

Surface Mount

Voltage Controlled Oscillator

SOS-600-519+

5V Tuning for PLL ICs 600 to 610 MHz

Features

- low phase noise
- low pulling
- low pushing
- small size 0.3" x 0.3"
- aqueous washable

Applications

- wireless communications
- GPS receiver



Generic photo used for illustration purposes only

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 _r (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.		Typ.	Max.			Typ.	Max.	V _{cc} (volts)	Current (mA)
				1	10	100	1000														
SOS-600-519+	600	610	-6.5	-80	-106	-126	-146	0.5	3	40-47	42	140	-90	-19	-10	0.2	0.1	3	12		

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

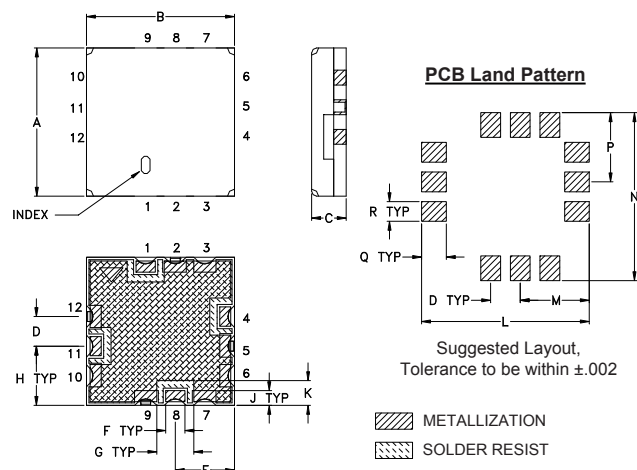
Permanent damage may occur if any of these limits are exceeded.

Tape & Reel: F78

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

Environmental Ratings: ENV65

Outline Drawing



Outline Dimensions (inch mm)

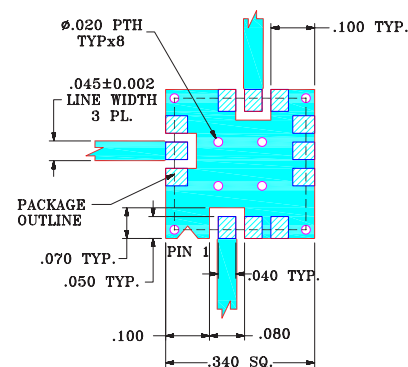
A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	wt.
.300	.300	.100	.060	.120	.039	.075	.120	.030	.050	.340	.140	.340	.140	.050	.040	grams
7.62	7.62	2.54	1.52	3.05	0.99	1.91	3.05	0.76	1.27	8.64	3.56	8.64	3.56	1.27	1.02	.25

Notes

- A. 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.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits 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-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp



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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.

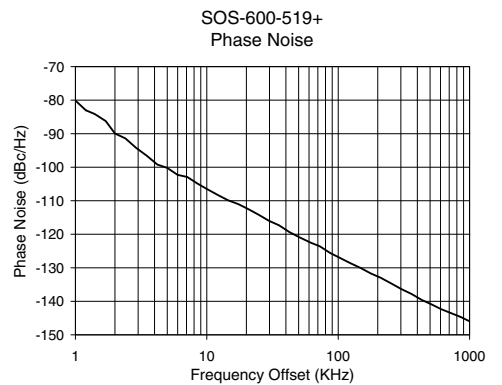
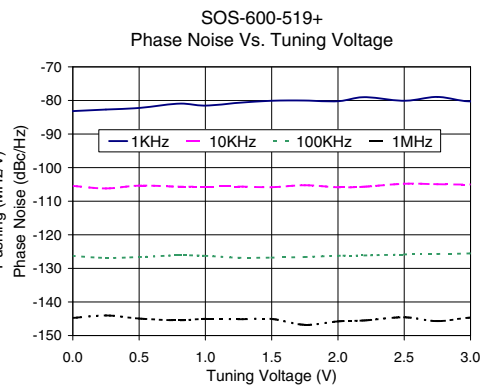
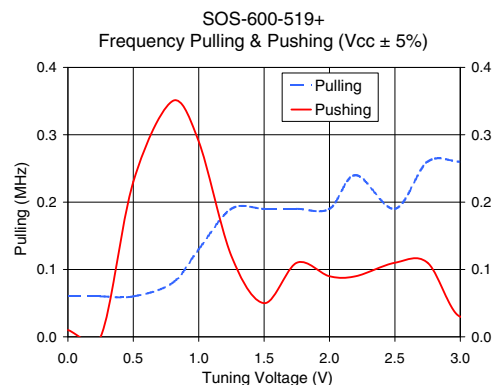
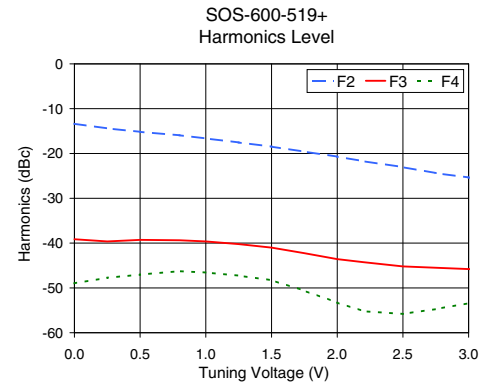
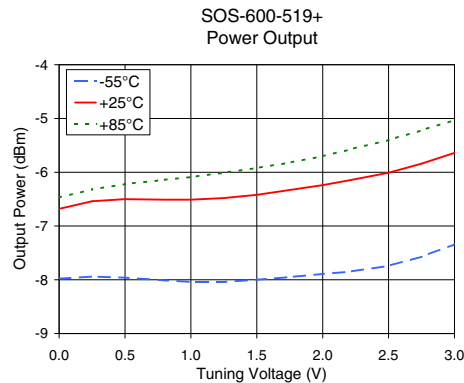
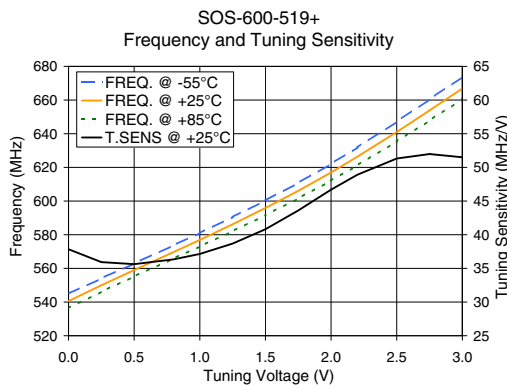
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Performance Data & Curves*

