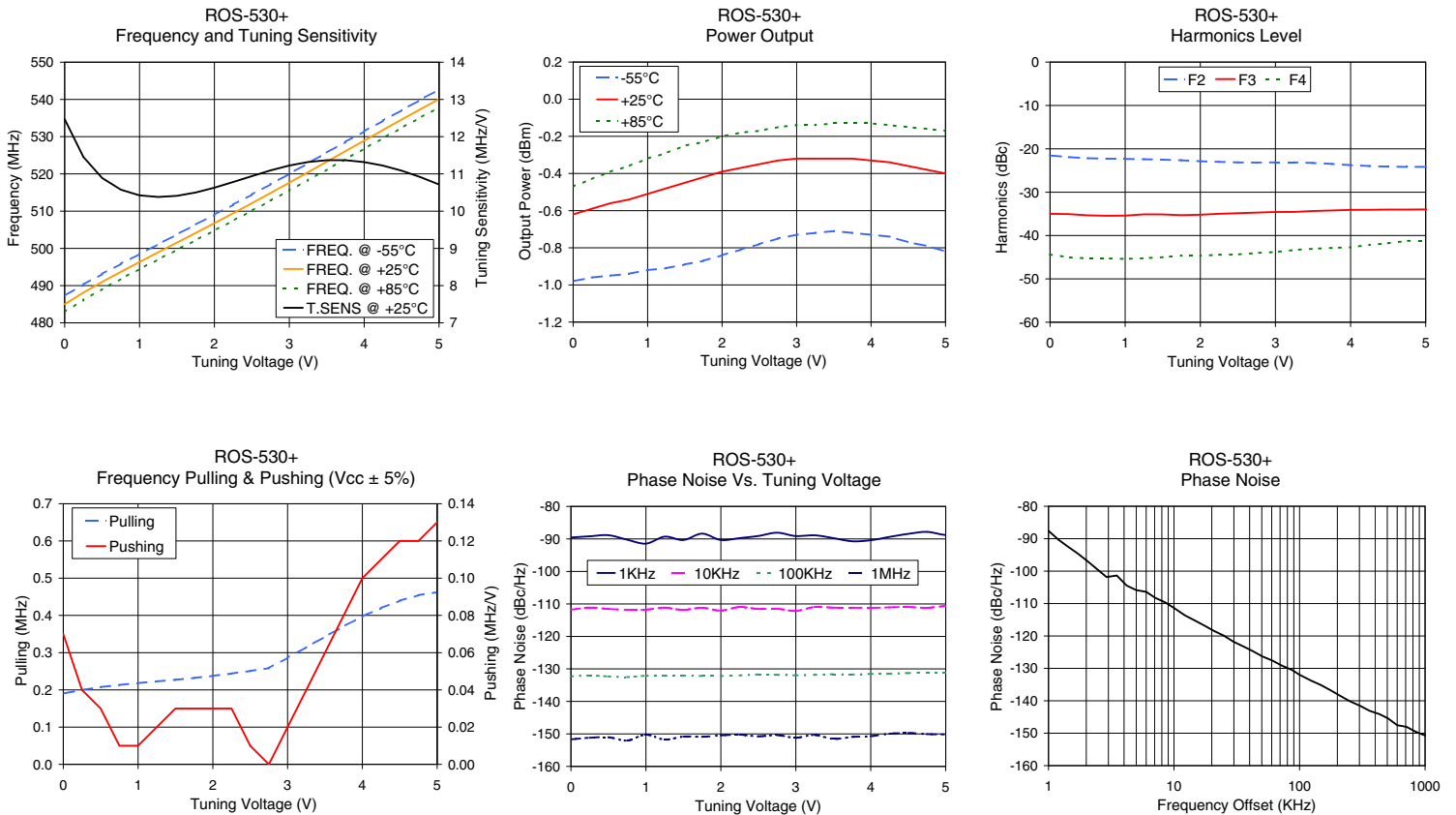


Performance Data & Curves*

ROS-530+

| 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 512 MHz (dBc/Hz) |
|--------|-------------------|-----------------|-------|-------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|---------------------------------|
| | | -55°C | +25°C | +85°C | -55°C | +25°C | +85°C | | F2 | F3 | F4 | | | 1kHz | 10kHz | 100kHz | 1MHz | | |
| 0.00 | 12.47 | 487.3 | 485.0 | 482.9 | -0.98 | -0.62 | -0.47 | 10.05 | -21.5 | -35.0 | -44.4 | 0.07 | 0.19 | -89.6 | -111.8 | -132.3 | -151.7 | 1.0 | -87.58 |
| 0.50 | 10.89 | 493.1 | 491.0 | 489.1 | -0.95 | -0.56 | -0.39 | 10.06 | -22.2 | -35.4 | -45.3 | 0.03 | 0.21 | -88.9 | -111.5 | -132.3 | -151.0 | 2.0 | -96.63 |
| 0.75 | 10.58 | 495.8 | 493.7 | 491.8 | -0.94 | -0.54 | -0.36 | 10.07 | -22.3 | -35.5 | -45.3 | 0.01 | 0.21 | -90.2 | -111.8 | -132.5 | -152.1 | 3.5 | -101.36 |
| 1.00 | 10.42 | 498.5 | 496.3 | 494.5 | -0.92 | -0.51 | -0.32 | 10.07 | -22.3 | -35.4 | -45.4 | 0.01 | 0.22 | -91.5 | -111.8 | -132.1 | -150.2 | 6.0 | -106.39 |
| 1.25 | 10.38 | 501.1 | 498.9 | 497.0 | -0.91 | -0.48 | -0.29 | 10.08 | -22.4 | -35.1 | -45.2 | 0.02 | 0.22 | -89.3 | -111.2 | -132.1 | -151.7 | 8.5 | -109.63 |
| 1.50 | 10.41 | 503.7 | 501.5 | 499.6 | -0.89 | -0.45 | -0.25 | 10.08 | -22.5 | -35.1 | -45.0 | 0.03 | 0.23 | -90.3 | -111.8 | -132.0 | -150.8 | 10.0 | -111.36 |
| 1.75 | 10.50 | 506.4 | 504.1 | 502.2 | -0.87 | -0.42 | -0.23 | 10.08 | -22.7 | -35.3 | -44.6 | 0.03 | 0.23 | -88.4 | -111.2 | -132.2 | -150.9 | 20.8 | -118.46 |
| 2.00 | 10.63 | 509.0 | 506.8 | 504.8 | -0.84 | -0.39 | -0.20 | 10.09 | -22.9 | -35.2 | -44.7 | 0.03 | 0.24 | -90.3 | -112.1 | -132.2 | -150.5 | 35.5 | -123.18 |
| 2.25 | 10.78 | 511.7 | 509.4 | 507.4 | -0.81 | -0.37 | -0.18 | 10.09 | -23.0 | -35.0 | -44.4 | 0.03 | 0.24 | -89.8 | -110.9 | -132.0 | -150.2 | 60.7 | -127.58 |
