

Surface Mount Voltage Controlled Oscillator

ROS-550PV+ ROS-550PV

5V Tuning for PLL IC's 450 to 550 MHz

Features

- wide frequency range
- low phase noise, -104 dBc/Hz at 10 kHz offset, typ.
- linear tuning, 30-60 MHz/V typ.
- 5V power supply
- aqueous washable

Applications

- aeronautical communication
- instrumentation
- UHF
- PLL circuitry



CASE STYLE: CK605
PRICE: \$ 19.95 ea. QTY (5-49)

+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) SSB at offset frequencies: Typ. | | | | 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. | Typ. | Min. | Max. | 1 kHz | 10 kHz | 100 kHz | 1 MHz | Typ. | Typ. | Typ. | Typ. | Max. | Typ. | Voltage (V) | Current (mA) Max. |
| 450 | 550 | 6 | 0.5 | 5.0 | -81 | -104 | -124 | -144 | 3.0 | 0.5 | 30-60 | -15 | — | 8.0 | 5 | 15 |

Pin Connections

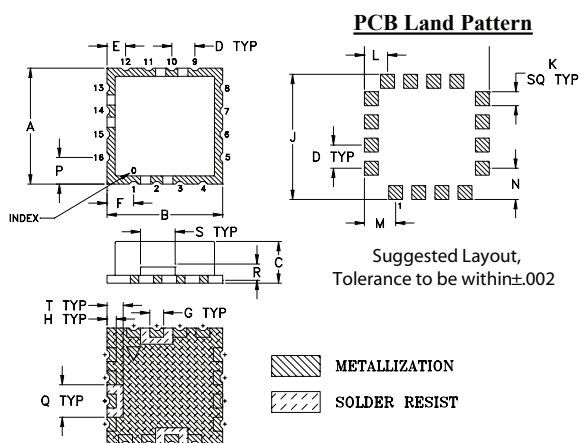
| | |
|--------|--------------------------------|
| RF OUT | 10 |
| VCC | 14 |
| V-TUNE | 2 |
| GROUND | 1,3,4,5,6,7,8,9,11,12,13,15,16 |

Maximum Ratings

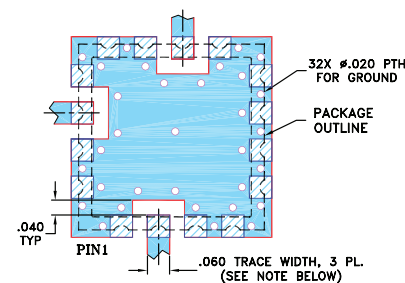
| | |
|--------------------------------------|----------------|
| Operating Temperature | -55°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc) | +6V |
| Absolute Max. Tuning Voltage (Vtune) | +6V |

all specifications: 50 ohm system
Permanent damage may occur if any of these limits are exceeded.

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 |

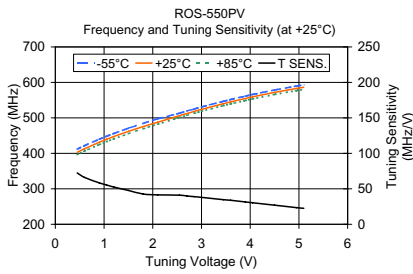
Notes

- 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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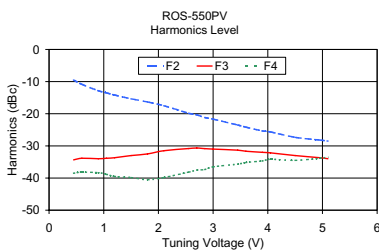
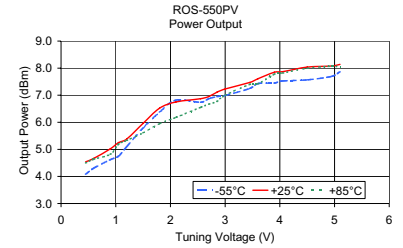


