

# NON-CATALOG

Surface Mount

# Voltage Controlled Oscillator

# SOS-1505-119+

5V Tuning for PLL ICs 1430 to 1520 MHz

## Features

- low current consumption, 10 mA typ.
- linear tuning characteristics
- low pushing
- small size 0.3" x 0.3"
- aqueous washable

## Applications

- navigation
- wireless communication
- satellite systems
- TDMA



CASE STYLE: FZ990

**+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.
SOS-1505-119+	1430	1520	+3.5	-69	-94	-115	-136	0.3	3	69-75	23	160	-90	-30	-17	1.5	1	3	15

## Pin Connections

RF OUT	8
VCC	11
V-TUNE	1
GROUND	2,3,4,5,6,7,9,10,12

## Maximum Ratings

Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 100°C
Absolute Max. Supply Voltage (Vcc)	5V
Absolute Max. Tuning Voltage (Vtune)	5V
All specifications	50 ohm system

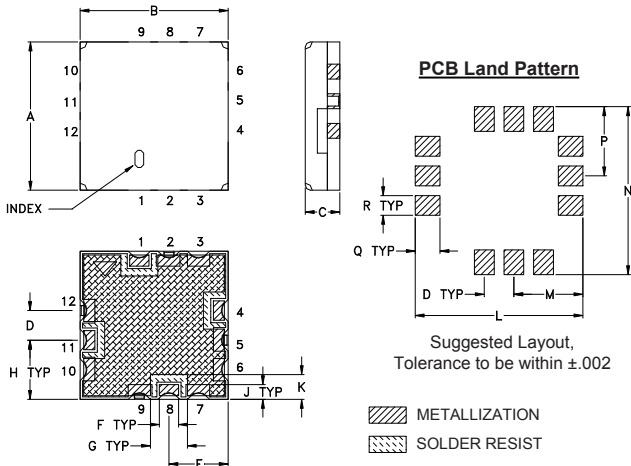
Permanent damage may occur if any of these limits are exceeded.

## Tape & Reel: F78

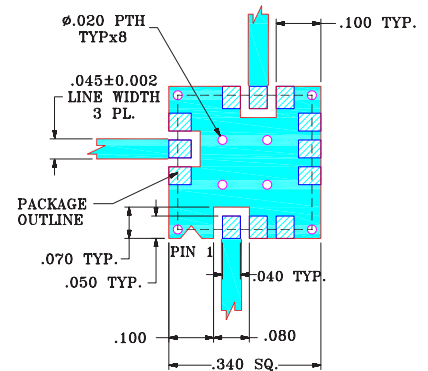
7" Reels with 10, 20, 50, 100 devices  
13" Reels with 200, 500, 1000 devices

## Environmental Ratings: ENV65

## Outline Drawing



**Demo Board MCL P/N: TB-271**  
**Suggested PCB Layout (PL-143)**



### NOTE:

1. TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS .025"±.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	wt. grams
.300	.300	.100	.060	.120	.039	.075	.120	.030	.050	.340	.140	.340	.140	.050	.040	.25
7.62	7.62	2.54	1.52	3.05	0.99	1.91	3.05	0.76	1.27	8.64	3.56	8.64	3.56	1.27	1.02	

