

Voltage Controlled Oscillator MOS-1890-119R+

50Ω 1800 to 1890 MHz

The Big Deal:

- Good Harmonic Suppression
- Low Phase Noise
- Robust design and construction
- Small size .375" x .375" x .131"



CASE STYLE: CZ682

Product Overview:

The MOS-1890-119R+ is a Voltage Controlled Oscillator, designed to operate from 1800 to 1890 MHz for personal communication system applications. The MOS-1890-119R+ is packaged in a metal case (size of .375" x .375" x .131") to shield against unwanted signals and noise.

Key Features

Feature	Advantages
Good Harmonic Suppression, -22dBc typ.	Provides clear signals suitable for systems requiring high spectral purity.
Low Phase Noise: -104dBc/Hz typ at 10kHz offset	Low phase noise improves system EVM (Error Vector Magnitude).
Good Pulling, 0.2MHz typ.	Improves immunity against changes in output load.
Good Pushing, 1.5MHz/V typ.	Provides increased immunity against noisy DC lines and improves output frequency stability vs. variations in supply voltage.
Robust design and construction	Each internal component of the MOS-1890-119R+ is bonded to the substrate, providing better immunity to microphonics, reduced phase hit, and decreased tombstoning risk during subsequent reflow operations.
Small size, .375" x .375" x .131"	The small size enables the MOS-1890-119R+ to be used in compact designs.

Voltage Controlled Oscillator

MOS-1890-119R+

5V Tuning for PLL ICs 1800 to 1890 MHz

Features

- low phase noise, -104 dBc/Hz typ. @ 10kHz offset
- low pulling, 0.2 MHz typ.
- low pushing, 1.5 MHz/V typ.
- aqueous washable



CASE STYLE: CZ682

Applications

- wireless communications
- personal communication systems
- video on demand system

+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)		SENSITIVITY (MHz/V)	PORT CAP (pF)	3 dB MODULATION BANDWIDTH (MHz)	Typ.	Typ.	Typ.			Max.	Typ.	Max.	Vcc	Current (mA)
									Min.	Max.													
MOS-1890-119R+	1800	1890	+4	-77	-104	-126	-146	0.5	5	30-50	35	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

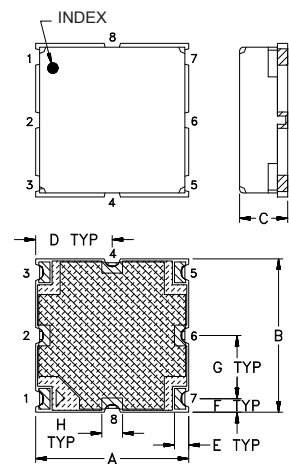
Permanent damage may occur if any of these limits are exceeded.

Tape & Reel: F60

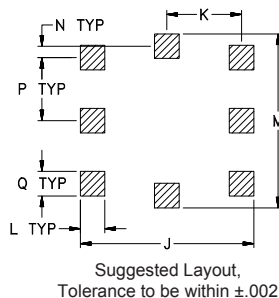
7" Reels with 10, 20, 50, 100 devices
13" Reels with 200, 500, 1000 devices

Environmental Ratings: ENV65

Outline Drawing

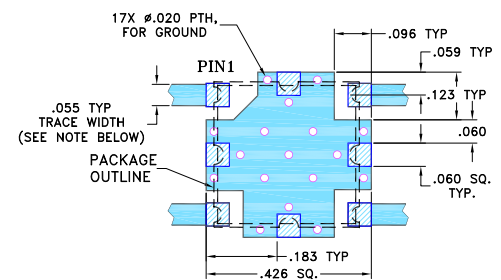


PCB Land Pattern



METALLIZATION
 SOLDER RESIST

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)