Performance Data & Curves

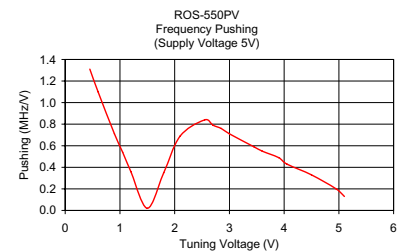
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| V TUNE | TUNING SENS. (MHz/V) | FREQUENCY (MHz) | | | POWER OUTPUT (dBm) | | |
|--------|----------------------|-----------------|--------|--------|--------------------|-------|-------|
| | | -55°C | +25°C | +85°C | -55°C | +25°C | +85°C |
| 0.45 | 72.32 | 411.96 | 403.14 | 396.60 | 4.08 | 4.54 | 4.50 |
| 0.60 | 66.08 | 421.84 | 413.05 | 406.67 | 4.31 | 4.67 | 4.64 |
| 0.90 | 58.45 | 439.76 | 431.13 | 424.69 | 4.62 | 5.02 | 4.82 |
| 1.05 | 55.48 | 448.07 | 439.45 | 432.94 | 4.75 | 5.25 | 5.19 |
| 1.20 | 52.48 | 455.96 | 447.33 | 440.73 | 5.10 | 5.38 | 5.33 |
| 1.50 | 47.74 | 470.83 | 462.00 | 455.31 | 5.79 | 5.96 | 5.61 |
| 1.80 | 42.69 | 484.59 | 475.23 | 469.06 | 6.37 | 6.52 | 5.95 |
| 2.10 | 41.48 | 497.27 | 487.56 | 482.29 | 6.82 | 6.75 | 6.18 |
| 2.55 | 41.03 | 513.32 | 506.26 | 501.08 | 6.74 | 6.87 | 6.55 |
| 2.70 | 39.88 | 519.27 | 512.24 | 507.04 | 6.87 | 6.95 | 6.67 |
| 2.85 | 38.97 | 525.09 | 518.09 | 512.85 | 6.95 | 7.11 | 6.77 |
| 3.00 | 37.98 | 530.76 | 523.78 | 518.51 | 6.99 | 7.23 | 7.00 |
| 3.45 | 34.69 | 546.80 | 539.92 | 534.52 | 7.25 | 7.47 | 7.40 |
| 3.60 | 33.88 | 551.86 | 545.00 | 539.56 | 7.43 | 7.61 | 7.42 |
| 3.90 | 31.45 | 561.42 | 554.61 | 549.06 | 7.45 | 7.85 | 7.78 |
| 4.05 | 30.37 | 565.95 | 559.16 | 553.56 | 7.53 | 7.87 | 7.82 |
| 4.50 | 26.96 | 578.58 | 571.83 | 565.99 | 7.57 | 8.04 | 8.00 |
| 4.95 | 23.46 | 589.72 | 582.94 | 576.79 | 7.70 | 8.08 | 8.07 |
| 5.10 | 22.50 | 593.12 | 586.31 | 580.04 | 7.87 | 8.14 | 8.05 |



| V TUNE | HARMONICS (dBc) | | | FREQ. PUSHING (MHz/V) |
|--------|-----------------|--------|--------|-----------------------|
| | F2 | F3 | F4 | |
| 0.45 | -9.50 | -34.34 | -38.50 | 1.31 |
| 0.60 | -10.84 | -33.84 | -38.17 | 1.10 |
| 0.90 | -12.83 | -34.00 | -38.33 | 0.71 |
| 1.05 | -13.50 | -33.84 | -38.84 | 0.54 |
| 1.20 | -14.17 | -33.67 | -39.50 | 0.36 |
| 1.50 | -15.34 | -33.00 | -39.84 | 0.02 |
| 1.80 | -16.33 | -32.50 | -40.50 | 0.35 |
| 2.10 | -17.50 | -31.50 | -39.83 | 0.69 |
| 2.55 | -19.83 | -30.83 | -38.17 | 0.84 |
| 2.70 | -20.33 | -30.66 | -37.50 | 0.79 |
| 2.85 | -21.17 | -30.84 | -37.34 | 0.76 |
| 3.00 | -21.67 | -31.00 | -36.50 | 0.71 |
| 3.45 | -23.50 | -31.33 | -35.66 | 0.59 |
| 3.60 | -24.17 | -31.67 | -35.17 | 0.55 |
| 3.90 | -25.34 | -32.00 | -34.67 | 0.49 |
| 4.05 | -25.66 | -32.16 | -34.16 | 0.43 |
| 4.50 | -27.33 | -33.00 | -34.50 | 0.33 |
| 4.95 | -28.17 | -33.67 | -33.84 | 0.20 |
| 5.10 | -28.50 | -34.00 | -33.50 | 0.13 |



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