

Surface Mount

# Voltage Controlled Oscillator

## MOS-2170-419+

5V Tuning for PLL IC's 2160 to 2180 MHz



CASE STYLE: CZ682

### Features

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

### Applications

- wireless communications
- wire-line broadband access

**+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.				VOLTAGE RANGE (V)	SENSI- TIVITY (MHz/V)	PORT CAP (pF)	3 dB MODULATION BANDWIDTH (MHz)	Typ.		Max.	Vcc			Current	
				1	10	100	1000	Min.	Max.	Typ.	Typ.	Typ.		Typ.	Max.			(volts)	(mA)
MOS-2170-419+	2160	2180	+2.7	-81	-104	-124	-144	0.5	5	15	36	60	-90	-30	-20	1.5	0.4	5	34

### Pin Connections

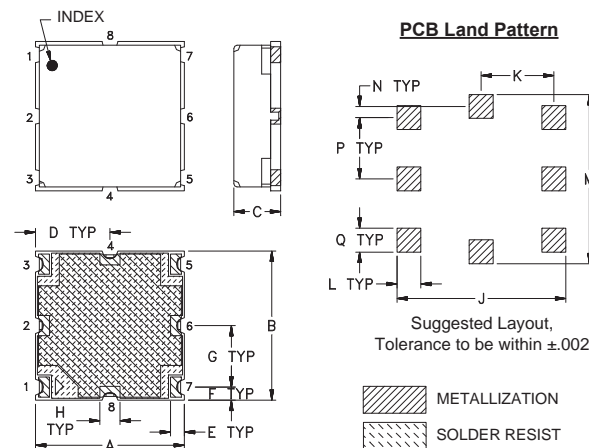
RF OUT	5
VCC	3
V-TUNE	1
GROUND	2,4,6,7,8

### Maximum Ratings

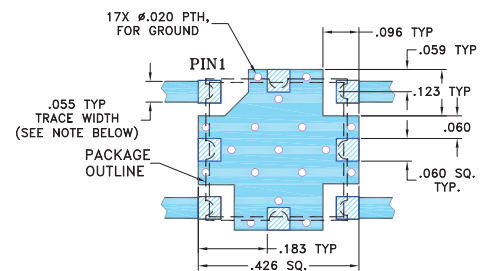
Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 100°C
Absolute Max. Supply Voltage (Vcc)	7V
Absolute Max. Tuning Voltage (Vtune)	7V
All specifications	50 ohm system

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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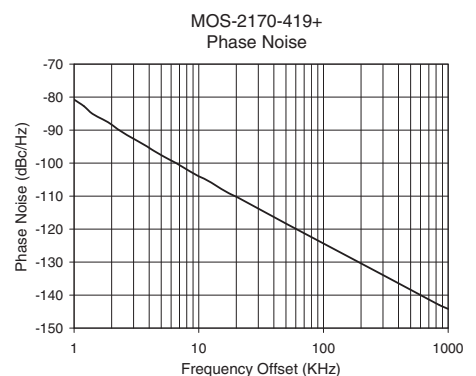
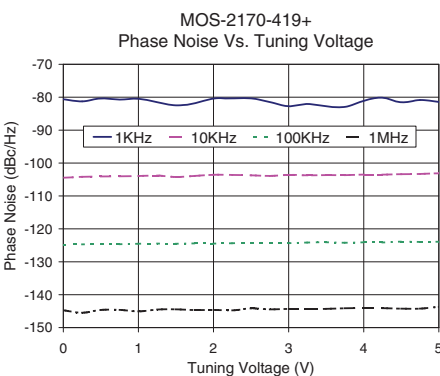
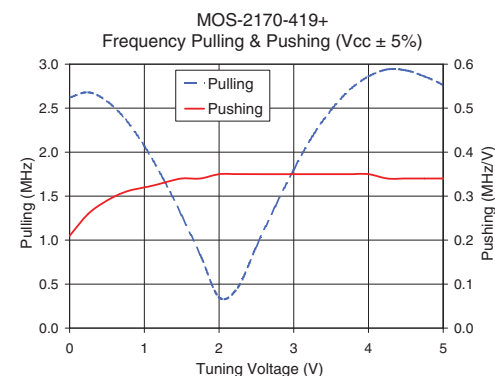
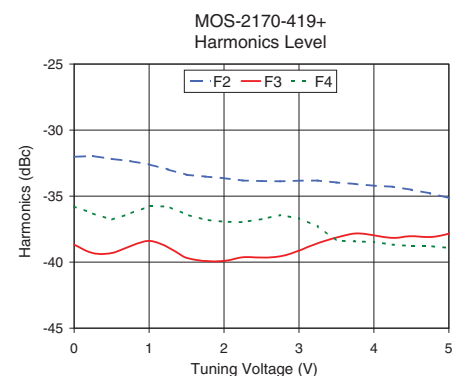
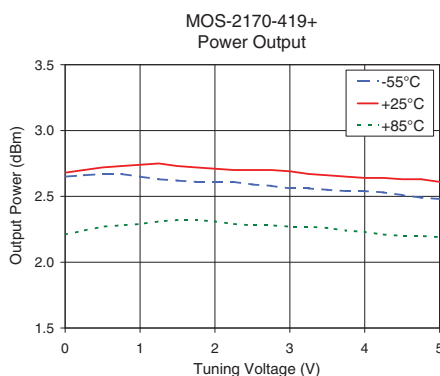
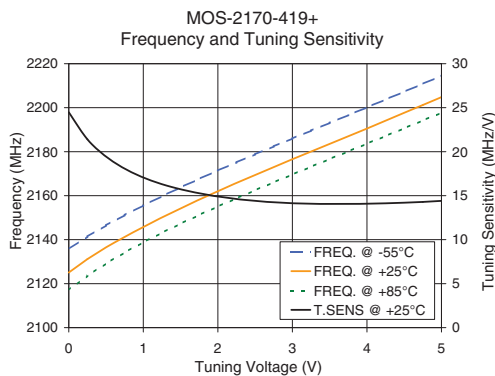
REV. B  
M151108  
EDR-9318F1  
MOS-2170-419+  
RAV  
150512  
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# Performance Data & Curves\*

