Voltage Controlled Oscillator MOS-868-119+

50Ω 805 to 868 MHz

The Big Deal:

- Low Phase Noise
- Linear Tuning
- Robust design and construction
- Small size .375" x .375" x 0.131"

CASE STYLE: CZ682

Product Overview:

The MOS-868-119+ is a Voltage Controlled Oscillator, designed to operate from 805 to 868 MHz for TV Broadcasting application. The MOS-868-119+ is packaged in a metal case (size of .375" x .375" x .131") to shield against unwanted signals and noise.

Key Features

Feature	Advantages
Low Phase Noise: -116dBc/Hz typ at 10kHz offset	Low phase noise improves system EVM (Error Vector Magnitude).
Linear Tuning Sensitivity Ratio: 1.2:1 typ.	Optimal for loop filter design.
Excellent Pulling, 0.03MHz typ. at 12dBr	Improves immunity changes in output load.
Robust design and construction	To enhance the robustness of MOS-868-119+, each internal component is secured to the substrate with chip bonder, thereby eliminating the risk of tombstoning during subsequent solder reflow operations by the customer and provides better immunity to microphonic effects and reduced phase hit.
Small size, .375" x .375" x .131"	The small size enables the MOS-868-119+ to be used in compact designs.

Surface Mount

Voltage Controlled Oscillator

MOS-868-119+

Linear Tuning 805 to 868 MHz

CASE STYLE: CZ682
PRICE: $ 15.95 ea. QTY (5-49)

+ 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.

Features

- Linear tuning characteristics
- Low phase noise
- Very low pulling
- Very low pushing
- Aqueous washable

Applications

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

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 dBr (MHz)	PUSHING (MHz/V)	DC OPERATING POWER	
				Typ.				VOLTAGE RANGE (V)		SENSI-TIVITY (MHz/V)	PORT CAP (pF)	3 dB MODULATION BANDWIDTH (MHz)						Vcc (volts)	Current (mA)
	Min.	Max.	Typ.	1	10	100	1000	Min.	Max.	Typ.	Typ.	Typ.	Typ.	Typ.	Max.	Typ.	Typ.		Max.
MOS-868-119+	805	868	+0.5	-90	-116	-137	-158	0.25	14	7	47	87	-90	-18	-	0.03	0.5	5	30

Pin Connections

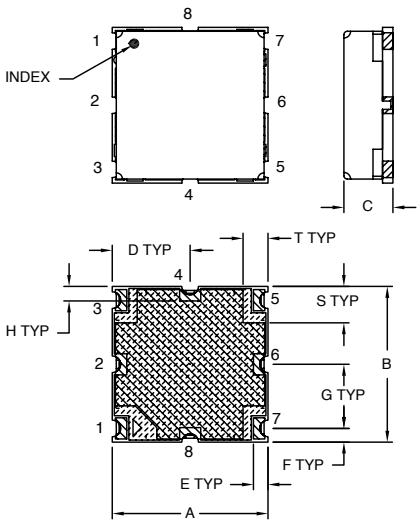
RF OUT	5
VCC	3
V-TUNE	1
GROUND	2,4,6,7,8

Maximum Ratings

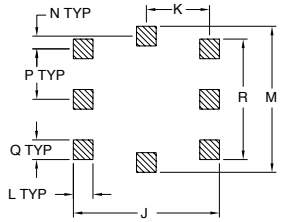
Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 100°C
Absolute Max. Supply Voltage (Vcc)	7V
Absolute Max. Tuning Voltage (Vtune)	16V
All specifications	50 ohm system

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

Outline Drawing



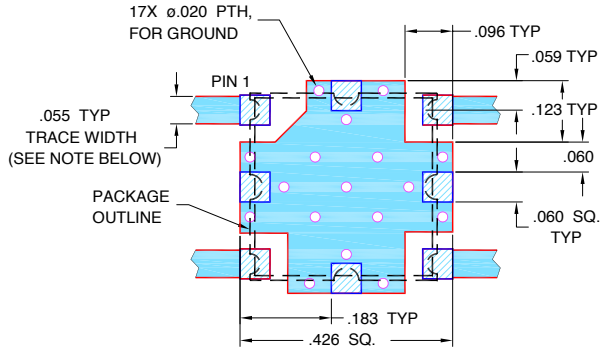
PCB Land Pattern



SUGGESTED LAYOUT,
TOLERANCE TO BE WITHIN ±.002

METALLIZATION
SOLDER RESIST

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	R	S	T	wt.
.375	**.375**	**.131**	**.188**	**.035**	**.033**	**.154**	**.040**	**.446**	**.193**	**.060**	**.446**	**.039**	**.154**	**.060**	**.368**	**.087**	**.060**	grams
9.52	9.52	3.33	4.78	0.89	0.84	3.91	1.02	11.33	4.90	1.52	11.33	0.99	3.91	1.52	9.35	2.22	1.52	0.60

