Voltage Controlled Oscillator ROS-1200WR+

50Ω 612 to 1200 MHz

The Big Deal:

- Wide Band
- Low Phase Noise
- Robust design and construction
- Small size .500" x .500" x .180"

CASE STYLE: CK605

Product Overview:

The ROS-1200WR+ is a Voltage Controlled Oscillator, designed to operate from 612 to 1200 MHz for cellular applications. The ROS-1200WR+ is packaged in a metal case (size of .500" x .500" x .180") to shield against unwanted signals and noise.

Key Features

Feature	Advantages
Wide Band: from 612 to 1200 MHz	The model's wide bandwidth makes it suitable for a wide variety of applications, such as: CATV, military, test equipment etc...
Linear Tuning Sensitivity Ratio: 1.47:1 typ.	Optimal for loop filter design.
Low Phase Noise: -97 dBc/Hz typ at 10kHz offset	Low phase noise improves system EVM (Error Vector Magnitude).
High Power Output, +9 dBm typ.	Reduces amplification requirements and improves immunity to external noise sources.
Good Pushing, 0.45 MHz/V typ.	Provides increased immunity against noisy DC lines and improves output frequency stability vs. variations in supply voltage.
Small size, .500" x .500" x .180"	The small size enables the ROS-1200WR+ to be used in compact designs.

Surface Mount

Voltage Controlled Oscillator

ROS-1200WR+

Wide Band 612 to 1200 MHz

CASE STYLE: CK605

Features

- low phase noise, -97 dBc/Hz typ. @ 10kHz offset
- high power output, +9 dBm typ.
- low pushing, 0.45 MHz/V typ.
- aqueous washable

Applications

- wireless communications
- cellular
- test equipment

+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 Typ.				TUNING VOLTAGE RANGE (V)		SENSI-TIVITY (MHz/V)	PORT CAP (pF)	3 dB MODULATION BANDWIDTH (MHz)	NON HARMONIC SPURIOUS (dBc)	HARMONICS (dBc)		PULLING pk-pk @12 dBr (MHz)	PUSHING (MHz/V)	DC OPERATING POWER Vcc (volts)	DC OPERATING POWER Current (mA)
	Min.	Max.	Typ.	1	10	100	1000	Min.	Max.	Typ.	Typ.	Typ.	Typ.	Typ.	Max.	Typ.	Typ.		Max.
ROS-1200WR+	612	1200	+9	-71	-97	-119	-139	0.5	18	42 - 62	85	20	-90	-20	-10	9	0.45	12	35

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)	15V
Absolute Max. Tuning Voltage (Vtune)	25V
All specifications	50 ohm system