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REV. B  
M169213  
EDR-8179  
SOS-1505-119+  
RAV  
180813  
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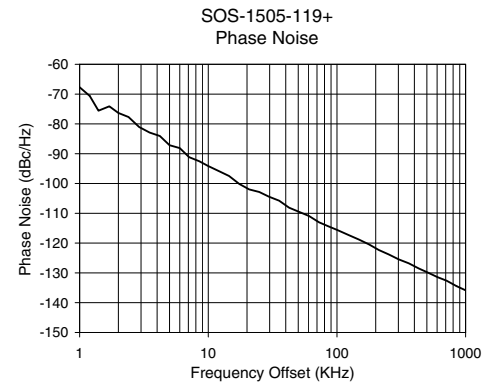
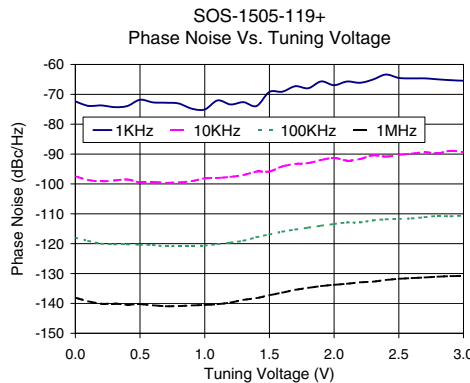
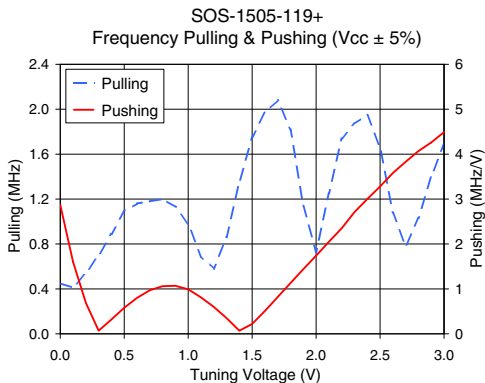
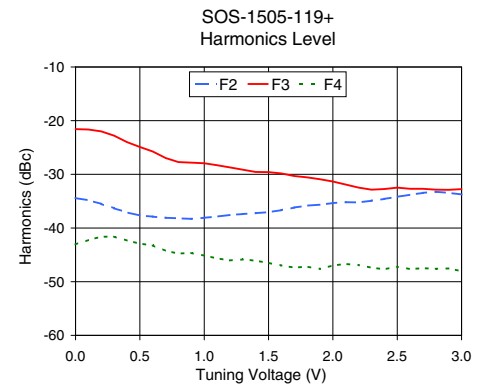
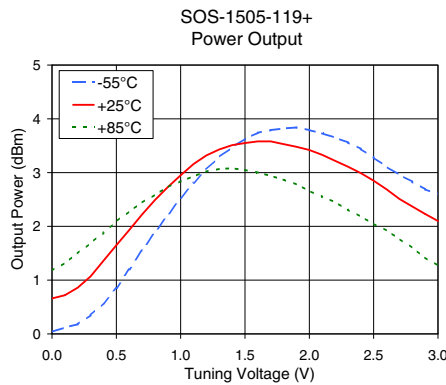
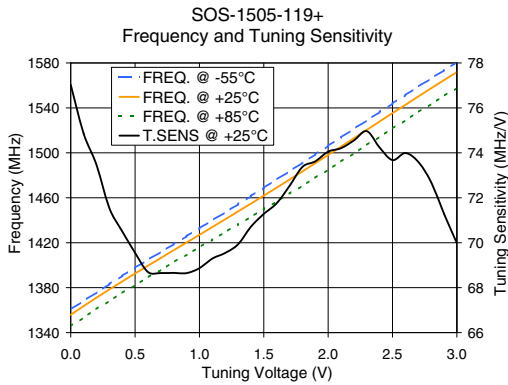
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## Performance Data & Curves\*

