

Surface Mount Voltage Controlled Oscillator

ROS-100+

Linear Tuning 50 to 100 MHz

Features

- octave band tuning
- low phase noise, -105 dBc/Hz at 10 kHz
- linear tuning, 3-5 MHz/V typ.
- aqueous washable

Applications

- test instruments-signal generators
- receivers
- VHF



CASE STYLE: CK605

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Electrical Specifications

| FREQUENCY (MHz) | | POWER OUTPUT (dBm) | TUNING VOLTAGE (V) | | PHASE NOISE (dBc/Hz) | | | | PULLING pk-pk @ 12 dB (MHz) | PUSHING (MHz/V) | TUNING SENSITIVITY (MHz/V) | HARMONICS (dBc) | | 3 dB MODULATION BANDWIDTH (MHz) | DC OPERATING POWER | |
|-----------------|------|--------------------|--------------------|------|---------------------------------|--------|---------|-------|-----------------------------|-----------------|----------------------------|-----------------|------|---------------------------------|--------------------|-------------------|
| Min. | Max. | | Min. | Max. | SSB at offset frequencies: Typ. | | | | | | | Typ. | Max. | | Vcc (volts) | Current (mA) Max. |
| | | Typ. | | | 1 kHz | 10 kHz | 100 kHz | 1 MHz | Typ. | Typ. | Typ. | | | Typ. | | |
| 50 | 100 | +8.3 | 0.5 | 17 | -75 | -105 | -125 | -145 | 0.6 | 0.3 | 3.0-5.0 | -30 | -20 | 0.1 | 12 | 20 |

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) | +13V |
| Absolute Max. Tuning Voltage (Vtune) | +18V |
| All specifications | 50 ohm system |

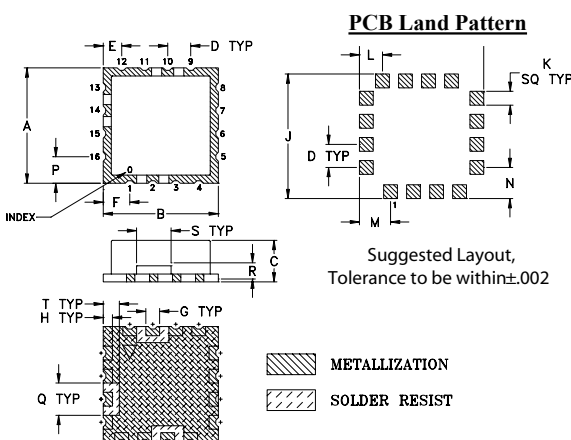
Permanent damage may occur if any of these limits are exceeded.

Tape & Reel: F37

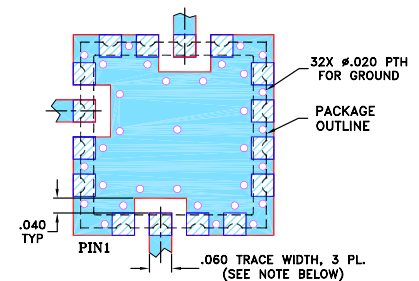
13" Reels with 20, 50, 100, 200, 500 devices

Environmental Ratings: ENV65

Outline Drawing



Demo Board MCL PIN: 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 PCB 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 |

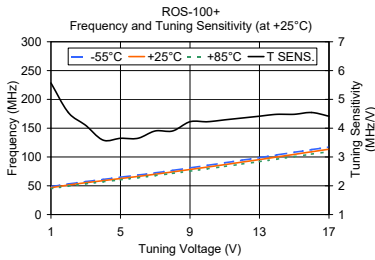
Notes

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
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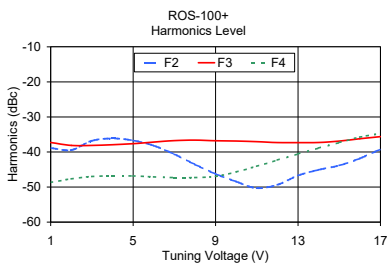
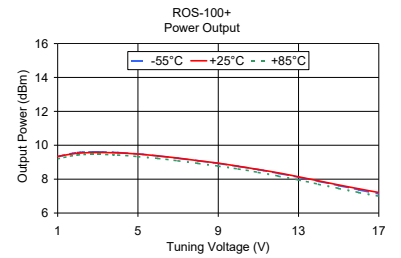