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

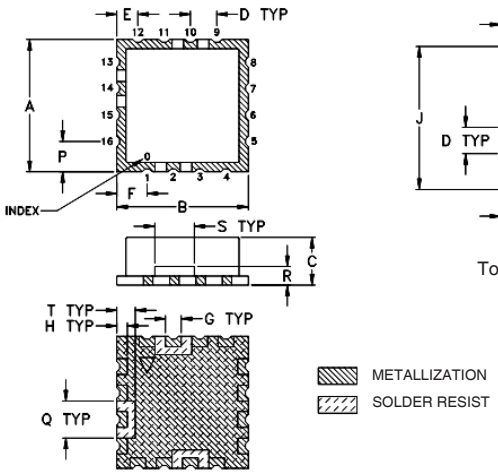
Tape & Reel: F37

7" Reels with 10, 20, 50, 100 devices

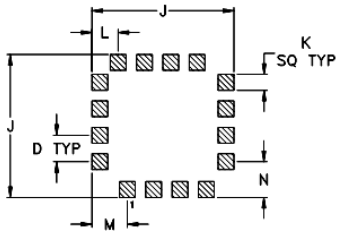
13" Reels with 200, 500 devices

Environmental Ratings: ENV65

Outline Drawing

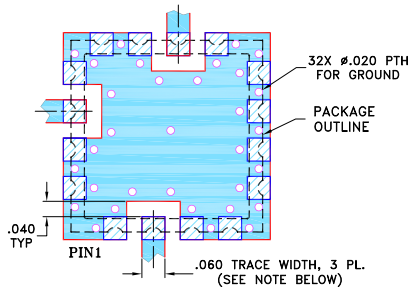


PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

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

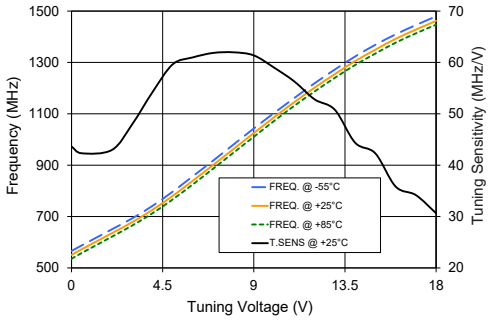
Performance Data & Curves*

ROS-1200WR+

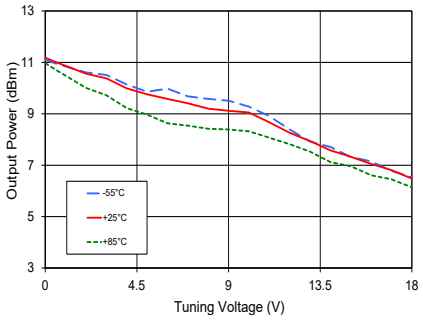
V TUNE	TUNE SENS (MHz/V)	FREQUENCY (MHz)			POWER OUTPUT (dBm)			Icc (mA)	HARMONICS (dBc)			FREQ. PUSH (MHz/V)	FREQ. PULL (MHz)	PHASE NOISE (dBc/Hz) at offsets				FREQ OFFSET (kHz)	PHASE NOISE at 906 MHz (dBc/Hz)
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C		F2	F3	F4			1kHz	10kHz	100kHz	1MHz		
0.00	43.64	566.0	550.8	535.3	11.10	11.18	10.97	27.10	-32.1	-22.3	-37.1	0.29	10.53	-73.01	-95.7	-116.0	-136.2	1.0	-74.11
2.00	42.97	650.6	635.4	621.6	10.61	10.56	10.01	27.12	-47.0	-23.2	-50.0	0.55	11.78	-73.51	-96.0	-117.1	-137.4	2.0	-83.37
3.00	47.98	693.0	678.4	665.1	10.51	10.38	9.72	27.13	-32.2	-24.1	-50.8	0.59	8.64	-72.86	-97.4	-118.0	-138.3	3.5	-88.37
4.00	54.23	741.8	726.4	712.8	10.14	9.99	9.22	27.16	-31.8	-25.8	-46.6	0.64	8.96	-73.62	-97.6	-118.3	-138.6	6.0	-93.92
5.00	59.65	797.2	780.6	766.8	9.86	9.76	8.97	27.19	-27.5	-29.4	-44.4	0.67	11.33	-73.19	-98.8	-119.0	-139.4	8.5	-98.27
6.00	61.00	857.6	840.2	825.7	9.98	9.58	8.63	27.24	-24.9	-35.5	-42.3	0.72	1.73	-74.22	-98.8	-119.5	-139.9	10.0	-99.77
7.00	61.86	918.4	901.2	886.8	9.68	9.41	8.54	27.31	-21.9	-40.8	-41.6	0.73	8.93	-71.53	-99.1	-120.1	-140.8	20.8	-106.19
8.00	61.98	980.5	963.1	948.7	9.58	9.20	8.42	27.37	-21.0	-38.0	-42.3	0.75	2.50	-71.42	-99.1	-119.8	-141.0	35.5	-110.76
9.00	61.37	1042.9	1025.1	1010.5	9.51	9.12	8.39	27.45	-18.1	-35.8	-41.7	0.76	8.21	-73.63	-99.1	-119.9	-141.4	60.7	-115.78
10.00	59.00	1103.1	1086.4	1072.0	9.28	9.05	8.32	27.58	-18.0	-33.4	-41.1	0.73	3.24	-72.37	-98.3	-119.9	-142.0	86.7	-118.94
11.00	56.30	1161.5	1145.4	1131.2	8.91	8.67	8.07	27.70	-17.1	-32.1	-44.4	0.72	6.60	-71.22	-98.0	-119.7	-142.0	100.0	-120.13
12.00	52.81	1218.9	1201.7	1187.0	8.39	8.26	7.82	27.80	-18.9	-31.5	-43.1	0.73	7.24	-72.65	-97.8	-119.0	-141.4	148.1	-123.51
13.00	50.78	1272.5	1254.6	1240.1	7.92	7.94	7.53	27.91	-20.8	-30.3	-42.1	0.65	6.81	-71.64	-97.7	-118.4	-141.2	177.0	-125.25
14.00	44.38	1323.2	1305.3	1290.0	7.71	7.58	7.12	28.03	-23.5	-30.0	-40.2	0.63	10.86	-70.83	-96.9	-118.2	-140.8	211.6	-126.79
15.00	42.29	1368.7	1349.7	1334.6	7.32	7.33	6.96	28.08	-26.1	-29.6	-39.1	0.61	7.97	-72.02	-97.0	-117.9	-140.6	302.4	-130.20
16.00	35.83	1409.4	1392.0	1377.0	7.15	7.05	6.61	28.17	-29.0	-28.9	-38.7	0.56	5.10	-73.22	-97.0	-117.9	-140.8	355.1	-131.70
17.00	34.17	1445.6	1427.8	1413.3	6.78	6.81	6.45	28.16	-28.8	-29.0	-37.7	0.52	8.03	-71.72	-96.5	-117.9	-140.7	498.5	-134.73
18.00	30.63	1479.5	1462.0	1447.2	6.53	6.48	6.14	28.14	-30.2	-29.0	-39.2	0.49	9.95	-70.83	-96.5	-117.7	-140.5	595.9	-136.37
19.00	29.36	1508.2	1492.6	1478.5	6.36	6.32	5.94	28.13	-30.3	-30.2	-41.3	0.28	7.98	-69.76	-96.2	-117.1	-139.9	982.3	-140.72
20.00	29.36	1538.9	1522.0	1506.8	6.10	6.15	5.79	28.08	-28.8	-32.8	-46.3	0.04	6.05	-68.78	-94.8	-115.7	-138.5	1000.0	-140.77