| 2.50 | 10.94 | 514.5 | 512.1 | 510.1 | -0.78 | -0.35 | -0.17 | 10.09 | -23.1 | -34.9 | -44.4 | 0.01 | 0.25 | -89.1 | -111.5 | -131.7 | -150.8 | 86.7 | -130.46 |
| 2.75 | 11.09 | 517.2 | 514.9 | 512.8 | -0.75 | -0.33 | -0.15 | 10.10 | -23.2 | -34.7 | -44.0 | 0.00 | 0.26 | -88.1 | -111.5 | -131.8 | -150.4 | 100.0 | -131.97 |
| 3.00 | 11.23 | 520.0 | 517.6 | 515.6 | -0.73 | -0.32 | -0.14 | 10.10 | -23.1 | -34.6 | -43.8 | 0.02 | 0.29 | -89.1 | -112.2 | -132.0 | -151.2 | 148.1 | -135.15 |
| 3.25 | 11.32 | 522.9 | 520.4 | 518.3 | -0.72 | -0.32 | -0.14 | 10.10 | -23.1 | -34.6 | -43.3 | 0.04 | 0.32 | -88.9 | -111.0 | -131.8 | -150.3 | 177.0 | -136.77 |
| 3.50 | 11.37 | 525.7 | 523.3 | 521.1 | -0.71 | -0.32 | -0.13 | 10.10 | -23.3 | -34.4 | -43.1 | 0.06 | 0.34 | -89.8 | -111.1 | -131.6 | -151.5 | 211.6 | -138.50 |
| 3.75 | 11.37 | 528.6 | 526.1 | 524.0 | -0.72 | -0.32 | -0.13 | 10.10 | -23.5 | -34.2 | -42.8 | 0.08 | 0.37 | -90.7 | -111.2 | -131.7 | -150.9 | 302.4 | -141.52 |
| 4.00 | 11.32 | 531.4 | 529.0 | 526.8 | -0.73 | -0.33 | -0.13 | 10.10 | -23.8 | -34.1 | -42.7 | 0.10 | 0.40 | -90.4 | -111.2 | -131.5 | -150.7 | 361.5 | -143.10 |
| 4.25 | 11.22 | 534.3 | 531.8 | 529.6 | -0.74 | -0.34 | -0.14 | 10.10 | -24.0 | -34.1 | -42.2 | 0.11 | 0.42 | -89.4 | -111.1 | -131.5 | -150.0 | 507.5 | -145.45 |
| 4.50 | 11.09 | 537.1 | 534.6 | 532.4 | -0.77 | -0.36 | -0.15 | 10.09 | -24.1 | -34.0 | -41.8 | 0.12 | 0.44 | -88.4 | -111.0 | -131.3 | -149.7 | 600.0 | -147.52 |
| 4.75 | 10.91 | 539.9 | 537.4 | 535.1 | -0.79 | -0.38 | -0.16 | 10.09 | -24.2 | -34.0 | -41.2 | 0.12 | 0.45 | -87.8 | -111.2 | -131.1 | -150.1 | 851.6 | -149.64 |
| 5.00 | 10.72 | 542.7 | 540.1 | 537.8 | -0.82 | -0.40 | -0.17 | 10.10 | -24.2 | -34.0 | -41.2 | 0.13 | 0.46 | -88.8 | -110.6 | -131.1 | -150.2 | 1000.0 | -150.69 |

*at 25°C unless mentioned otherwise



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