

NON-CATALOG

Low Phase Noise

Voltage Controlled Oscillator

ROS-700+

5V Tuning for PLL IC's 665 to 700 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) | SENSI- TIVITY (MHz/V) | PORT CAP (pF) | | 3 dB MODULATION BANDWIDTH (MHz) | Typ. | | | Max. | Vcc | Current (mA) |
| ROS-700+ | 665 | 700 | 0 | -89 | -113 | -133 | -153 | 0.5 | 5 | 12-13 | 70 | 80 | -90 | -21 | -13 | 0.4 | 0.1 | 5 | 17 |

Pin Connections

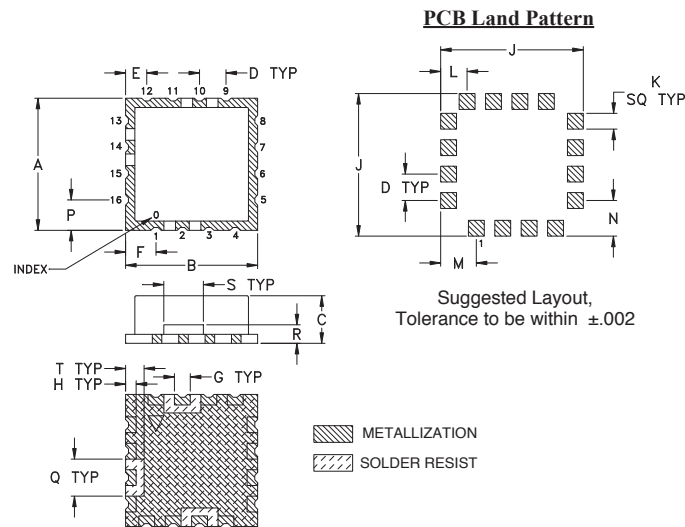
| | |
|--------|--------------------------------|
| RF OUT | 10 |
| VCC | 14 |
| V-TUNE | 2 |
| GROUND | 1,3,4,5,6,7,8,9,11,12,13,15,16 |

Maximum Ratings

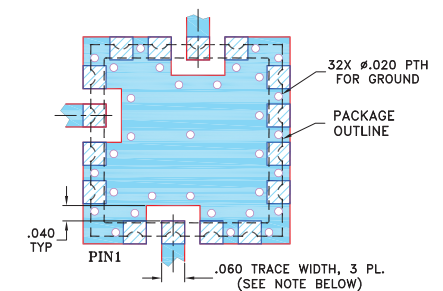
| | |
|--------------------------------------|----------------|
| Operating Temperature | -55°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc) | 7V |
| Absolute Max. Tuning Voltage (Vtune) | 7V |
| All specifications | 50 ohm system |

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

Outline Drawing



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 | .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 |



For detailed performance specs & shopping online see web site

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Provides ACTUAL Data Instantly at minicircuits.com