*at 25°C unless mentioned otherwise

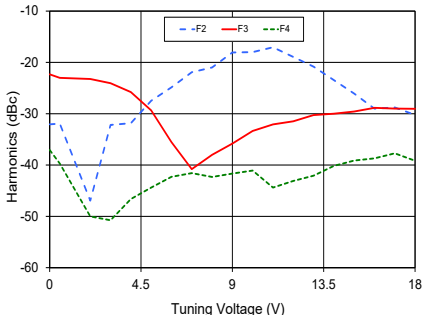
ROS-1200WR+
Frequency and Tuning Sensitivity



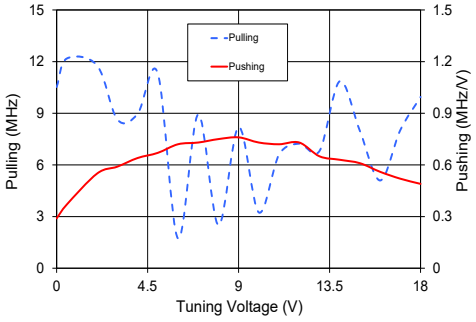
ROS-1200WR+
Power Output



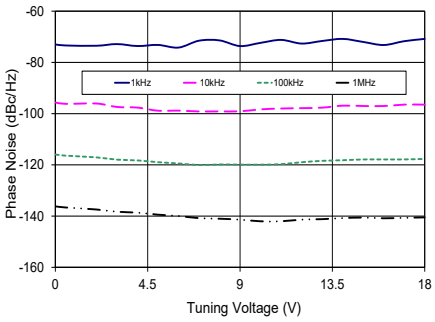
ROS-1200WR+
Harmonics Level



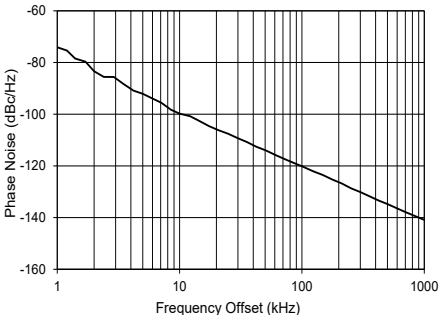
ROS-1200WR+
Frequency Pulling & Pushing (Vcc ± 5%)



ROS-1200WR+
Phase Noise Vs. Tuning Voltage



ROS-1200WR+
Phase Noise



Additional 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.

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