Performance Data & Curves

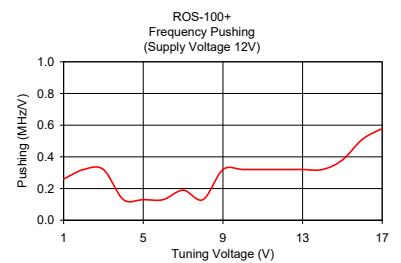
ROS-100+



| V TUNE | TUNING SENS. (MHz/V) | FREQUENCY (MHz) | | | POWER OUTPUT (dBm) | | |
|--------|----------------------|-----------------|-------|-------|--------------------|-------|-------|
| | | -55°C | +25°C | +85°C | -55°C | +25°C | +85°C |
| 1.0 | 5.6 | 48.6 | 46.7 | 44.9 | 9.3 | 9.3 | 9.2 |
| 2.0 | 4.5 | 53.1 | 51.2 | 49.4 | 9.6 | 9.5 | 9.4 |
| 3.0 | 4.1 | 57.2 | 55.3 | 53.3 | 9.6 | 9.6 | 9.5 |
| 4.0 | 3.6 | 61.0 | 58.9 | 56.8 | 9.6 | 9.6 | 9.4 |
| 5.0 | 3.6 | 64.8 | 62.5 | 60.4 | 9.5 | 9.5 | 9.3 |
| 6.0 | 3.6 | 68.5 | 66.2 | 63.9 | 9.4 | 9.4 | 9.2 |
| 7.0 | 3.9 | 72.4 | 70.1 | 67.6 | 9.2 | 9.2 | 9.1 |
| 8.0 | 3.9 | 76.6 | 74.0 | 71.4 | 9.1 | 9.1 | 8.9 |
| 9.0 | 4.2 | 81.0 | 78.2 | 75.3 | 8.9 | 8.9 | 8.8 |
| 10.0 | 4.2 | 85.4 | 82.4 | 79.4 | 8.8 | 8.8 | 8.6 |
| 11.0 | 4.3 | 89.8 | 86.7 | 83.5 | 8.6 | 8.6 | 8.4 |
| 12.0 | 4.4 | 94.3 | 91.1 | 87.7 | 8.3 | 8.4 | 8.2 |
| 13.0 | 4.4 | 98.9 | 95.5 | 91.9 | 8.1 | 8.1 | 8.0 |
| 14.0 | 4.5 | 103.5 | 100.0 | 96.2 | 7.9 | 7.9 | 7.7 |
| 15.0 | 4.5 | 108.1 | 104.4 | 100.5 | 7.6 | 7.7 | 7.5 |
| 16.0 | 4.5 | 112.7 | 109.0 | 104.9 | 7.4 | 7.4 | 7.2 |
| 17.0 | 4.4 | 117.2 | 113.4 | 109.2 | 7.1 | 7.2 | 7.0 |



| V TUNE | HARMONICS (dBc) | | | FREQ. PUSHING (MHz/V) |
|--------|-----------------|-------|-------|-----------------------|
| | F2 | F3 | F4 | |
| 1.0 | -38.9 | -37.3 | -48.7 | 0.3 |
| 2.0 | -39.4 | -38.1 | -47.7 | 0.3 |
| 3.0 | -36.8 | -38.1 | -47.0 | 0.3 |
| 4.0 | -36.1 | -37.9 | -46.8 | 0.1 |
| 5.0 | -36.7 | -37.6 | -46.8 | 0.1 |
| 6.0 | -38.2 | -37.2 | -47.1 | 0.1 |
| 7.0 | -40.6 | -36.8 | -47.3 | 0.2 |
| 8.0 | -43.6 | -36.6 | -47.3 | 0.1 |
| 9.0 | -46.3 | -36.8 | -47.0 | 0.3 |
| 10.0 | -48.5 | -36.9 | -45.7 | 0.3 |
| 11.0 | -50.3 | -37.0 | -44.1 | 0.3 |
| 12.0 | -49.4 | -37.3 | -42.3 | 0.3 |
| 13.0 | -46.7 | -37.3 | -40.6 | 0.3 |
| 14.0 | -45.1 | -37.3 | -38.9 | 0.3 |
| 15.0 | -43.9 | -36.9 | -37.3 | 0.4 |
| 16.0 | -41.9 | -36.2 | -35.8 | 0.5 |
| 17.0 | -39.2 | -35.6 | -34.7 | 0.6 |



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