

Voltage Controlled Oscillator

MOS-1890-119+

5V Tuning for PLL IC's 1800 to 1890 MHz



CASE STYLE: CZ682
PRICE: \$20.45 ea. QTY (5-49)

Features

- Low phase noise
- Low pulling
- Low pushing
- Aqueous washable

Applications

- Wireless communications
- Personal communication systems
- Video on demand system

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

The +Suffix has been added in order to identify 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. | Max. |
| MOS-1890-119+ | 1800 | 1890 | +4 | -79 | -105 | -126 | -146 | 0.5 | 5 | 38 - 46 | 30 | 100 | -90 | -22 | -13 | 0.2 | 1.5 | 5 | 44 |

Pin Connections

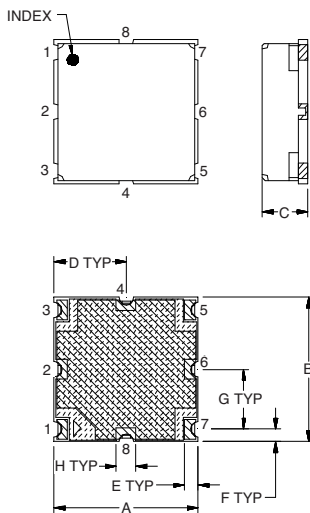
| | |
|--------|-----------|
| RF OUT | 5 |
| VCC | 3 |
| V-TUNE | 1 |
| GROUND | 2,4,6,7,8 |

Maximum Ratings

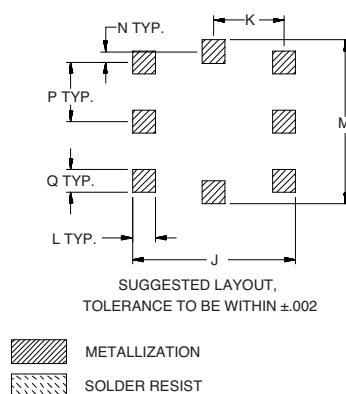
| | |
|--------------------------------------|----------------|
| Operating Temperature | -55°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc) | 6V |
| Absolute Max. Tuning Voltage (Vtune) | 7V |
| All specifications | 50 ohm system |

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

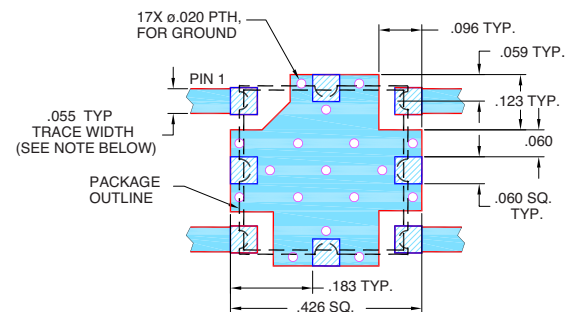
Outline Drawing



PCB Land Pattern



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



- NOTES:**
1. TRACE WIDTH IS SHOWN FOR RF4 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 | GRAM |
| 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 | 0.60 |



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

IF/RF MICROWAVE COMPONENTS

Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp.

