

# Voltage Controlled Oscillator

# MOS-464+

5V Tuning for PLL IC's 420 to 464 MHz

## Features

- Low phase noise
- Low pulling
- Low current consumption
- Aqueous washable

## Applications

- Wireless communication
- Defense communication & radar
- Satellites
- PMR / PAMR



CASE STYLE: CZ682  
PRICE: \$ 20.45 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.

## 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.	Typ.
MOS-464+	420	464	-5	-82	-108	-129	-149	0.25	4	20 - 30	370	8	-90	-19	-12	0.3	2	4	14

## Pin Connections

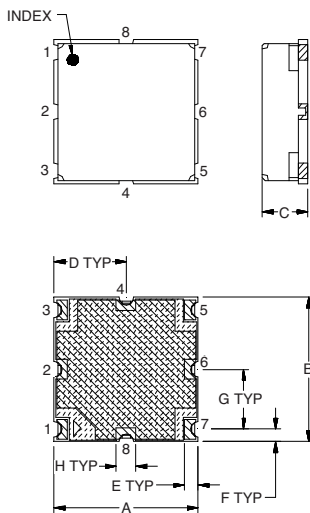
RF OUT	5
VCC	3
V-TUNE	1
GROUND	2,4,6,7,8

## Maximum Ratings

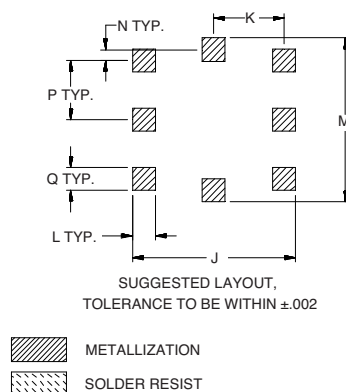
Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 100°C
Absolute Max. Supply Voltage (Vcc)	6V
Absolute Max. Tuning Voltage (Vtune)	6V
All specifications	50 ohm system

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

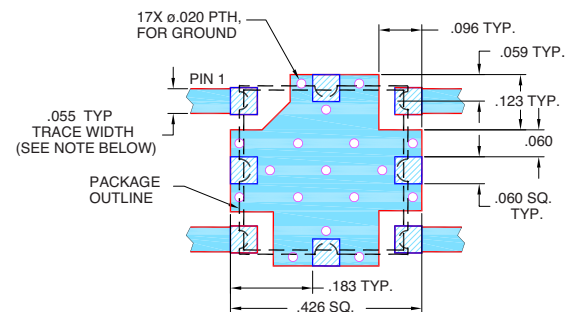
## Outline Drawing



## 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



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For detailed performance specs & shopping online see web site

**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-Circuit's 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-Circuit's website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp).

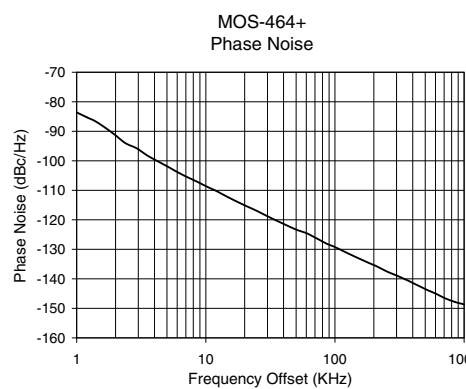
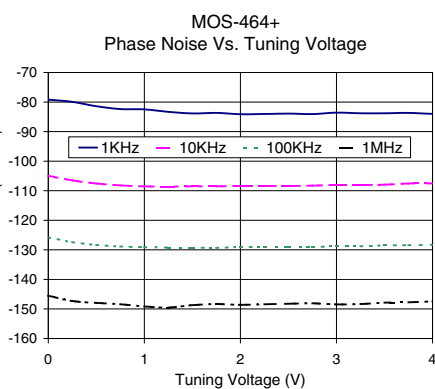
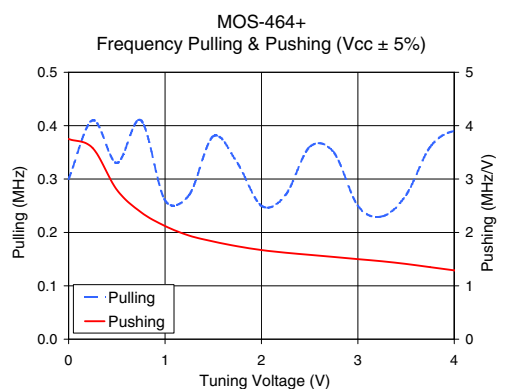
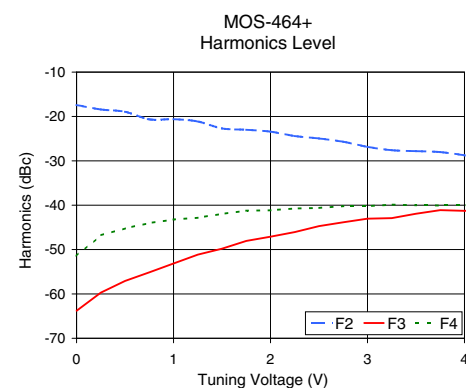
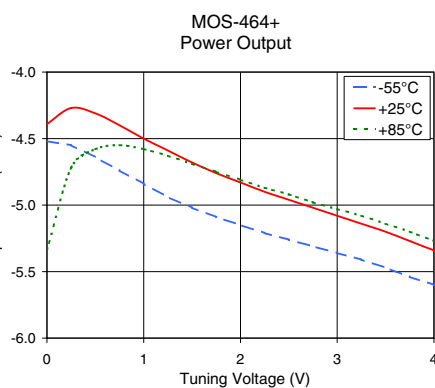
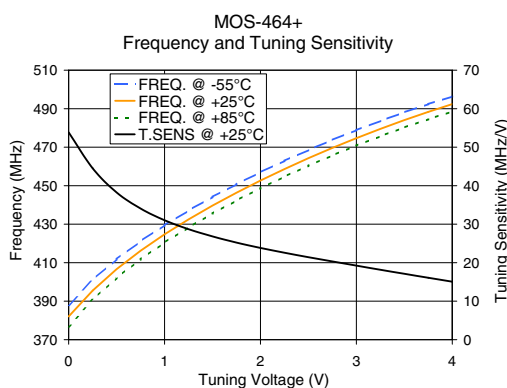
REV. A  
M123576  
EDR-7693/1F1  
MOS-464+  
RAV  
090811  
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# Performance Data & Curves\*

