

Voltage Controlled Oscillator

ROS-404-219+

5V Tuning for PLL IC's 375 to 410 MHz

Features

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

Applications

- wireless communication
- SMR repeater



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 dBc (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. | Max. |
| ROS-404-219+ | 375 | 410 | +2 | -87 | -113 | -133 | -153 | 0.5 | 5 | 18 | 70 | 80 | -90 | -23 | -15 | 0.1 | 0.5 | 5 | 25 |

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 |

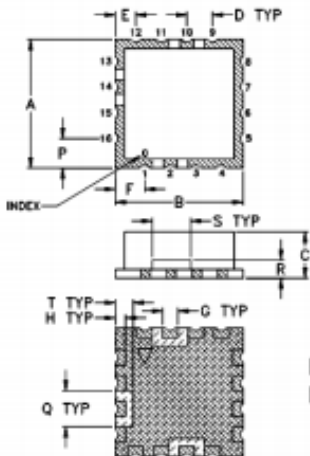
Permanent damage may occur if any of these limits are exceeded.

Tape & Reel: F37

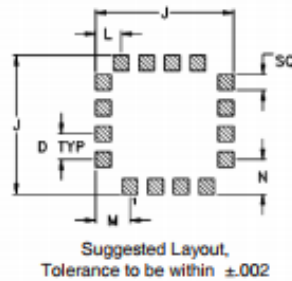
13" Reels with 20, 50, 100, 200, 500 devices

Environmental Ratings: ENV65

Outline Drawing

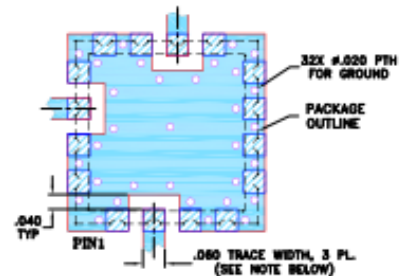


PCB Land Pattern



METALLIZATION
 SOLDER RESIST

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 | .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 |