# MOS-2170-419+

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 2170 MHz (dBc/Hz)
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C		F2	F3	F4			1kHz	10kHz	100kHz	1MHz		
0.00	24.48	2135.7	2125.1	2117.1	2.65	2.68	2.21	27.39	-32.0	-38.7	-35.8	0.21	2.62	-80.6	-104.5	-124.8	-144.7	1.0	-80.75
0.50	19.44	2146.5	2136.5	2129.2	2.67	2.72	2.27	27.38	-32.2	-39.3	-36.8	0.29	2.58	-80.4	-104.1	-124.7	-144.6	2.0	-88.35
0.75	18.07	2151.2	2141.4	2134.2	2.67	2.73	2.28	27.38	-32.4	-38.8	-36.3	0.31	2.37	-80.7	-104.0	-124.7	-144.6	3.5	-94.05
1.00	17.07	2155.6	2145.9	2138.8	2.65	2.74	2.29	27.38	-32.6	-38.4	-35.8	0.32	2.07	-80.5	-104.0	-124.5	-145.1	6.0	-99.21
1.25	16.30	2159.7	2150.2	2143.1	2.63	2.75	2.31	27.38	-33.0	-38.9	-35.8	0.33	1.70	-81.5	-103.8	-124.5	-144.5	8.5	-102.52
1.50	15.73	2163.8	2154.2	2147.3	2.62	2.73	2.32	27.38	-33.4	-39.7	-36.4	0.34	1.28	-82.5	-104.2	-124.5	-144.5	10.0	-104.00
1.75	15.27	2167.6	2158.2	2151.2	2.61	2.72	2.32	27.38	-33.5	-39.9	-36.8	0.34	0.83	-81.8	-103.9	-124.4	-144.7	20.8	-110.53
2.00	14.91	2171.4	2162.0	2155.1	2.61	2.71	2.31	27.38	-33.6	-39.9	-36.9	0.35	0.35	-80.4	-103.6	-124.5	-144.6	35.5	-115.23
2.25	14.61	2175.1	2165.7	2158.8	2.61	2.70	2.29	27.38	-33.8	-39.6	-37.0	0.35	0.46	-80.4	-103.6	-124.4	-144.8	60.7	-119.96
2.50	14.39	2178.8	2169.4	2162.5	2.59	2.70	2.28	27.38	-33.9	-39.7	-36.7	0.35	0.93	-80.3	-103.7	-124.3	-144.2	86.7	-123.18
2.75	14.24	2182.4	2173.0	2166.1	2.58	2.70	2.28	27.38	-33.9	-39.6	-36.4	0.35	1.38	-81.5	-103.9	-124.3	-144.5	100.0	-124.38
3.00	14.15	2186.0	2176.5	2169.6	2.56	2.69	2.27	27.38	-33.8	-39.1	-36.7	0.35	1.80	-82.7	-103.6	-124.3	-144.3	148.1	-127.75
3.25	14.11	2189.6	2180.1	2173.1	2.56	2.67	2.27	27.38	-33.8	-38.6	-37.3	0.35	2.18	-82.1	-103.7	-124.2	-144.3	177.0	-129.26
3.50	14.05	2193.1	2183.6	2176.6	2.55	2.66	2.26	27.38	-34.0	-38.1	-38.4	0.35	2.48	-82.8	-103.7	-124.1	-144.3	211.6	-130.87
3.75	14.04	2196.6	2187.1	2180.1	2.54	2.65	2.24	27.38	-34.1	-37.8	-38.4	0.35	2.71	-83.0	-103.7	-124.2	-144.1	302.4	-133.99
4.00	14.07	2200.2	2190.6	2183.6	2.54	2.64	2.23	27.37	-34.2	-38.0	-38.5	0.35	2.86	-81.1	-103.5	-124.1	-144.1	361.5	-135.59
4.25	14.14	2203.7	2194.1	2187.1	2.53	2.64	2.21	27.37	-34.3	-38.2	-38.7	0.34	2.94	-80.1	-103.5	-124.1	-144.1	507.5	-138.47
4.50	14.20	2207.3	2197.7	2190.7	2.51	2.63	2.20	27.37	-34.5	-38.0	-38.8	0.34	2.93	-81.6	-103.4	-123.9	-144.2	606.7	-140.12
4.75	14.29	2210.8	2201.2	2194.2	2.49	2.63	2.20	27.37	-34.8	-38.1	-38.8	0.34	2.86	-80.8	-103.3	-124.0	-144.2	851.6	-143.03
5.00	14.41	2214.4	2204.8	2197.7	2.48	2.61	2.19	27.37	-35.1	-37.8	-38.9	0.34	2.76	-81.4	-103.1	-123.9	-143.7	1000.0	-144.19

\*at 25°C unless mentioned otherwise



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