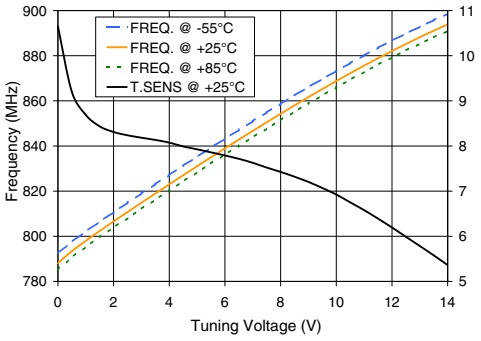
Performance Data & Curves*

MOS-868-119+

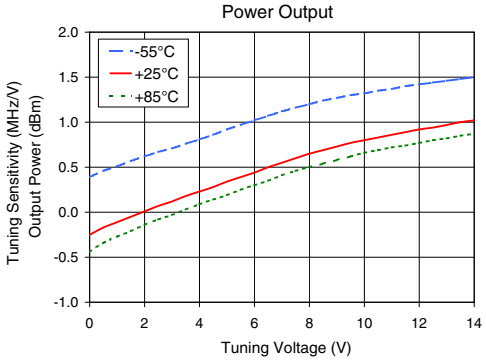
V TUNE	TUNE SENS (MHz/V)	FREQUENCY (MHz)			POWER OUTPUT (dBm)			Icc (mA)	HARMONICS (dBc)			FREQ. PUSH (MHz/V)	FREQ. PULL (MHz)	PHASE NOISE (dBc/Hz) at offsets				FREQ OFFSET (KHz)	PHASE NOISE at 837 MHz (dBc/Hz)
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C		F2	F3	F4			1kHz	10kHz	100kHz	1MHz		
0.00	10.65	792.4	788.1	785.2	0.39	-0.25	-0.44	21.69	-14.9	-27.3	-31.0	0.27	0.03	-89.7	-115.4	-138.0	-159.2	1.0	-92.05
0.25	9.93	795.0	790.8	788.0	0.43	-0.21	-0.39	21.69	-15.1	-27.2	-30.9	0.12	0.03	-89.9	-115.5	-138.0	-159.5	2.0	-100.09
1.00	8.69	802.1	798.0	795.4	0.51	-0.11	-0.27	21.71	-15.7	-27.4	-30.8	0.08	0.03	-90.0	-115.6	-137.9	-158.7	3.5	-106.06
1.50	8.44	806.5	802.4	799.7	0.57	-0.05	-0.21	21.71	-15.9	-27.4	-29.9	0.09	0.03	-90.0	-115.8	-138.0	-159.7	6.0	-111.42
2.00	8.31	810.7	806.6	803.9	0.62	0.01	-0.14	21.71	-16.0	-27.1	-30.4	0.07	0.03	-89.8	-115.8	-138.1	-160.3	8.5	-115.14
3.00	8.18	819.0	814.9	812.2	0.71	0.12	-0.03	21.70	-16.5	-27.3	-30.5	0.01	0.03	-91.5	-116.3	-138.2	-159.2	10.0	-116.71
4.00	8.07	827.2	823.0	820.3	0.81	0.23	0.09	21.69	-16.9	-27.5	-30.7	0.06	0.03	-90.5	-116.2	-138.1	-158.6	20.8	-123.91
5.00	7.93	835.3	831.1	828.3	0.92	0.34	0.19	21.69	-17.3	-27.3	-30.4	0.14	0.03	-90.7	-116.1	-138.1	-158.1	35.5	-128.86
6.00	7.79	843.2	838.9	836.2	1.02	0.44	0.30	21.69	-17.5	-26.9	-29.9	0.19	0.03	-91.2	-116.8	-138.0	-158.0	60.7	-133.01
7.00	7.63	851.0	846.7	843.9	1.12	0.55	0.41	21.68	-17.7	-27.5	-30.5	0.25	0.03	-92.3	-116.2	-137.9	-157.8	86.7	-136.99
8.00	7.43	858.7	854.3	851.5	1.20	0.65	0.50	21.68	-18.0	-27.4	-30.4	0.30	0.04	-92.3	-116.0	-137.8	-157.5	100.0	-138.17
9.00	7.21	866.1	861.6	858.9	1.27	0.73	0.58	21.68	-18.2	-27.4	-30.3	0.36	0.04	-92.2	-116.0	-137.2	-157.4	148.1	-141.66
9.50	7.07	869.7	865.2	862.4	1.30	0.77	0.62	21.67	-18.3	-27.5	-30.8	0.39	0.04	-91.1	-115.7	-137.2	-157.6	177.0	-143.49
10.00	6.92	873.3	868.8	866.0	1.32	0.80	0.66	21.67	-18.3	-27.7	-30.7	0.42	0.04	-90.6	-115.6	-137.3	-156.7	211.6	-144.94
10.50	6.75	876.8	872.2	869.4	1.35	0.83	0.69	21.66	-18.4	-27.6	-30.8	0.45	0.04	-91.0	-115.5	-137.1	-156.3	302.4	-147.91
11.00	6.58	880.2	875.6	872.8	1.37	0.86	0.72	21.66	-18.5	-27.8	-30.7	0.47	0.04	-90.8	-115.7	-136.8	-156.8	361.5	-149.27
12.00	6.19	886.7	882.1	879.2	1.42	0.92	0.77	21.65	-18.5	-28.0	-30.7	0.51	0.04	-90.4	-115.5	-136.6	-156.2	507.5	-152.55
13.00	5.78	892.8	888.2	885.3	1.46	0.97	0.82	21.65	-18.5	-27.8	-30.9	0.53	0.05	-90.3	-115.6	-136.3	-155.4	606.7	-154.41
13.50	5.58	895.8	891.1	888.2	1.48	1.00	0.85	21.65	-18.5	-27.9	-30.8	0.53	0.05	-90.6	-115.5	-136.6	-156.2	851.6	-157.34
14.00	5.36	898.6	893.9	890.9	1.50	1.02	0.87	21.64	-18.5	-28.2	-30.5	0.52	0.05	-89.4	-115.2	-136.2	-155.5	1000.0	-158.49

