

# Voltage Controlled Oscillator

# ROS-1300+

Wide Band 400 to 1300 MHz

## Features

- very wide band frequency
- linear tuning characteristics
- low phase noise
- low pushing
- aqueous washable

## Applications

- wireless communications
- industrial communications
- test equipment



CASE STYLE: CK605

**+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. Max.			Typ.	Typ.
ROS-1300+	400	1300	+8	-70	-95	-120	-141	0.3	20	25-65	120	30	-90	-11	-	3.5	3	5	42

## Pin Connections

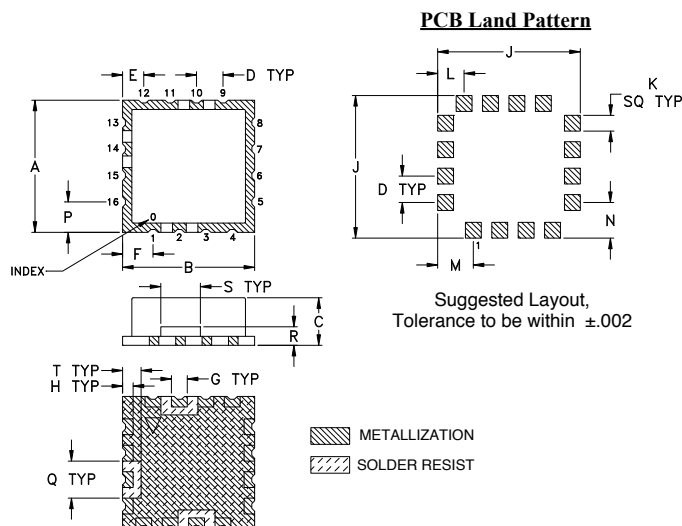
RF OUT	10
VCC	14
V-TUNE	2
GROUND	1,3,4,5,6,7,8,9,11,12,13,15,16

## Maximum Ratings

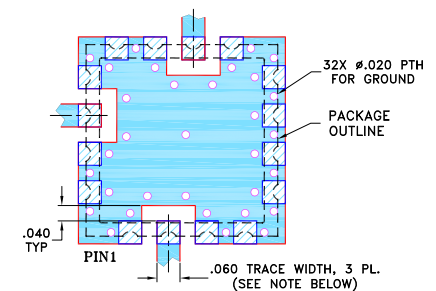
Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 100°C
Absolute Max. Supply Voltage (Vcc)	6V
Absolute Max. Tuning Voltage (Vtune)	22V
All specifications	50 ohm system

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

## Outline Drawing



**Demo Board MCL P/N: TB-10**  
**Suggested PCB Layout (PL-012)**



### NOTES:

1. TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
  2. BOTTOM SIDE OF THE BOTTOM 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	S	T	wt.
.500	.500	.180	.100	.080	.115	.060	.040	.540	.060	.100	.135	.135	.115	.140	.070	.150	.070	grams
12.70	12.70	4.57	2.54	2.03	2.92	1.52	1.02	13.72	1.52	2.54	3.43	3.43	2.92	3.56	1.78	3.81	1.78	1.0

