



Features

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

Applications

- wireless communications
- CDMA
- wireless radio, microphone & TV broadcasting

NON-CATALOG

+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. | Typ. | | | Typ. | Typ. |
| MOS-748-119+ | 690 | 749 | 0 | -91 | -115 | -136 | -155 | 0.5 | 14 | 7 | 81 | 32 | -90 | -18 | -10 | 0.3 | 0.06 | 5 | 31 |

Pin Connections

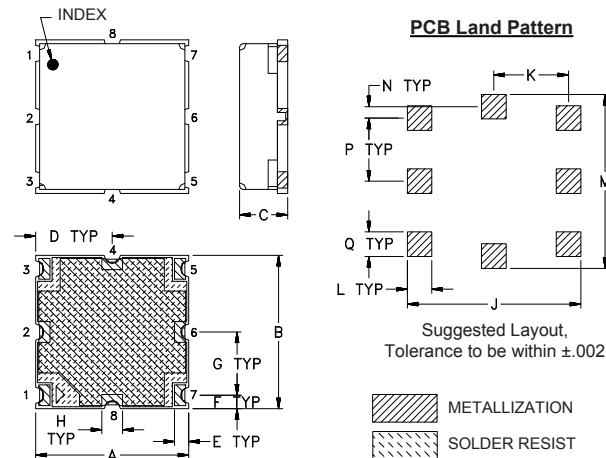
| | |
|--------|-----------|
| RF OUT | 5 |
| VCC | 3 |
| V-TUNE | 1 |
| GROUND | 2,4,6,7,8 |

Maximum Ratings

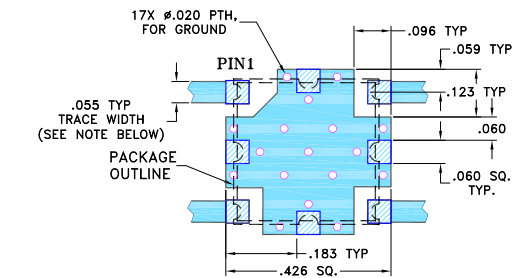
| | |
|--------------------------------------|----------------|
| Operating Temperature | -55°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc) | 6.6V |
| Absolute Max. Tuning Voltage (Vtune) | 15.0V |
| All specifications | 50 ohm system |

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

Outline Drawing



Demo Board MCL P/N: TB-128 Suggested PCB Layout (PL-023)



- NOTE: 1. TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; 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 | wt. |
|------|------|------|------|------|------|------|------|-------|------|------|-------|------|------|------|-------|
| .375 | .375 | .131 | .188 | .035 | .033 | .154 | .050 | .425 | .183 | .060 | .425 | .028 | .154 | .060 | grams |
| 9.52 | 9.52 | 3.33 | 4.77 | 0.89 | 0.84 | 3.91 | 1.27 | 10.80 | 4.65 | 1.52 | 10.80 | 0.71 | 3.91 | 1.52 | .60 |