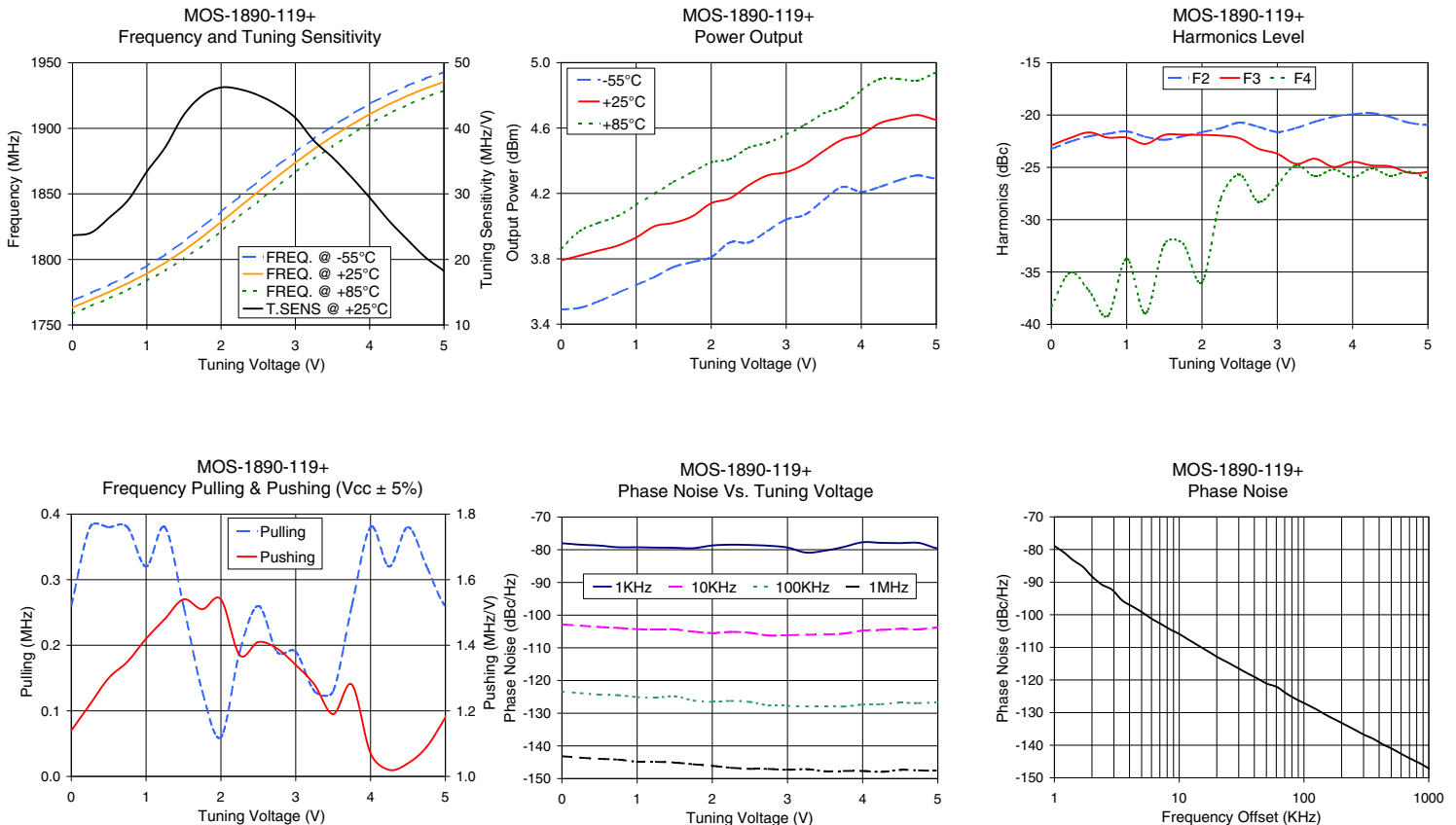
REV. A
M123576
EDR-7667/3
MOS-1890-119+
RAV
090816
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Performance Data & Curves*