### 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.
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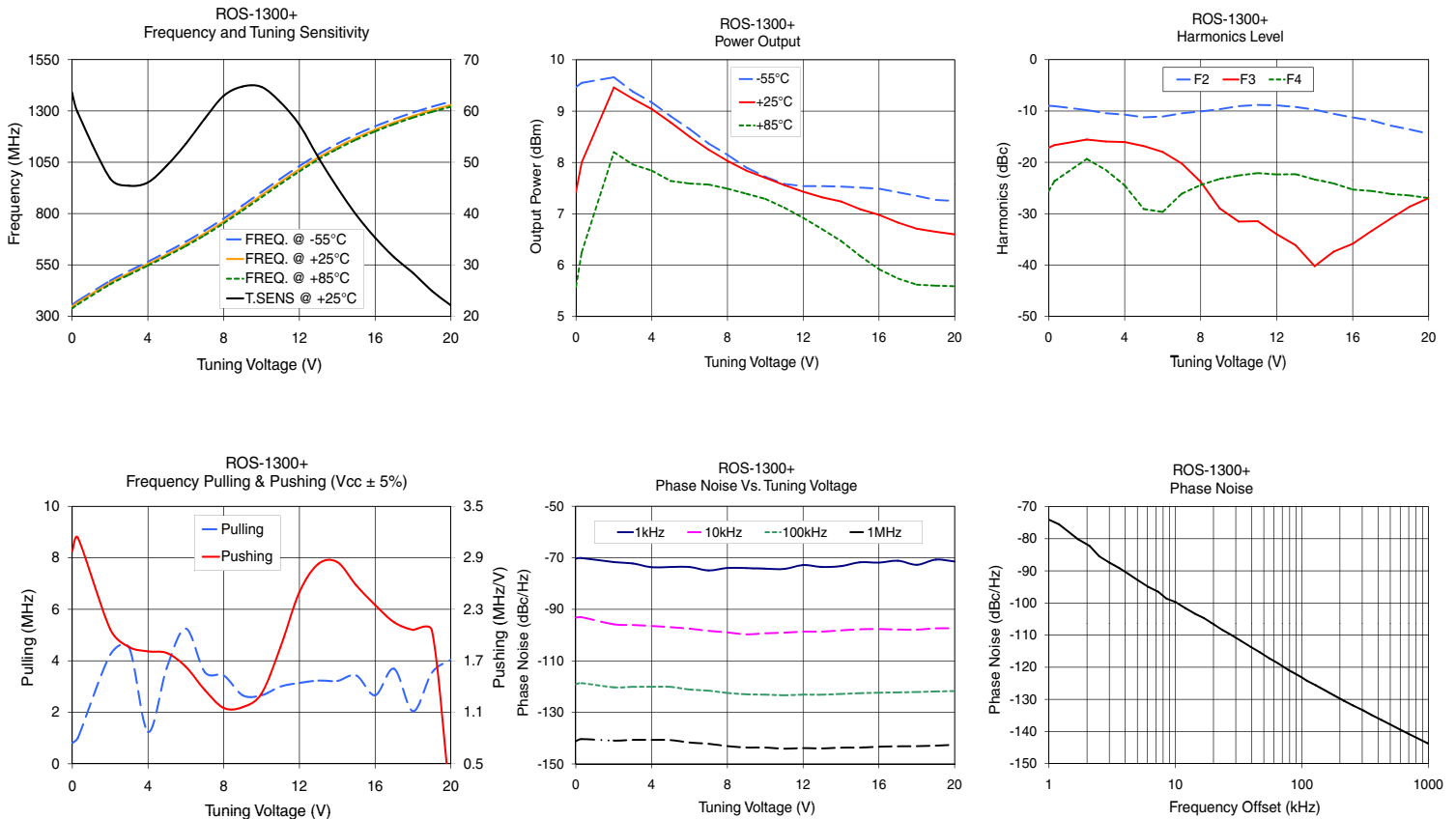


