

Surface Mount Voltage Controlled Oscillator

ROS-1900V+

Linear Tuning 1450 to 1900 MHz



CASE STYLE: CK605

Features

- wide frequency range, 1450 to 1900 MHz
- low phase noise, -104 dBc/Hz at 10 kHz offset, typ.
- wide modulation bandwidth, 100 MHz typ.
- linear tuning, 22-34 MHz/V typ.
- 5V power supply
- aqueous washable
- protected by US patent 6,549,084

Applications

- instrumentation
- PCN

+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. | Typ. | | Typ. | Max. |
| | | Typ. | | | 1 kHz | 10 kHz | 100 kHz | 1 MHz | Typ. | Typ. | Typ. | Typ. | Max. | Typ. | | |
| 1450 | 1900 | 8.0 | 0.5 | 20 | -78 | -104 | -124 | -144 | 7 | 0.7 | 22-34 | -18 | -10 | 100 | 5 | 28 |

Pin Connections

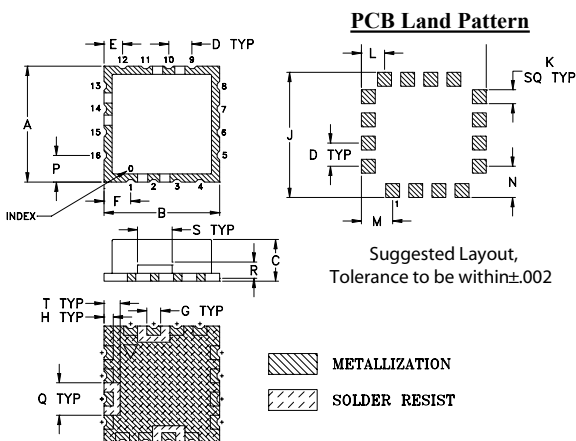
| | |
|--------|--------------------------------|
| RF OUT | 10 |
| VCC | 14 |
| V-TUNE | 2 |
| GROUND | 1,3,4,5,6,7,8,9,11,12,13,15,16 |

Maximum Ratings

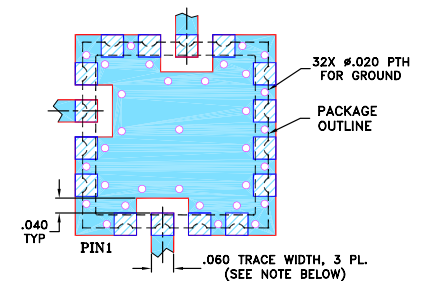
| | |
|--------------------------------------|----------------|
| Operating Temperature | -55°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc) | +6V |
| Absolute Max. Tuning Voltage (Vtune) | +22V |

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 |

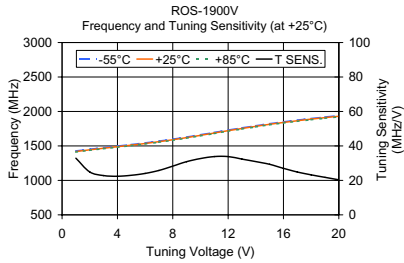
Notes

- 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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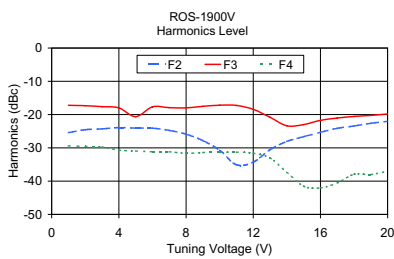
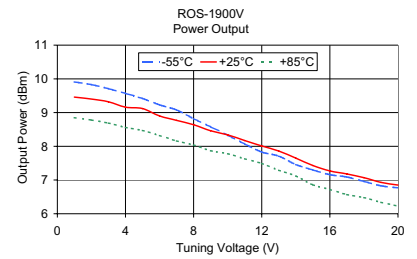