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REV. A
 M149087
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 ROS-700+
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 141230
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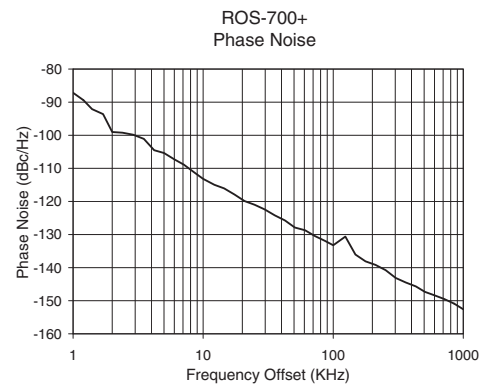
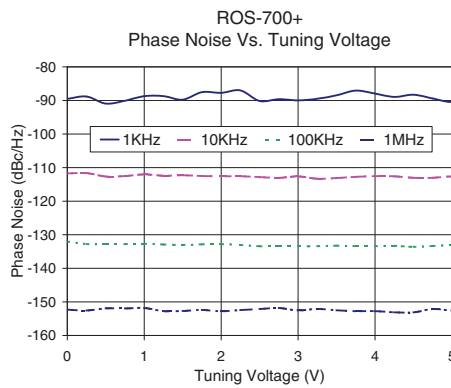
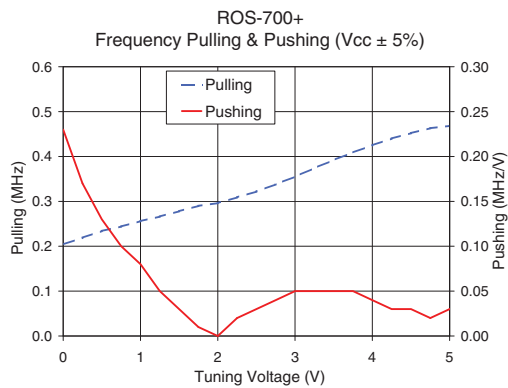
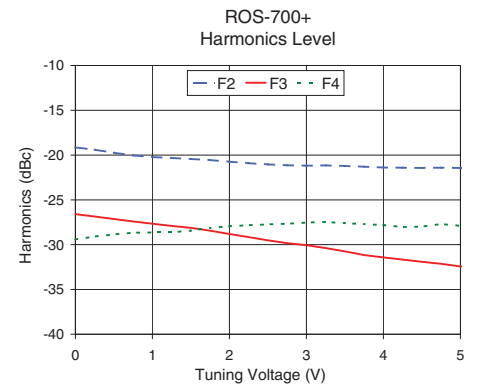
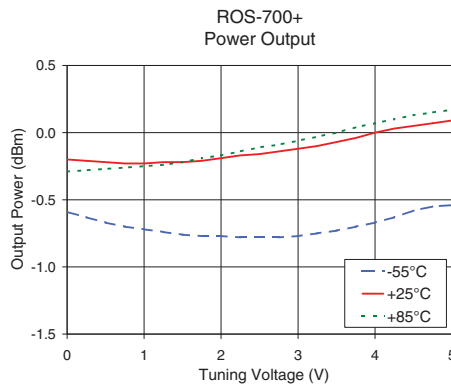
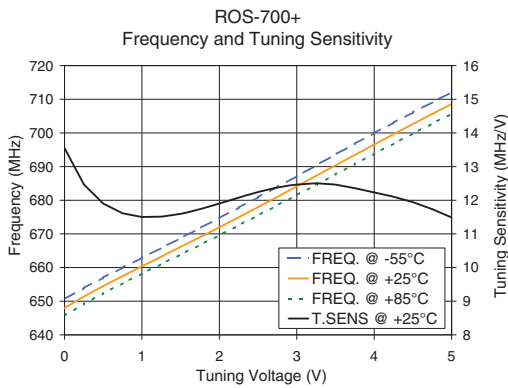
NON-CATALOG

