

Voltage Controlled Oscillator

MOS-1510C+

50Ω 1510 MHz

The Big Deal:

- Low Phase Noise
- Good Pulling & Pushing
- Robust design and construction
- Small size .375" x .375" x .140"



Generic photo used for illustration purposes only

CASE STYLE: CZ2036

Product Overview:

The MOS-1510C+ is a Voltage Controlled Oscillator, designed to operate from 1510 MHz for military radio applications. The MOS-1510C+ is packaged in a metal case (size of .375" x .375" x .140") to shield against unwanted signals and noise.

Key Features

Feature	Advantages
Low Phase Noise: -115 dBc/Hz typ at 10kHz offset	Low phase noise improves system EVM (Error Vector Magnitude).
Good Pulling, 0.5 MHz typ.	Improves immunity against changes in output load.
Good Pushing, 0.1 MHz/V typ.	Provides increased immunity against noisy DC lines and improves output frequency stability vs. variations in supply voltage.
Small size, .375" x .375" x .140"	The small size enables the MOS-1510C+ to be used in compact designs.

Voltage Controlled Oscillator

MOS-1510C+

5V Tuning for PLL ICs 1510 MHz

Features

- low phase noise, -115 dBc/Hz typ. @ 10kHz offset
- low pulling, 0.5 MHz typ.
- low pushing, 0.1 MHz/V typ.
- aqueous washable

Applications

- wireless communications
- military radio



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CASE STYLE: CZ2036

+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				TUNING					NON HARMONIC SPURIOUS (dBc)	HARMONICS		PULLING pk-pk @12 dB (MHz)	PUSHING (MHz/V)	DC OPERATING POWER	
			dBc/Hz SSB at offset frequencies,kHz				VOLTAGE RANGE (V)	SENSI- TIVITY (MHz/V)	PORT CAP (pF)	3 dB MODULATION BANDWIDTH (MHz)	(dBc)		Vcc (volts)	Current (mA)				
			Typ.															
	Fixed	Typ.	1	10	100	1000	Min.	Max.	Typ.	Typ.	Typ.	Typ.	Typ.	Max.	Typ.	Typ.		Max.
MOS-1510C+	1510	+2.5	-88	-115	-136	-156	0.5	4.5	7	17	50	-90	-20	-10	0.5	0.1	5	35

Pin Connections

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

Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Absolute Max. Supply Voltage (Vcc)	6.5V
Absolute Max. Tuning Voltage (Vtune)	6.5V
All specifications	50 ohm system

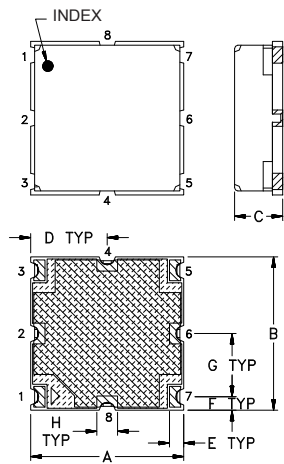
Permanent damage may occur if any of these limits are exceeded.

Tape & Reel: F60

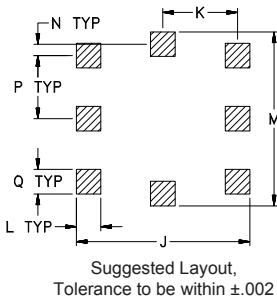
7" Reels with 10, 20, 50, 100 devices
13" Reels with 200, 500, 1000 devices