Notes

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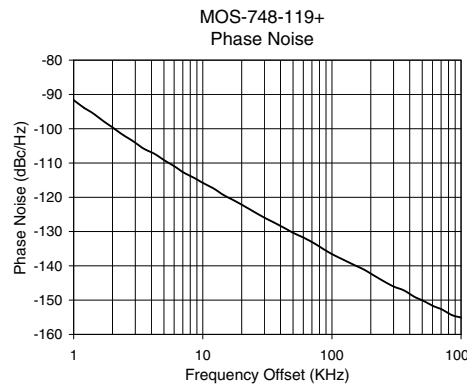
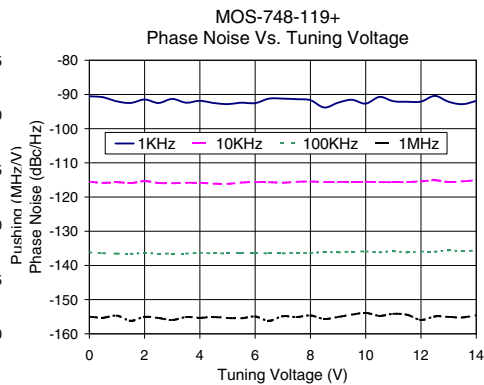
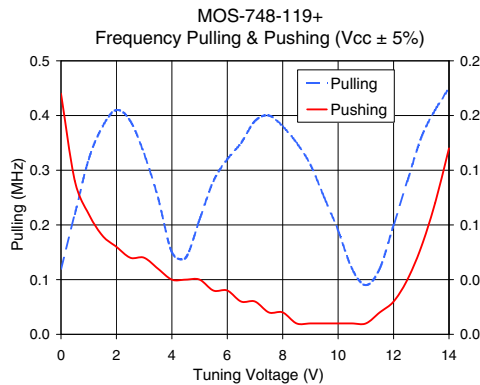
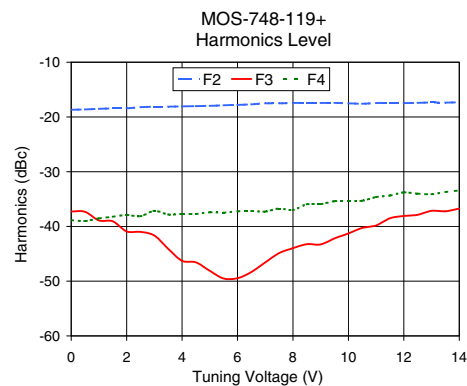
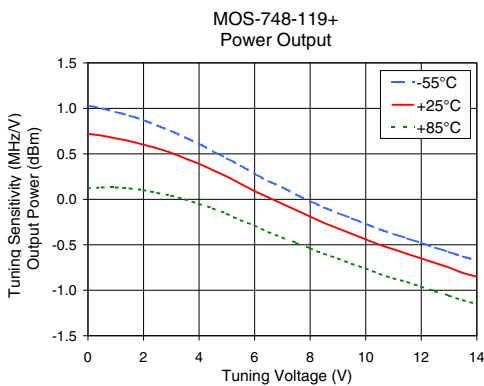
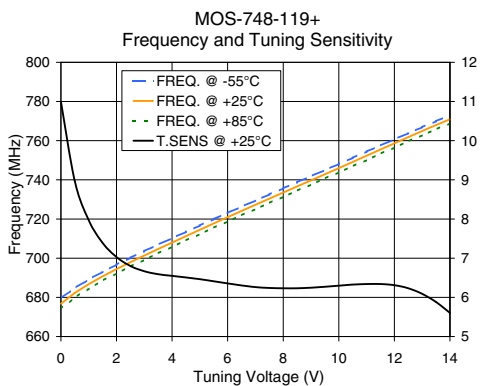