## SOS-1505-119+

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 1478 MHz (dBc/Hz)
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C		F2	F3	F4			1kHz	10kHz	100kHz	1MHz		
0.00	77.03	1360.7	1355.9	1345.7	0.04	0.66	1.18	8.89	-34.4	-21.6	-43.1	2.87	0.45	-72.4	-97.4	-117.9	-138.1	1.0	-67.71
0.10	74.86	1368.2	1363.6	1353.5	0.12	0.72	1.32	8.91	-34.8	-21.6	-42.2	1.60	0.41	-73.9	-98.7	-119.1	-139.3	2.0	-76.34
0.20	73.47	1375.8	1371.1	1361.0	0.18	0.86	1.50	8.94	-35.5	-22.0	-41.6	0.69	0.54	-73.7	-99.1	-120.0	-140.1	3.5	-82.90
0.30	71.55	1383.2	1378.4	1368.3	0.35	1.07	1.69	8.96	-36.3	-22.8	-41.6	0.07	0.70	-74.3	-98.9	-120.2	-140.0	6.0	-88.13
0.40	70.51	1390.5	1385.6	1375.3	0.57	1.36	1.88	8.99	-37.1	-24.0	-42.4	0.32	0.89	-73.9	-98.5	-120.2	-140.4	8.5	-92.53
0.60	68.69	1404.8	1399.6	1389.2	1.20	1.93	2.28	9.11	-37.9	-25.8	-43.2	0.80	1.16	-72.7	-99.3	-120.5	-140.6	10.0	-94.15
0.80	68.66	1418.8	1413.3	1402.7	1.89	2.49	2.59	9.27	-38.2	-27.7	-44.8	1.06	1.20	-73.1	-99.5	-120.7	-140.9	20.8	-101.98
1.00	68.87	1432.9	1427.0	1416.0	2.53	2.95	2.84	9.48	-38.1	-27.9	-45.2	0.99	0.98	-75.1	-98.1	-120.6	-140.5	35.5	-105.77
1.20	69.54	1447.1	1440.9	1429.5	3.06	3.32	3.02	9.70	-37.6	-28.7	-46.0	0.60	0.58	-73.4	-97.6	-119.7	-139.7	60.7	-110.93
1.40	70.71	1461.6	1454.8	1443.0	3.47	3.51	3.08	9.91	-37.2	-29.6	-46.1	0.07	1.35	-73.9	-95.9	-117.9	-138.2	86.7	-114.47
1.60	71.76	1476.2	1469.0	1456.7	3.74	3.58	3.00	10.08	-36.7	-29.8	-47.0	0.51	1.97	-69.1	-94.2	-116.0	-136.4	100.0	-115.56
1.80	73.37	1491.2	1483.4	1470.7	3.82	3.53	2.87	10.21	-35.8	-30.6	-47.2	1.13	1.82	-68.0	-93.0	-114.6	-134.8	148.1	-118.81
2.00	74.05	1506.2	1498.1	1485.0	3.79	3.42	2.66	10.31	-35.4	-31.3	-47.0	1.74	0.73	-66.9	-91.3	-113.4	-133.8	177.0	-120.42
2.20	74.55	1521.3	1513.0	1499.6	3.65	3.22	2.45	10.37	-35.2	-32.5	-46.9	2.35	1.74	-66.1	-91.7	-112.9	-132.9	211.6	-122.33
2.40	74.23	1536.4	1527.9	1514.3	3.44	2.99	2.18	10.41	-34.6	-32.7	-47.7	3.00	1.95	-63.4	-90.9	-111.8	-132.1	302.4	-125.46
2.60	73.99	1551.4	1542.7	1529.0	3.11	2.69	1.92	10.44	-33.8	-32.7	-47.7	3.58	1.08	-64.7	-89.9	-111.6	-131.5	361.5	-126.77
2.70	73.60	1558.9	1550.1	1536.3	2.96	2.51	1.77	10.44	-33.5	-32.7	-47.5	3.83	0.78	-64.7	-89.4	-111.1	-131.3	507.5	-129.88
2.80	72.69	1566.2	1557.5	1543.5	2.83	2.37	1.60	10.45	-33.3	-32.9	-47.6	4.07	1.03	-65.0	-89.8	-110.7	-131.1	606.7	-131.44
2.90	71.29	1573.6	1564.7	1550.7	2.69	2.23	1.42	10.46	-33.5	-32.9	-47.5	4.26	1.40	-65.3	-88.9	-110.8	-130.9	851.6	-134.46
3.00	69.98	1580.7	1571.9	1557.8	2.60	2.10	1.27	10.47	-33.8	-32.8	-48.1	4.49	1.69	-65.4	-89.4	-110.6	-130.8	1000.0	-135.84

\*at 25°C unless mentioned otherwise



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