Environmental Ratings: ENV65T2

Outline Drawing

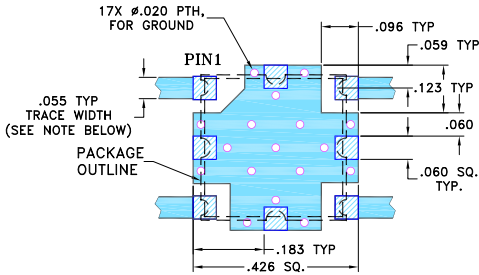


PCB Land Pattern



- METALLIZATION
- SOLDER RESIST

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



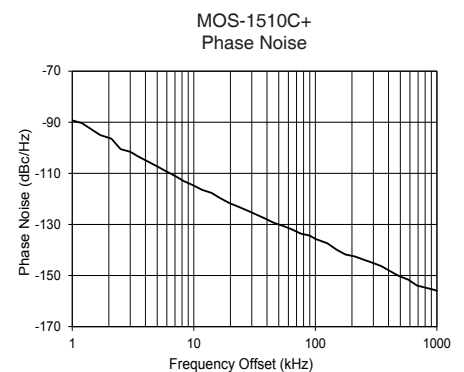
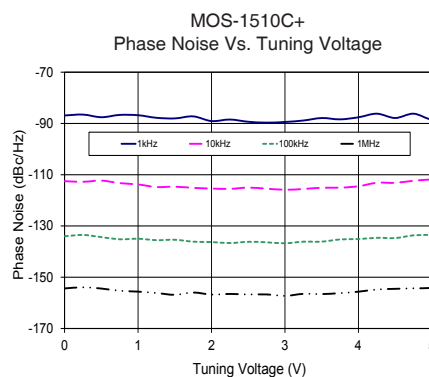
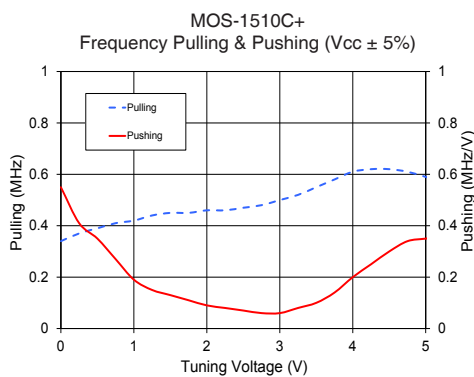
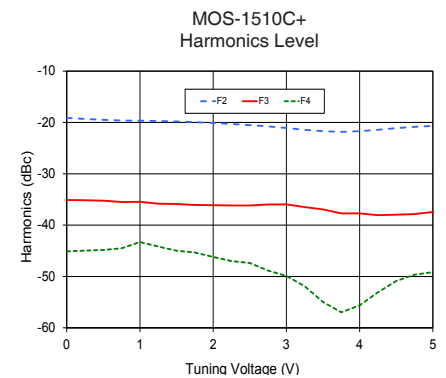
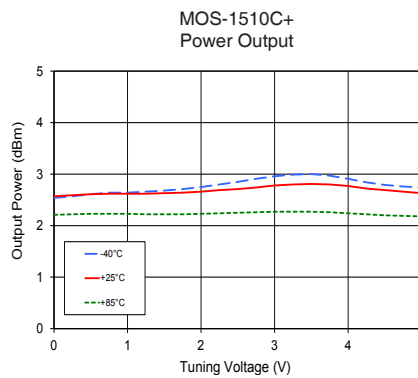
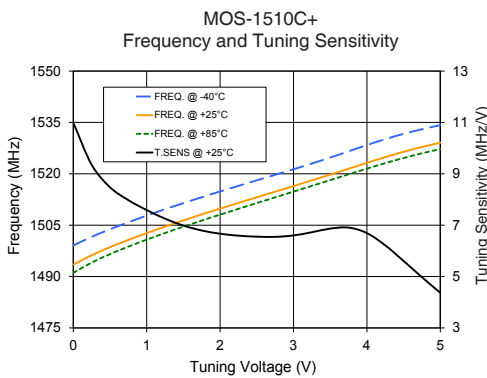
- NOTE: 1. TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
 - DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Outline Dimensions ()

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	wt.
.375	.375	.140	.188	.035	.033	.154	.050	.425	.183	.060	.425	.028	.154	.060	grams
9.52	9.52	3.56	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