Performance Data & Curves*

ROS-404-219+

| 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 393 MHz (dBc/Hz) |
|--------|-------------------|-----------------|-------|-------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|---------------------------------|
| | | -55°C | +25°C | +85°C | -55°C | +25°C | +85°C | | F2 | F3 | F4 | | | 1kHz | 10kHz | 100kHz | 1MHz | | |
| 0.00 | 24.14 | 345.4 | 341.7 | 338.8 | 0.68 | 1.38 | 1.30 | 19.82 | -19.1 | -46.7 | -47.9 | 0.91 | 0.08 | -85.6 | -111.7 | -131.8 | -151.6 | 1.0 | -88.37 |
| 0.50 | 20.21 | 356.5 | 353.2 | 350.6 | 0.85 | 1.63 | 1.57 | 19.90 | -20.8 | -45.6 | -46.7 | 0.55 | 0.04 | -87.5 | -113.9 | -133.9 | -153.5 | 2.0 | -94.72 |
| 0.75 | 19.37 | 361.5 | 358.2 | 355.7 | 0.94 | 1.73 | 1.67 | 19.93 | -21.1 | -45.3 | -47.0 | 0.48 | 0.02 | -89.6 | -113.9 | -134.4 | -153.5 | 3.5 | -102.25 |
| 1.00 | 18.88 | 366.4 | 363.1 | 360.6 | 1.03 | 1.82 | 1.76 | 19.96 | -21.7 | -44.2 | -47.0 | 0.44 | 0.02 | -87.3 | -113.4 | -134.6 | -153.2 | 6.0 | -108.99 |
| 1.25 | 18.59 | 371.1 | 367.8 | 365.3 | 1.13 | 1.90 | 1.83 | 19.97 | -22.0 | -44.7 | -47.7 | 0.41 | 0.04 | -87.6 | -114.3 | -134.7 | -154.2 | 8.5 | -110.80 |
| 1.50 | 18.46 | 375.8 | 372.4 | 370.0 | 1.21 | 1.95 | 1.90 | 19.99 | -21.7 | -45.2 | -48.3 | 0.41 | 0.06 | -88.4 | -114.3 | -134.5 | -154.2 | 10.0 | -113.29 |
| 1.75 | 18.41 | 380.4 | 377.1 | 374.5 | 1.28 | 2.00 | 1.96 | 20.00 | -21.4 | -44.6 | -49.0 | 0.41 | 0.09 | -87.9 | -114.7 | -134.7 | -154.5 | 20.8 | -119.82 |
| 2.00 | 18.42 | 385.0 | 381.7 | 379.1 | 1.35 | 2.03 | 2.00 | 20.00 | -22.1 | -44.2 | -48.8 | 0.42 | 0.11 | -88.6 | -113.5 | -134.3 | -154.4 | 35.5 | -124.08 |
| 2.25 | 18.45 | 389.6 | 386.3 | 383.7 | 1.41 | 2.04 | 2.05 | 20.01 | -23.1 | -43.8 | -49.4 | 0.43 | 0.12 | -88.2 | -113.6 | -134.3 | -154.3 | 60.7 | -129.98 |
| 2.50 | 18.48 | 394.2 | 390.9 | 388.3 | 1.44 | 2.04 | 2.08 | 20.01 | -23.5 | -42.6 | -50.8 | 0.45 | 0.12 | -89.8 | -113.4 | -134.1 | -153.8 | 86.7 | -132.49 |
| 2.75 | 18.49 | 398.8 | 395.5 | 392.8 | 1.43 | 2.02 | 2.11 | 20.02 | -23.4 | -41.6 | -52.2 | 0.47 | 0.12 | -88.2 | -113.3 | -134.0 | -154.0 | 100.0 | -133.26 |
| 3.00 | 18.38 | 403.5 | 400.1 | 397.4 | 1.33 | 2.00 | 2.13 | 20.03 | -23.7 | -40.8 | -53.7 | 0.48 | 0.10 | -87.9 | -112.7 | -133.6 | -153.6 | 148.1 | -137.19 |
| 3.25 | 18.12 | 408.1 | 404.7 | 401.9 | 1.20 | 1.98 | 2.16 | 20.05 | -24.7 | -40.2 | -55.4 | 0.48 | 0.09 | -89.1 | -112.9 | -133.7 | -153.7 | 177.0 | -138.65 |
| 3.50 | 17.98 | 412.7 | 409.3 | 406.4 | 1.18 | 1.99 | 2.18 | 20.06 | -25.5 | -41.0 | -58.0 | 0.50 | 0.07 | -87.5 | -113.1 | -133.4 | -153.5 | 211.6 | -140.43 |
| 3.75 | 17.48 | 417.2 | 413.7 | 410.9 | 1.13 | 1.97 | 2.19 | 20.07 | -25.5 | -40.5 | -61.9 | 0.51 | 0.05 | -88.2 | -112.8 | -133.2 | -153.3 | 302.4 | -143.49 |
| 4.00 | 17.00 | 421.7 | 418.1 | 415.2 | 1.09 | 1.99 | 2.20 | 20.07 | -24.9 | -40.5 | -64.5 | 0.50 | 0.03 | -87.5 | -113.5 | -133.2 | -153.2 | 361.5 | -144.86 |
| 4.25 | 16.82 | 426.0 | 422.4 | 419.5 | 1.10 | 2.00 | 2.17 | 20.03 | -24.8 | -42.5 | -66.1 | 0.55 | 0.05 | -88.6 | -112.4 | -133.2 | -153.1 | 507.5 | -148.06 |
| 4.50 | 16.60 | 430.2 | 426.6 | 423.7 | 1.05 | 1.93 | 2.11 | 20.00 | -25.5 | -43.4 | -62.0 | 0.62 | 0.09 | -89.1 | -112.3 | -133.0 | -152.8 | 606.7 | -149.40 |
| 4.75 | 16.23 | 434.3 | 430.7 | 427.9 | 0.97 | 1.84 | 2.04 | 19.98 | -26.2 | -42.4 | -57.0 | 0.66 | 0.12 | -89.2 | -112.5 | -133.0 | -152.4 | 851.6 | -152.61 |
| 5.00 | 15.80 | 438.4 | 434.8 | 431.9 | 0.86 | 1.74 | 1.97 | 19.97 | -26.2 | -41.2 | -52.8 | 0.67 | 0.14 | -87.1 | -111.7 | -132.6 | -152.6 | 1000.0 | -153.96 |

*at 25°C unless mentioned otherwise