SOS-600-519+

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 605 MHz (dBc/Hz)
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C		F2	F3	F4			1kHz	10kHz	100kHz	1MHz		
0.00	37.85	544.9	540.5	536.4	-7.98	-6.68	-6.47	7.15	-13.4	-39.1	-49.0	0.01	0.06	-83.2	-105.5	-126.3	-144.8	1.0	-80.10
0.25	35.93	554.1	550.0	546.1	-7.94	-6.54	-6.32	7.21	-14.4	-39.6	-47.7	0.00	0.06	-82.7	-106.2	-126.9	-144.0	3.5	-96.60
0.50	35.63	562.9	559.0	555.2	-7.96	-6.50	-6.22	7.25	-15.2	-39.3	-47.0	0.23	0.06	-82.2	-105.4	-126.6	-145.0	6.0	-102.28
0.80	36.34	573.7	569.7	565.9	-8.01	-6.51	-6.14	7.28	-15.9	-39.4	-46.3	0.35	0.08	-81.0	-105.7	-126.1	-145.5	8.5	-104.90
1.00	37.14	581.0	576.9	573.0	-8.04	-6.51	-6.09	7.30	-16.6	-39.6	-46.6	0.29	0.13	-81.5	-105.6	-126.3	-145.0	10.0	-106.49
1.25	38.68	590.5	586.2	582.1	-8.04	-6.48	-6.01	7.32	-17.5	-40.2	-47.3	0.12	0.19	-80.7	-105.7	-126.8	-145.1	35.5	-117.35
1.50	40.81	600.4	595.9	591.6	-8.00	-6.42	-5.92	7.34	-18.5	-41.0	-48.3	0.05	0.19	-80.1	-105.8	-126.8	-145.1	61.8	-122.52
1.75	43.60	610.8	606.1	601.6	-7.95	-6.33	-5.82	7.37	-19.6	-42.3	-50.6	0.11	0.19	-80.0	-105.2	-126.6	-146.8	86.7	-125.56
2.00	46.69	622.1	617.0	612.2	-7.89	-6.24	-5.70	7.38	-20.7	-43.6	-53.3	0.09	0.19	-80.2	-105.8	-126.2	-145.8	100.0	-126.79
2.20	48.91	631.9	626.3	621.2	-7.85	-6.15	-5.58	7.39	-21.7	-44.3	-55.2	0.09	0.24	-79.0	-105.7	-126.2	-145.5	302.4	-136.34
2.50	51.32	647.2	641.0	635.4	-7.74	-6.01	-5.40	7.41	-23.1	-45.2	-55.8	0.11	0.19	-80.1	-104.8	-125.9	-144.6	507.5	-140.82
2.75	51.98	660.4	653.9	647.9	-7.57	-5.84	-5.22	7.42	-24.4	-45.5	-54.7	0.11	0.26	-78.9	-105.0	-125.7	-145.7	851.6	-144.64
3.00	51.50	673.8	666.8	660.6	-7.34	-5.64	-5.03	7.45	-25.4	-45.8	-53.4	0.03	0.26	-80.3	-105.0	-125.5	-144.7	1000.0	-145.98

*at 25°C unless mentioned otherwise



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