MOS-1890-119+

| 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 1845 MHz (dBc/Hz) |
|--------|-------------------|-----------------|--------|--------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|----------------------------------|
| | | -55°C | +25°C | +85°C | -55°C | +25°C | +85°C | | F2 | F3 | F4 | | | 1kHz | 10kHz | 100kHz | 1MHz | | |
| 0.00 | 23.68 | 1768.6 | 1763.4 | 1758.7 | 3.49 | 3.79 | 3.86 | 34.19 | -23.2 | -22.9 | -38.3 | 1.14 | 0.26 | -78.0 | -102.8 | -123.4 | -143.2 | 1.0 | -78.93 |
| 0.50 | 26.43 | 1780.7 | 1775.3 | 1770.5 | 3.54 | 3.85 | 4.02 | 34.37 | -22.0 | -21.7 | -36.8 | 1.30 | 0.38 | -78.7 | -103.6 | -124.3 | -144.0 | 2.0 | -88.27 |
| 0.75 | 29.06 | 1787.5 | 1781.9 | 1776.8 | 3.59 | 3.88 | 4.06 | 34.46 | -21.8 | -22.2 | -39.2 | 1.35 | 0.38 | -79.2 | -103.9 | -124.5 | -144.2 | 3.5 | -95.62 |
| 1.00 | 33.39 | 1795.1 | 1789.2 | 1783.7 | 3.64 | 3.93 | 4.13 | 34.59 | -21.6 | -22.2 | -33.7 | 1.42 | 0.32 | -79.2 | -104.3 | -125.1 | -144.8 | 6.0 | -101.19 |
| 1.25 | 37.16 | 1803.8 | 1797.5 | 1791.6 | 3.69 | 4.00 | 4.20 | 34.71 | -22.1 | -22.8 | -39.0 | 1.48 | 0.38 | -79.4 | -104.3 | -125.2 | -144.9 | 8.5 | -104.54 |
| 1.50 | 42.07 | 1813.9 | 1806.8 | 1800.6 | 3.75 | 4.02 | 4.27 | 34.88 | -22.4 | -21.9 | -32.4 | 1.54 | 0.26 | -79.4 | -104.4 | -124.8 | -145.1 | 10.0 | -105.89 |
| 1.75 | 45.01 | 1824.8 | 1817.3 | 1810.7 | 3.78 | 4.06 | 4.33 | 35.05 | -22.0 | -21.9 | -32.3 | 1.51 | 0.13 | -79.5 | -105.1 | -126.1 | -145.6 | 20.8 | -113.23 |
| 2.00 | 46.24 | 1836.4 | 1828.6 | 1821.5 | 3.81 | 4.14 | 4.39 | 35.25 | -21.6 | -21.9 | -36.0 | 1.54 | 0.06 | -78.7 | -105.5 | -126.5 | -146.1 | 35.5 | -118.02 |
| 2.25 | 45.96 | 1848.1 | 1840.2 | 1833.0 | 3.90 | 4.17 | 4.41 | 35.43 | -21.3 | -22.0 | -28.0 | 1.37 | 0.19 | -78.5 | -105.1 | -126.2 | -146.7 | 60.7 | -122.13 |
| 2.50 | 45.05 | 1859.8 | 1851.6 | 1844.4 | 3.90 | 4.25 | 4.48 | 35.62 | -20.7 | -22.2 | -25.7 | 1.41 | 0.26 | -78.6 | -105.4 | -126.6 | -147.0 | 86.7 | -125.92 |
| 2.75 | 43.61 | 1871.1 | 1862.9 | 1855.6 | 3.97 | 4.31 | 4.51 | 35.86 | -21.1 | -23.2 | -28.3 | 1.39 | 0.19 | -78.8 | -106.2 | -127.6 | -147.0 | 100.0 | -127.07 |
| 3.00 | 41.60 | 1881.9 | 1873.8 | 1866.5 | 4.04 | 4.33 | 4.56 | 36.09 | -21.6 | -23.7 | -26.7 | 1.34 | 0.19 | -79.3 | -106.1 | -127.8 | -147.3 | 148.1 | -130.59 |
| 3.25 | 38.10 | 1892.2 | 1884.2 | 1876.7 | 4.07 | 4.38 | 4.62 | 36.31 | -21.3 | -24.7 | -24.8 | 1.28 | 0.13 | -80.9 | -106.0 | -127.9 | -147.1 | 177.0 | -132.11 |
| 3.50 | 35.55 | 1901.7 | 1893.7 | 1886.4 | 4.16 | 4.46 | 4.69 | 36.53 | -20.6 | -24.2 | -25.9 | 1.19 | 0.13 | -80.3 | -105.9 | -128.0 | -147.8 | 211.6 | -133.65 |
| 3.75 | 32.61 | 1910.6 | 1902.6 | 1895.5 | 4.24 | 4.53 | 4.73 | 36.77 | -20.2 | -25.0 | -25.2 | 1.28 | 0.26 | -79.1 | -105.7 | -128.0 | -147.7 | 302.4 | -136.76 |
| 4.00 | 29.42 | 1918.7 | 1910.8 | 1903.6 | 4.21 | 4.56 | 4.83 | 36.93 | -19.9 | -24.5 | -26.0 | 1.07 | 0.38 | -77.7 | -104.7 | -127.4 | -147.7 | 361.5 | -138.10 |
| 4.25 | 26.01 | 1925.9 | 1918.1 | 1911.1 | 4.24 | 4.63 | 4.90 | 37.14 | -19.8 | -24.8 | -25.1 | 1.02 | 0.32 | -77.9 | -104.5 | -127.3 | -148.0 | 507.5 | -141.08 |
| 4.50 | 23.10 | 1932.4 | 1924.6 | 1917.7 | 4.28 | 4.66 | 4.90 | 37.29 | -20.2 | -24.9 | -25.8 | 1.04 | 0.38 | -78.0 | -104.2 | -126.8 | -147.3 | 606.7 | -142.72 |
| 4.75 | 20.33 | 1938.0 | 1930.4 | 1923.7 | 4.31 | 4.68 | 4.89 | 37.47 | -20.7 | -25.5 | -25.4 | 1.09 | 0.32 | -77.9 | -104.3 | -126.9 | -147.5 | 851.6 | -145.57 |
| 5.00 | 18.23 | 1943.0 | 1935.5 | 1928.8 | 4.29 | 4.65 | 4.94 | 37.57 | -20.9 | -25.4 | -26.1 | 1.18 | 0.26 | -79.6 | -103.8 | -126.7 | -147.6 | 1000.0 | -147.13 |

*at 25°C unless mentioned otherwise



ISO 9001 ISO 14001 AS 9100 CERTIFIED

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