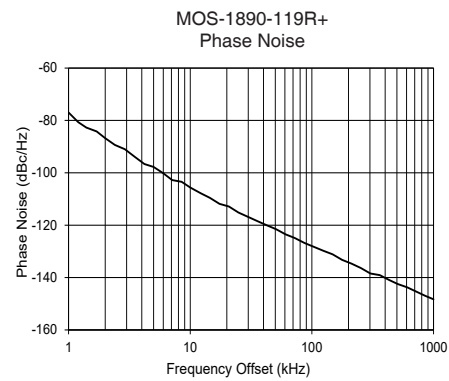
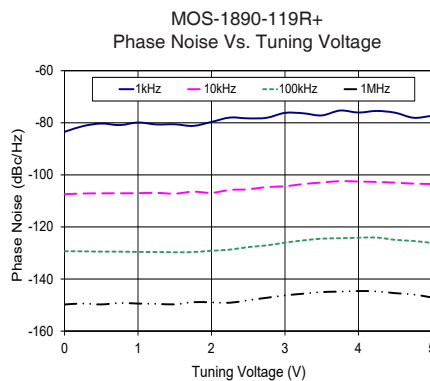
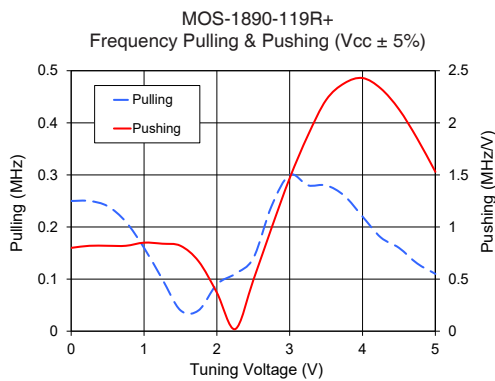
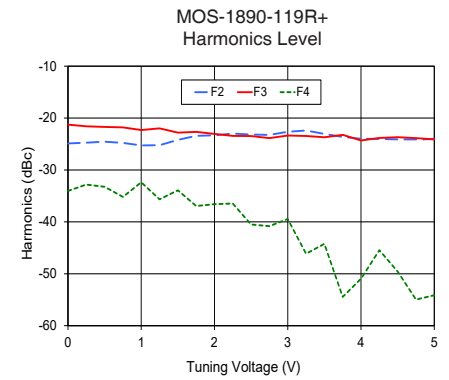
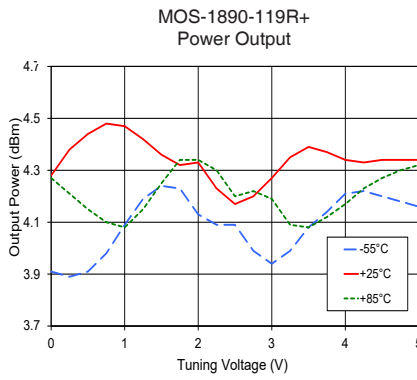
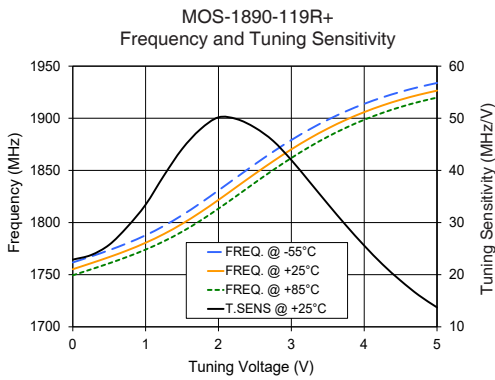
A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	wt.
.375	.375	.131	.188	.035	.033	.154	.050	.425	.183	.060	.425	.028	.154	.060	grams
9.52	9.52	3.33	4.77	0.89	0.84	3.91	1.27	10.80	4.65	1.52	10.80	0.71	3.91	1.52	.60

