

# Surface Mount Voltage Controlled Oscillator

## ROS-1500+

Linear Tuning 1000 to 1500 MHz



CASE STYLE: CK605

### Features

- wide frequency range, 1000-1500 MHz
- low phase noise, -104 dBc/Hz at 10 kHz offset, typ.
- linear tuning, 25-40 MHz/V typ.
- wide modulation bandwidth, 100 MHz typ.
- aqueous washable
- protected by US patent 6,549,084

### Applications

- instrumentation
- satellite TV receivers

**+RoHS Compliant**  
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

### Electrical Specifications

FREQUENCY (MHz)	POWER OUTPUT (dBm)	TUNING VOLTAGE (V)	PHASE NOISE (dBc/Hz)				PULLING pk-pk @ 12 dB (MHz)	PUSHING (MHz/V)	TUNING SENSITIVITY (MHz/V)	HARMONICS (dBc)		3 dB MODULATION BANDWIDTH (MHz)	DC OPERATING POWER			
			SSB at offset frequencies: Typ.							Typ.	Typ.		Typ.	Max.	Vcc (volts)	Current (mA) Max.
Min.	Max.	Typ.	Min.	Max.	1 kHz	10 kHz	100 kHz	1 MHz	Typ.	Typ.	Typ.	Max.	Typ.	Max.		
1000	1500	8.0	0.5	20	-79	-104	-124	-144	10	1.2	25-40	-13	—	100	10	26

### Pin Connections

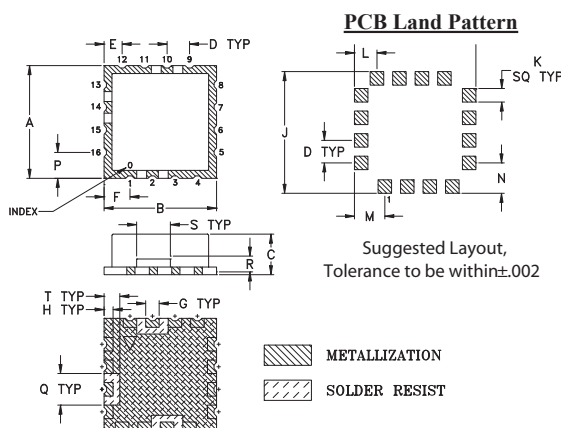
RF OUT	10
VCC	14
V-TUNE	2
GROUND	1,3,4,5,6,7,8,9,11,12,13,15,16

### Maximum Ratings

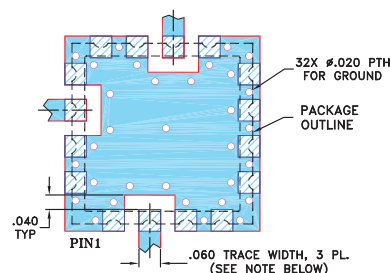
Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 100°C
Absolute Max. Supply Voltage (Vcc)	+11V
Absolute Max. Tuning Voltage (Vtune)	+22V

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

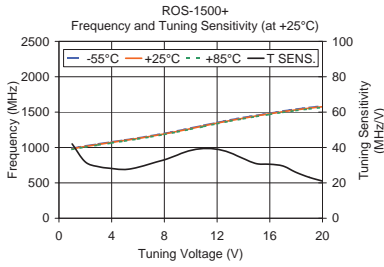


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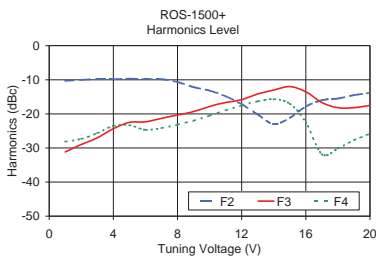
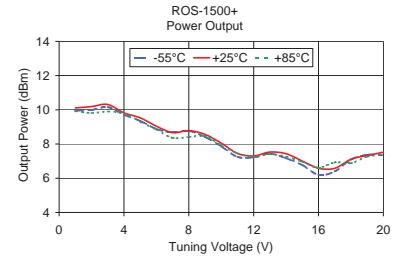
REV. G  
M151108  
ED-8419/7  
ROS-1500+  
RAV/MCL  
151105  
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# Performance Data & Curves