# Performance Data & Curves\*

# ROS-1300+

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 850 MHz (dBc/Hz)
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C		F2	F3	F4			1kHz	10kHz	100kHz	1MHz		
0.00	63.57	354.3	347.6	337.7	9.47	7.43	5.58	34.27	-9.0	-17.2	-25.6	2.98	0.81	-70.31	-93.2	-119.1	-141.2	1.0	-74.08
0.30	59.68	374.3	366.7	357.5	9.55	8.00	6.25	34.19	-9.1	-16.7	-23.7	3.13	1.02	-70.09	-93.1	-118.6	-140.4	2.5	-85.49
2.00	46.89	472.0	461.8	454.6	9.66	9.46	8.20	34.13	-9.8	-15.6	-19.4	2.07	4.23	-71.65	-95.8	-120.3	-140.9	4.2	-90.81
3.00	45.43	519.8	508.7	501.3	9.38	9.24	7.96	34.25	-10.4	-16.0	-21.5	1.86	4.51	-72.21	-96.1	-120.1	-140.7	7.3	-96.47
4.00	46.07	565.7	554.1	546.8	9.17	9.04	7.84	34.39	-10.7	-16.1	-24.5	1.81	1.24	-73.65	-96.5	-120.0	-140.7	10.0	-99.68
5.00	49.34	612.8	600.2	592.7	8.90	8.78	7.64	34.50	-11.2	-16.8	-29.1	1.79	3.75	-73.57	-96.9	-120.1	-140.7	12.0	-101.64
6.00	53.58	662.7	649.5	641.6	8.65	8.50	7.59	34.66	-11.1	-18.0	-29.7	1.63	5.25	-73.57	-97.5	-121.1	-141.7	23.6	-108.41
7.00	58.48	717.3	703.1	694.4	8.37	8.25	7.57	34.82	-10.5	-20.2	-26.1	1.36	3.56	-74.90	-98.4	-121.6	-142.2	39.5	-113.69
8.00	62.94	775.9	761.6	752.6	8.15	8.03	7.49	35.00	-10.1	-23.8	-24.4	1.15	3.43	-73.96	-99.0	-122.5	-143.1	65.2	-118.85
9.00	64.76	839.5	824.5	814.9	7.90	7.84	7.39	35.08	-9.7	-29.0	-23.2	1.16	2.66	-73.99	-99.7	-123.0	-143.6	100.0	-123.15
10.00	64.67	904.9	889.3	879.2	7.72	7.70	7.29	35.12	-9.1	-31.5	-22.6	1.32	2.66	-74.25	-99.3	-123.1	-143.6	109.3	-124.17
12.00	57.31	1031.6	1015.6	1005.7	7.54	7.43	6.92	34.72	-8.9	-34.0	-22.4	2.50	3.14	-72.83	-98.7	-123.1	-143.8	153.5	-127.25
13.00	50.94	1088.6	1073.0	1063.5	7.54	7.32	6.70	34.49	-9.2	-36.2	-22.3	2.83	3.23	-73.57	-98.6	-123.1	-144.0	180.2	-128.78
14.00	45.07	1140.3	1123.9	1114.7	7.53	7.24	6.47	34.25	-9.8	-40.2	-23.4	2.85	3.22	-73.23	-98.2	-122.8	-143.7	215.4	-130.44
15.00	39.74	1185.1	1169.0	1160.4	7.51	7.09	6.18	34.12	-10.6	-37.4	-24.1	2.58	3.43	-71.75	-97.8	-122.5	-143.6	302.4	-133.34
16.00	35.29	1225.2	1208.7	1200.4	7.49	6.98	5.92	34.03	-11.3	-35.9	-25.3	2.35	2.66	-71.87	-97.7	-122.3	-143.3	355.1	-134.84
17.00	31.49	1260.3	1244.0	1236.1	7.42	6.83	5.74	34.01	-11.9	-33.4	-25.6	2.15	3.69	-71.15	-97.8	-122.2	-143.2	498.5	-137.79
18.00	28.41	1292.1	1275.5	1267.5	7.35	6.71	5.62	34.01	-12.8	-31.0	-26.2	2.06	2.04	-72.71	-97.9	-122.1	-143.1	595.9	-139.36
19.00	24.92	1320.5	1303.9	1295.7	7.27	6.65	5.60	34.05	-13.6	-28.6	-26.5	2.05	3.54	-70.71	-97.4	-121.9	-142.9	982.3	-143.60
20.00	22.09	1345.7	1328.8	1320.5	7.25	6.60	5.59	34.08	-14.4	-27.0	-27.0	2.06	4.05	-71.44	-97.4	-121.7	-142.6	1000.0	-143.76

\*at 25°C unless mentioned otherwise



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