*at 25°C unless mentioned otherwise

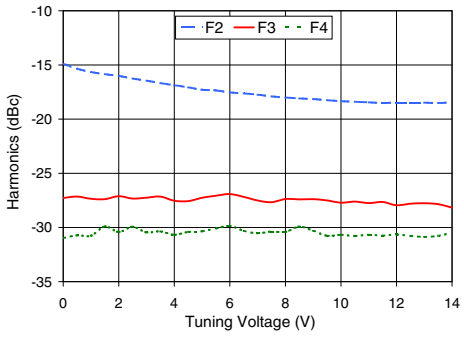
MOS-868-119+
Frequency and Tuning Sensitivity



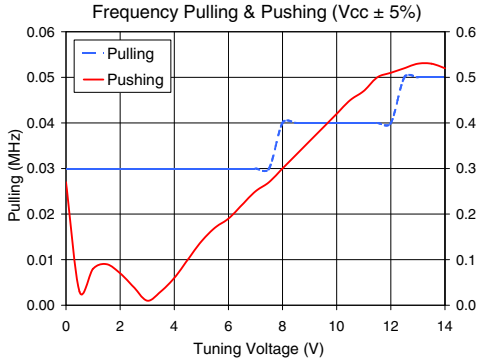
MOS-868-119+
Power Output



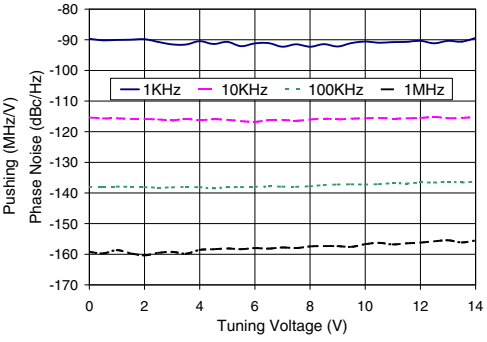
MOS-868-119+
Harmonics Level



MOS-868-119+
Frequency Pulling & Pushing (Vcc ± 5%)



MOS-868-119+
Phase Noise Vs. Tuning Voltage



MOS-868-119+
Phase Noise