# MOS-464+

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 442 MHz (dBc/Hz)
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C		F2	F3	F4			1kHz	10kHz	100kHz	1MHz		
0.00	53.87	388.0	382.1	376.8	-4.52	-4.39	-5.34	8.34	-17.4	-63.8	-51.4	3.75	0.30	-79.2	-105.0	-125.8	-145.5	1.0	-83.61
0.25	44.51	401.0	395.5	390.7	-4.55	-4.27	-4.72	8.36	-18.4	-59.7	-46.8	3.58	0.41	-79.9	-106.5	-127.4	-147.3	2.0	-91.37
0.50	38.23	411.8	406.7	402.1	-4.64	-4.31	-4.58	8.37	-18.9	-57.1	-45.2	2.80	0.33	-81.4	-107.6	-128.3	-147.9	3.5	-98.13
0.75	34.06	421.2	416.2	411.8	-4.74	-4.40	-4.55	8.38	-20.7	-55.1	-44.0	2.38	0.41	-82.4	-108.2	-128.9	-148.4	6.0	-103.79
1.00	31.03	429.5	424.7	420.5	-4.84	-4.50	-4.58	8.38	-20.6	-53.1	-43.2	2.12	0.26	-82.5	-108.5	-129.1	-149.2	8.5	-107.03
1.25	28.70	437.1	432.5	428.3	-4.94	-4.59	-4.63	8.39	-21.1	-51.2	-42.8	1.94	0.27	-83.3	-108.6	-129.2	-149.6	10.0	-108.59
1.50	26.82	444.2	439.7	435.6	-5.02	-4.68	-4.69	8.40	-22.7	-49.8	-42.0	1.83	0.38	-83.9	-108.5	-129.2	-148.7	35.5	-120.33
1.75	25.22	450.8	446.4	442.3	-5.09	-4.76	-4.75	8.40	-23.0	-48.1	-41.2	1.74	0.33	-83.7	-108.5	-129.3	-148.4	60.7	-124.59
2.00	23.82	457.0	452.7	448.7	-5.15	-4.83	-4.81	8.41	-23.4	-47.1	-41.1	1.67	0.25	-84.1	-108.4	-129.1	-148.6	86.7	-128.13
2.25	22.58	462.9	458.6	454.7	-5.21	-4.90	-4.87	8.41	-24.4	-46.1	-40.8	1.62	0.27	-84.0	-108.4	-129.1	-148.4	100.0	-129.23
2.50	21.42	468.5	464.3	460.3	-5.26	-4.96	-4.92	8.42	-25.0	-44.7	-40.6	1.58	0.36	-83.9	-108.4	-129.0	-148.2	177.0	-134.33
2.75	20.32	473.8	469.6	465.7	-5.31	-5.02	-4.98	8.43	-25.7	-43.9	-40.2	1.54	0.35	-84.1	-108.3	-129.0	-148.1	211.6	-135.82
3.00	19.24	478.8	474.7	470.8	-5.36	-5.08	-5.03	8.43	-26.8	-43.0	-40.2	1.50	0.25	-83.6	-108.0	-128.8	-148.5	302.4	-138.94
3.25	18.17	483.6	479.5	475.7	-5.41	-5.14	-5.08	8.44	-27.6	-42.9	-39.9	1.46	0.23	-83.8	-108.1	-128.8	-148.3	361.5	-140.44
3.50	17.13	488.1	484.1	480.2	-5.47	-5.20	-5.14	8.45	-27.8	-41.9	-40.0	1.41	0.27	-83.8	-108.0	-128.5	-147.9	606.7	-145.07
3.75	16.09	492.4	488.3	484.5	-5.54	-5.27	-5.20	8.45	-28.0	-41.1	-40.1	1.35	0.36	-83.7	-107.6	-128.4	-147.8	851.6	-147.86
4.00	15.06	496.4	492.4	488.6	-5.60	-5.34	-5.27	8.46	-28.8	-41.3	-40.0	1.29	0.39	-84.0	-107.5	-128.3	-147.4	1000.0	-148.65

\*at 25°C unless mentioned otherwise



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