Performance Data & Curves*

MOS-748-119+

| 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 720 MHz (dBc/Hz) |
|--------|-------------------|-----------------|-------|-------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|---------------------------------|
| | | -55°C | +25°C | +85°C | -55°C | +25°C | +85°C | | F2 | F3 | F4 | | | 1kHz | 10kHz | 100kHz | 1MHz | | |
| 0.00 | 10.99 | 679.5 | 676.8 | 674.2 | 1.03 | 0.72 | 0.12 | 25.58 | -18.7 | -37.3 | -38.9 | 0.22 | 0.12 | -90.5 | -115.5 | -136.2 | -155.0 | 1.0 | -91.67 |
| 0.50 | 8.97 | 684.8 | 682.3 | 679.9 | 1.00 | 0.70 | 0.13 | 25.60 | -18.6 | -37.3 | -39.0 | 0.14 | 0.22 | -90.8 | -115.9 | -136.4 | -155.3 | 2.0 | -99.61 |
| 1.00 | 7.97 | 689.1 | 686.7 | 684.5 | 0.96 | 0.67 | 0.13 | 25.61 | -18.5 | -38.9 | -38.5 | 0.11 | 0.32 | -92.0 | -115.7 | -136.6 | -154.7 | 3.5 | -105.85 |
| 1.50 | 7.39 | 693.1 | 690.7 | 688.5 | 0.92 | 0.64 | 0.12 | 25.62 | -18.5 | -39.1 | -38.2 | 0.09 | 0.38 | -92.5 | -115.9 | -136.6 | -156.2 | 6.0 | -110.92 |
| 2.00 | 7.03 | 696.7 | 694.4 | 692.2 | 0.87 | 0.60 | 0.10 | 25.63 | -18.4 | -40.9 | -37.9 | 0.08 | 0.41 | -91.5 | -115.3 | -136.4 | -155.0 | 8.5 | -114.27 |
| 3.00 | 6.67 | 703.6 | 701.3 | 699.2 | 0.75 | 0.51 | 0.04 | 25.65 | -18.1 | -41.7 | -37.1 | 0.07 | 0.33 | -91.3 | -116.0 | -136.5 | -156.0 | 10.0 | -115.78 |
| 4.00 | 6.55 | 710.2 | 708.0 | 705.8 | 0.61 | 0.39 | -0.05 | 25.67 | -18.1 | -46.3 | -37.7 | 0.05 | 0.15 | -91.9 | -115.8 | -136.3 | -155.3 | 20.8 | -122.52 |
| 5.00 | 6.46 | 716.7 | 714.5 | 712.3 | 0.45 | 0.25 | -0.16 | 25.69 | -18.0 | -48.1 | -37.4 | 0.05 | 0.21 | -92.6 | -116.2 | -136.5 | -155.4 | 35.5 | -127.35 |
| 6.00 | 6.36 | 723.1 | 720.9 | 718.7 | 0.28 | 0.09 | -0.29 | 25.70 | -17.8 | -49.5 | -37.2 | 0.04 | 0.32 | -92.5 | -115.6 | -136.4 | -155.0 | 60.7 | -131.81 |
| 7.00 | 6.26 | 729.4 | 727.3 | 725.1 | 0.13 | -0.05 | -0.42 | 25.71 | -17.5 | -46.6 | -37.3 | 0.03 | 0.39 | -91.2 | -115.8 | -136.5 | -154.9 | 86.7 | -135.20 |
| 8.00 | 6.23 | 735.7 | 733.5 | 731.3 | -0.02 | -0.19 | -0.54 | 25.73 | -17.4 | -44.0 | -37.0 | 0.02 | 0.38 | -91.7 | -115.5 | -136.4 | -154.6 | 100.0 | -136.57 |
| 9.00 | 6.25 | 741.9 | 739.8 | 737.6 | -0.15 | -0.32 | -0.65 | 25.73 | -17.4 | -43.3 | -35.9 | 0.01 | 0.31 | -92.4 | -115.6 | -136.2 | -155.1 | 148.1 | -139.73 |
| 9.50 | 6.27 | 745.0 | 742.9 | 740.7 | -0.21 | -0.38 | -0.71 | 25.74 | -17.4 | -42.2 | -35.4 | 0.01 | 0.25 | -91.6 | -115.5 | -135.9 | -154.4 | 177.0 | -141.08 |
| 10.00 | 6.30 | 748.1 | 746.0 | 743.8 | -0.27 | -0.44 | -0.76 | 25.75 | -17.5 | -41.3 | -35.3 | 0.01 | 0.19 | -92.7 | -115.5 | -135.9 | -153.9 | 211.6 | -142.83 |
| 10.50 | 6.33 | 751.2 | 749.2 | 747.0 | -0.33 | -0.50 | -0.82 | 25.75 | -17.6 | -40.3 | -35.3 | 0.01 | 0.12 | -90.7 | -115.6 | -136.2 | -154.7 | 302.4 | -146.06 |
| 11.00 | 6.34 | 754.4 | 752.3 | 750.1 | -0.38 | -0.55 | -0.87 | 25.75 | -17.5 | -39.8 | -34.6 | 0.01 | 0.09 | -92.0 | -115.6 | -135.8 | -154.2 | 361.5 | -147.17 |
| 12.00 | 6.31 | 760.7 | 758.7 | 756.5 | -0.48 | -0.65 | -0.96 | 25.77 | -17.5 | -38.1 | -33.8 | 0.03 | 0.20 | -92.1 | -115.4 | -136.0 | -156.0 | 507.5 | -150.16 |
| 13.00 | 6.09 | 766.9 | 764.9 | 762.8 | -0.58 | -0.75 | -1.06 | 25.79 | -17.4 | -37.2 | -34.1 | 0.08 | 0.36 | -92.1 | -115.6 | -135.6 | -155.1 | 606.7 | -151.69 |
| 13.50 | 5.88 | 769.9 | 768.0 | 765.8 | -0.63 | -0.81 | -1.11 | 25.79 | -17.4 | -37.2 | -33.7 | 0.12 | 0.41 | -92.9 | -115.4 | -135.8 | -155.2 | 851.6 | -154.39 |
| 14.00 | 5.60 | 772.9 | 770.9 | 768.8 | -0.67 | -0.85 | -1.15 | 25.80 | -17.3 | -36.7 | -33.4 | 0.17 | 0.45 | -91.9 | -115.1 | -135.7 | -154.6 | 1000.0 | -155.10 |

*at 25°C unless mentioned otherwise



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