Performance Data & Curves*

ROS-700+

| 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 680 MHz (dBc/Hz) |
|--------|-------------------|-----------------|-------|-------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|---------------------------------|
| | | -55°C | +25°C | +85°C | -55°C | +25°C | +85°C | | F2 | F3 | F4 | | | 1kHz | 10kHz | 100kHz | 1MHz | | |
| 0.00 | 13.55 | 650.6 | 648.0 | 645.7 | -0.59 | -0.20 | -0.29 | 11.73 | -19.1 | -26.6 | -29.4 | 0.23 | 0.20 | -89.5 | -111.7 | -132.0 | -152.3 | 1.0 | -87.18 |
| 0.50 | 11.90 | 657.0 | 654.5 | 652.3 | -0.67 | -0.22 | -0.27 | 11.75 | -19.7 | -27.1 | -28.9 | 0.13 | 0.23 | -90.9 | -112.6 | -132.9 | -151.9 | 2.0 | -99.02 |
| 0.75 | 11.61 | 660.0 | 657.5 | 655.3 | -0.70 | -0.23 | -0.26 | 11.76 | -20.0 | -27.4 | -28.7 | 0.10 | 0.24 | -90.1 | -112.5 | -132.8 | -152.0 | 3.5 | -101.09 |
| 1.00 | 11.50 | 662.9 | 660.4 | 658.2 | -0.72 | -0.23 | -0.25 | 11.78 | -20.2 | -27.7 | -28.6 | 0.08 | 0.26 | -88.7 | -112.0 | -132.7 | -151.8 | 6.0 | -107.28 |
| 1.25 | 11.51 | 665.8 | 663.3 | 661.0 | -0.74 | -0.22 | -0.24 | 11.79 | -20.3 | -27.9 | -28.6 | 0.05 | 0.27 | -88.7 | -112.4 | -132.9 | -152.7 | 8.5 | -111.18 |
| 1.50 | 11.60 | 668.7 | 666.1 | 663.9 | -0.76 | -0.22 | -0.22 | 11.80 | -20.4 | -28.1 | -28.4 | 0.03 | 0.28 | -89.8 | -112.3 | -133.0 | -152.7 | 10.0 | -113.17 |
| 1.75 | 11.74 | 671.7 | 669.0 | 666.7 | -0.77 | -0.21 | -0.19 | 11.82 | -20.6 | -28.4 | -28.1 | 0.01 | 0.29 | -87.5 | -112.5 | -132.9 | -152.4 | 20.8 | -119.89 |
| 2.00 | 11.90 | 674.7 | 672.0 | 669.6 | -0.77 | -0.19 | -0.17 | 11.84 | -20.7 | -28.8 | -27.9 | 0.00 | 0.30 | -87.7 | -112.6 | -132.8 | -152.8 | 35.5 | -124.21 |
| 2.25 | 12.08 | 677.8 | 674.9 | 672.5 | -0.78 | -0.17 | -0.14 | 11.86 | -20.9 | -29.2 | -27.8 | 0.02 | 0.31 | -87.0 | -112.6 | -133.1 | -152.5 | 60.7 | -128.70 |
| 2.50 | 12.24 | 680.9 | 678.0 | 675.5 | -0.78 | -0.16 | -0.11 | 11.88 | -21.0 | -29.5 | -27.7 | 0.03 | 0.32 | -90.2 | -112.8 | -133.4 | -152.1 | 86.7 | -131.95 |
| 2.75 | 12.38 | 684.0 | 681.0 | 678.5 | -0.78 | -0.14 | -0.09 | 11.90 | -21.1 | -29.8 | -27.7 | 0.04 | 0.34 | -89.6 | -113.1 | -133.4 | -151.8 | 100.0 | -133.24 |
| 3.00 | 12.46 | 687.2 | 684.1 | 681.5 | -0.77 | -0.12 | -0.06 | 11.92 | -21.2 | -30.1 | -27.5 | 0.05 | 0.36 | -90.0 | -112.6 | -133.5 | -152.5 | 148.1 | -136.05 |
| 3.25 | 12.51 | 690.4 | 687.2 | 684.6 | -0.75 | -0.10 | -0.03 | 11.95 | -21.2 | -30.4 | -27.5 | 0.05 | 0.37 | -89.5 | -113.3 | -133.4 | -152.1 | 177.0 | -138.10 |
| 3.50 | 12.47 | 693.6 | 690.4 | 687.7 | -0.73 | -0.07 | 0.00 | 11.97 | -21.2 | -30.8 | -27.6 | 0.05 | 0.39 | -88.5 | -113.1 | -133.3 | -152.5 | 211.6 | -139.18 |
| 3.75 | 12.36 | 696.8 | 693.5 | 690.7 | -0.70 | -0.04 | 0.04 | 12.00 | -21.3 | -31.2 | -27.7 | 0.05 | 0.41 | -87.1 | -112.8 | -133.4 | -152.8 | 302.4 | -143.13 |
| 4.00 | 12.23 | 699.9 | 696.6 | 693.8 | -0.67 | 0.00 | 0.07 | 12.03 | -21.4 | -31.4 | -27.8 | 0.04 | 0.43 | -88.0 | -112.5 | -133.4 | -152.8 | 361.5 | -144.49 |
| 4.25 | 12.10 | 703.0 | 699.6 | 696.8 | -0.63 | 0.03 | 0.10 | 12.05 | -21.4 | -31.7 | -28.0 | 0.03 | 0.44 | -89.0 | -112.6 | -133.3 | -153.1 | 507.5 | -147.33 |
| 4.50 | 11.94 | 706.1 | 702.6 | 699.8 | -0.58 | 0.05 | 0.13 | 12.07 | -21.4 | -31.9 | -28.0 | 0.03 | 0.45 | -88.3 | -113.0 | -133.6 | -153.1 | 600.0 | -148.37 |
| 4.75 | 11.74 | 709.1 | 705.6 | 702.8 | -0.55 | 0.07 | 0.15 | 12.09 | -21.4 | -32.1 | -27.7 | 0.02 | 0.46 | -89.4 | -113.0 | -133.3 | -152.1 | 851.6 | -150.89 |
| 5.00 | 11.49 | 712.1 | 708.6 | 705.7 | -0.54 | 0.09 | 0.17 | 12.11 | -21.4 | -32.4 | -27.9 | 0.03 | 0.47 | -90.4 | -112.7 | -133.1 | -152.5 | 1000.0 | -152.59 |

*at 25°C unless mentioned otherwise



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