Performance Data & Curves

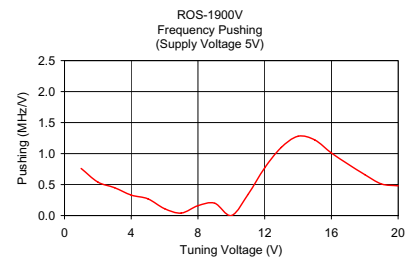
ROS-1900V+



| V TUNE | TUNING SENS. (MHz/V) | FREQUENCY (MHz) | | | POWER OUTPUT (dBm) | | |
|--------|----------------------|-----------------|---------|---------|--------------------|-------|-------|
| | | -55°C | +25°C | +85°C | -55°C | +25°C | +85°C |
| 1.00 | 32.87 | 1427.73 | 1418.41 | 1410.51 | 9.91 | 9.46 | 8.85 |
| 2.00 | 24.89 | 1452.34 | 1443.30 | 1435.75 | 9.83 | 9.40 | 8.78 |
| 3.00 | 22.78 | 1475.12 | 1466.08 | 1458.57 | 9.71 | 9.32 | 8.69 |
| 4.00 | 22.40 | 1497.60 | 1488.48 | 1480.94 | 9.57 | 9.16 | 8.56 |
| 5.00 | 22.96 | 1520.63 | 1511.43 | 1503.81 | 9.42 | 9.12 | 8.47 |
| 6.00 | 24.04 | 1544.70 | 1535.48 | 1527.81 | 9.23 | 8.90 | 8.32 |
| 7.00 | 25.78 | 1570.62 | 1561.26 | 1553.44 | 9.08 | 8.77 | 8.16 |
| 8.00 | 28.28 | 1599.08 | 1589.54 | 1581.46 | 8.82 | 8.64 | 8.04 |
| 9.00 | 30.85 | 1629.94 | 1620.39 | 1612.19 | 8.58 | 8.46 | 7.87 |
| 10.00 | 32.68 | 1662.60 | 1653.07 | 1644.85 | 8.33 | 8.34 | 7.78 |
| 11.00 | 33.84 | 1696.66 | 1686.91 | 1678.65 | 8.07 | 8.17 | 7.63 |
| 12.00 | 33.83 | 1730.52 | 1720.74 | 1712.62 | 7.83 | 8.01 | 7.49 |
| 13.00 | 32.34 | 1762.70 | 1753.08 | 1745.22 | 7.71 | 7.86 | 7.29 |
| 14.00 | 30.92 | 1793.60 | 1784.00 | 1776.13 | 7.46 | 7.65 | 7.12 |
| 15.00 | 29.34 | 1823.02 | 1813.34 | 1805.24 | 7.30 | 7.43 | 6.86 |
| 16.00 | 26.99 | 1850.05 | 1840.33 | 1832.07 | 7.16 | 7.27 | 6.72 |
| 17.00 | 24.87 | 1875.05 | 1865.20 | 1856.77 | 7.09 | 7.18 | 6.57 |
| 18.00 | 23.22 | 1898.40 | 1888.42 | 1879.77 | 6.96 | 7.07 | 6.48 |
| 19.00 | 21.79 | 1920.22 | 1910.21 | 1901.38 | 6.83 | 6.93 | 6.34 |
| 20.00 | 20.34 | 1940.54 | 1930.55 | 1921.65 | 6.77 | 6.85 | 6.23 |



| V TUNE | HARMONICS (dBc) | | | FREQ. PUSHING (MHz/V) |
|--------|-----------------|--------|--------|-----------------------|
| | F2 | F3 | F4 | |
| 1.00 | -25.41 | -17.20 | -29.39 | 0.76 |
| 2.00 | -24.53 | -17.33 | -29.56 | 0.54 |
| 3.00 | -24.29 | -17.62 | -29.76 | 0.45 |
| 4.00 | -23.89 | -17.98 | -30.68 | 0.33 |
| 5.00 | -24.06 | -20.63 | -30.92 | 0.27 |
| 6.00 | -24.08 | -17.67 | -31.17 | 0.11 |
| 7.00 | -24.75 | -17.91 | -31.18 | 0.04 |
| 8.00 | -25.89 | -17.97 | -31.65 | 0.16 |
| 9.00 | -27.81 | -17.51 | -31.39 | 0.20 |
| 10.00 | -30.72 | -17.19 | -31.34 | 0.00 |
| 11.00 | -35.07 | -17.25 | -31.28 | 0.34 |
| 12.00 | -34.31 | -18.43 | -31.60 | 0.77 |
| 13.00 | -30.56 | -20.80 | -33.05 | 1.10 |
| 14.00 | -28.06 | -23.36 | -37.30 | 1.28 |
| 15.00 | -26.63 | -23.01 | -41.51 | 1.22 |
| 16.00 | -25.31 | -21.73 | -42.02 | 1.01 |
| 17.00 | -24.12 | -21.03 | -40.52 | 0.83 |
| 18.00 | -23.42 | -20.56 | -37.92 | 0.66 |
| 19.00 | -22.62 | -20.24 | -38.02 | 0.51 |
| 20.00 | -22.03 | -19.82 | -36.97 | 0.48 |



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