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 1510 MHz (dBc/Hz)
		-40°C	+25°C	+85°C	-40°C	+25°C	+85°C		F2	F3	F4			1kHz	10kHz	100kHz	1MHz		
0.00	10.99	1499.1	1493.5	1491.1	2.54	2.57	2.21	27.23	-19.1	-35.1	-45.1	0.55	0.34	-86.88	-112.5	-134.0	-154.4	1.0	-89.26
0.50	8.48	1503.8	1498.6	1496.5	2.61	2.61	2.23	27.21	-19.5	-35.2	-44.8	0.35	0.39	-87.57	-112.3	-134.3	-154.4	2.1	-96.41
0.75	7.98	1505.8	1500.7	1498.7	2.64	2.62	2.23	27.20	-19.6	-35.5	-44.5	0.27	0.41	-86.67	-113.3	-135.2	-155.3	3.5	-103.43
1.00	7.59	1507.8	1502.7	1500.8	2.64	2.62	2.23	27.18	-19.7	-35.5	-43.3	0.19	0.42	-86.79	-113.8	-135.0	-155.6	5.9	-109.15
1.25	7.25	1509.7	1504.6	1502.7	2.66	2.62	2.22	27.18	-19.7	-35.8	-44.2	0.15	0.44	-87.79	-114.8	-135.5	-156.1	8.3	-113.07
1.50	6.98	1511.4	1506.4	1504.6	2.68	2.63	2.22	27.18	-19.8	-35.9	-45.0	0.13	0.45	-88.03	-114.7	-135.4	-156.8	10.0	-114.79
1.75	6.79	1513.2	1508.1	1506.4	2.71	2.64	2.22	27.18	-20.0	-36.1	-45.3	0.11	0.45	-87.24	-115.1	-136.1	-156.0	23.1	-122.98
2.00	6.67	1514.8	1509.8	1508.1	2.75	2.66	2.23	27.18	-20.1	-36.1	-46.2	0.09	0.46	-89.07	-115.4	-136.3	-156.7	38.7	-127.70
2.25	6.59	1516.5	1511.5	1509.8	2.80	2.69	2.24	27.19	-20.3	-36.2	-47.0	0.08	0.46	-88.47	-115.5	-136.7	-156.5	63.8	-131.89
2.50	6.55	1518.1	1513.1	1511.5	2.85	2.71	2.25	27.20	-20.5	-36.2	-47.4	0.07	0.47	-89.34	-115.0	-136.2	-156.7	89.6	-134.32
2.75	6.54	1519.7	1514.8	1513.1	2.91	2.74	2.26	27.22	-20.8	-36.0	-48.9	0.06	0.48	-89.68	-115.4	-136.4	-156.7	100.0	-135.65
3.00	6.60	1521.3	1516.4	1514.8	2.96	2.78	2.27	27.27	-21.1	-36.0	-49.9	0.06	0.50	-89.42	-115.9	-136.8	-157.3	150.3	-139.95
3.25	6.72	1523.0	1518.1	1516.5	2.99	2.80	2.27	27.31	-21.4	-36.5	-51.9	0.08	0.52	-88.85	-115.6	-136.1	-156.5	176.4	-141.73
3.50	6.87	1524.7	1519.8	1518.2	3.00	2.81	2.27	27.38	-21.7	-36.9	-55.0	0.10	0.55	-87.89	-115.1	-136.1	-156.6	210.9	-142.52
3.75	6.91	1526.6	1521.5	1519.9	2.97	2.80	2.26	27.47	-21.8	-37.7	-57.0	0.14	0.58	-88.40	-115.1	-135.3	-156.2	296.0	-145.01
4.00	6.69	1528.4	1523.2	1521.5	2.91	2.77	2.24	27.55	-21.7	-37.7	-55.6	0.20	0.61	-87.59	-114.5	-135.1	-155.6	347.5	-146.28
4.25	6.21	1530.1	1524.9	1523.1	2.84	2.72	2.22	27.62	-21.4	-38.1	-53.1	0.25	0.62	-86.19	-113.1	-134.6	-154.8	487.8	-150.20
4.50	5.61	1531.7	1526.4	1524.6	2.79	2.69	2.20	27.66	-21.1	-38.0	-50.9	0.30	0.62	-87.87	-113.2	-134.7	-154.5	583.0	-151.64
4.75	4.97	1533.0	1527.8	1526.0	2.76	2.66	2.19	27.68	-20.9	-37.9	-49.7	0.34	0.61	-86.19	-112.4	-133.7	-154.3	960.8	-155.66
5.00	4.37	1534.2	1529.1	1527.2	2.74	2.63	2.18	27.69	-20.7	-37.4	-49.2	0.35	0.59	-88.48	-111.9	-133.5	-154.1	1000.0	-156.06

*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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