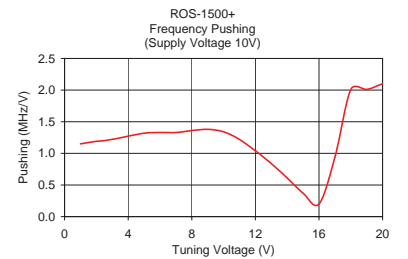
# ROS-1500+



V TUNE	TUNING SENS. (MHz/V)	FREQUENCY (MHz)			POWER OUTPUT (dBm)		
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C
1.00	42.02	990.22	982.48	972.73	9.95	10.11	9.92
2.00	31.87	1021.64	1014.36	1005.33	9.99	10.19	9.81
3.00	29.16	1050.64	1043.52	1034.68	10.16	10.31	9.90
4.00	28.12	1078.59	1071.64	1063.04	9.71	9.82	9.80
5.00	27.57	1106.13	1099.21	1090.87	9.35	9.53	9.30
6.00	28.79	1134.98	1128.00	1119.69	8.88	9.04	8.85
7.00	30.94	1166.04	1158.94	1150.55	8.68	8.67	8.36
8.00	33.02	1199.24	1191.96	1183.49	8.77	8.78	8.41
9.00	35.74	1235.35	1227.70	1219.01	8.41	8.56	8.47
10.00	38.43	1273.94	1266.14	1257.23	7.86	8.05	7.92
11.00	39.35	1313.61	1305.49	1296.40	7.25	7.45	7.46
12.00	39.09	1353.06	1344.58	1335.22	7.22	7.30	7.24
13.00	36.92	1390.14	1381.50	1372.08	7.43	7.53	7.41
14.00	33.72	1424.01	1415.22	1405.79	7.17	7.43	7.26
15.00	30.83	1454.49	1446.05	1437.24	6.77	7.00	6.96
16.00	30.53	1483.66	1476.58	1468.08	6.20	6.58	6.62
17.00	29.56	1515.16	1506.14	1496.29	6.40	6.58	6.92
18.00	25.93	1542.21	1532.07	1521.52	7.09	7.11	6.88
19.00	23.12	1565.45	1555.19	1544.39	7.37	7.33	7.26
20.00	21.03	1586.27	1576.22	1565.46	7.34	7.52	7.37



V TUNE	HARMONICS (dBc)			FREQ. PUSHING (MHz/V)
	F2	F3	F4	
1.00	-10.33	-31.16	-28.16	1.15
2.00	-10.00	-29.00	-27.33	1.19
3.00	-9.83	-27.00	-25.66	1.22
4.00	-9.84	-24.34	-23.50	1.27
5.00	-9.66	-22.50	-23.33	1.32
6.00	-9.83	-22.33	-24.66	1.33
7.00	-9.83	-21.33	-24.17	1.33
8.00	-10.66	-20.33	-23.16	1.36
9.00	-12.16	-19.33	-22.00	1.38
10.00	-13.16	-17.83	-20.50	1.34
11.00	-14.83	-16.67	-19.00	1.22
12.00	-17.17	-15.84	-17.50	1.04
13.00	-20.16	-14.16	-16.33	0.84
14.00	-23.00	-13.00	-15.67	0.61
15.00	-21.17	-12.00	-17.00	0.37
16.00	-17.84	-13.50	-22.50	0.20
17.00	-16.00	-16.67	-31.83	0.94
18.00	-15.50	-18.17	-30.17	2.01
19.00	-14.50	-18.17	-27.67	2.01
20.00	-13.84	-17.50	-25.84	2.10



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