Performance Data & Curves*

MOS-1890-119R+

V TUNE	TUNE SENS (MHz/V)	FREQUENCY (MHz)			POWER OUTPUT (dBm)			I _{cc} (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	22.89	1761.7	1755.2	1749.3	3.91	4.28	4.27	32.37	-24.9	-21.3	-34.1	0.80	0.25	-83.47	-107.4	-129.3	-149.8	1.0	-76.99
0.50	25.74	1773.5	1766.9	1760.9	3.91	4.44	4.15	32.37	-24.6	-21.7	-33.2	0.82	0.24	-80.29	-107.1	-129.5	-149.7	2.0	-86.77
0.75	29.19	1780.2	1773.3	1767.1	3.98	4.48	4.10	32.38	-24.8	-21.8	-35.2	0.82	0.21	-80.88	-107.1	-129.5	-149.2	3.5	-93.90
1.00	33.43	1787.8	1780.6	1774.0	4.09	4.47	4.08	32.38	-25.3	-22.3	-32.4	0.85	0.16	-79.90	-107.0	-129.6	-149.4	6.0	-100.15
1.25	38.98	1796.7	1789.0	1782.0	4.19	4.42	4.15	32.40	-25.2	-22.0	-35.7	0.84	0.10	-80.63	-106.9	-129.6	-149.5	8.5	-103.43
1.50	44.09	1807.0	1798.7	1791.2	4.24	4.36	4.25	32.41	-24.2	-22.8	-33.9	0.82	0.04	-80.58	-107.2	-129.7	-149.7	10.0	-105.61
1.75	47.86	1818.5	1809.8	1801.7	4.23	4.32	4.34	32.43	-23.4	-22.7	-37.0	0.67	0.04	-81.19	-106.5	-129.6	-148.9	20.8	-112.87
2.00	50.18	1830.8	1821.7	1813.4	4.13	4.33	4.34	32.45	-23.3	-23.1	-36.6	0.37	0.09	-79.67	-106.9	-129.1	-148.9	35.5	-118.41
2.25	49.84	1843.4	1834.3	1825.6	4.09	4.23	4.30	32.47	-23.0	-23.4	-36.5	0.02	0.11	-78.00	-105.8	-128.7	-149.1	60.7	-123.48
2.50	48.21	1855.9	1846.7	1838.2	4.09	4.17	4.20	32.48	-23.2	-23.5	-40.5	0.49	0.14	-78.31	-105.6	-127.7	-148.1	86.7	-126.75
2.75	45.67	1867.9	1858.8	1850.3	3.99	4.20	4.22	32.49	-23.3	-23.9	-40.8	0.99	0.24	-78.09	-104.7	-127.1	-147.2	100.0	-127.97
3.00	41.99	1879.1	1870.2	1861.9	3.94	4.27	4.19	32.48	-22.7	-23.4	-39.5	1.47	0.30	-76.20	-104.4	-126.0	-146.3	148.1	-131.11
3.25	37.81	1889.3	1880.7	1872.6	3.99	4.35	4.09	32.48	-22.4	-23.5	-46.1	1.88	0.28	-76.36	-103.5	-125.2	-145.6	177.0	-133.22
3.50	33.58	1898.5	1890.2	1882.3	4.08	4.39	4.08	32.48	-23.1	-23.7	-44.2	2.22	0.28	-77.18	-102.9	-124.5	-145.0	211.6	-134.67
3.75	29.46	1906.7	1898.5	1891.0	4.14	4.37	4.12	32.48	-23.6	-23.2	-54.5	2.38	0.26	-75.30	-102.4	-124.3	-144.8	302.4	-138.46
4.00	25.59	1913.8	1905.9	1898.6	4.21	4.34	4.17	32.47	-24.0	-24.3	-51.0	2.43	0.22	-76.07	-102.5	-124.1	-144.6	361.5	-139.05
4.25	22.00	1920.0	1912.3	1905.2	4.22	4.33	4.23	32.47	-24.0	-23.8	-45.5	2.33	0.18	-75.46	-102.7	-124.1	-144.8	507.5	-142.46
4.50	18.86	1925.3	1917.8	1910.9	4.20	4.34	4.27	32.47	-24.1	-23.7	-49.6	2.13	0.16	-76.15	-103.0	-125.0	-145.4	606.7	-143.71
4.75	16.05	1929.9	1922.5	1915.7	4.18	4.34	4.30	32.47	-24.1	-23.9	-55.0	1.85	0.13	-78.08	-103.4	-125.4	-145.9	851.6	-146.94
5.00	13.72	1933.9	1926.5	1919.9	4.16	4.34	4.32	32.46	-24.1	-24.1	-54.1	1.53	0.11	-77.33	-103.5	-126.1	-147.1	1000.0	-148.29

*at 25°C unless mentioned otherwise



Additional Notes

- 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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