Surface Mount

Voltage Controlled Oscillator

ROS-2160W+

Wide Band 1160 to 2160 MHz

CASE STYLE: CK605

Features

- wide band, 1160 to 2160 MHz
- low phase noise, -98 dBc/Hz typ. @ 10kHz offset
- high power output, +5.5 dBm typ
- low pushing, 1.5 MHz/V typ.
- aqueous washable

Applications

- PCN
- GPS

+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-2160W+	1160	2160	+5.5	-69	-98	-119	-140	0.5	20	40 - 94	93	25	-90	-17	-	10	1.5	10	30

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)	12V
Absolute Max. Tuning Voltage (Vtune)	22V
All specifications	50 ohm system

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

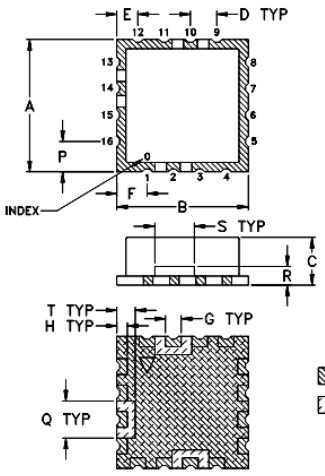
Tape & Reel: F37

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

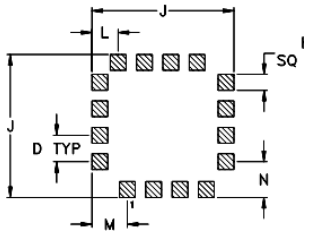
13" Reels with 200, 500 devices

Environmental Ratings: ENV65

Outline Drawing



PCB Land Pattern

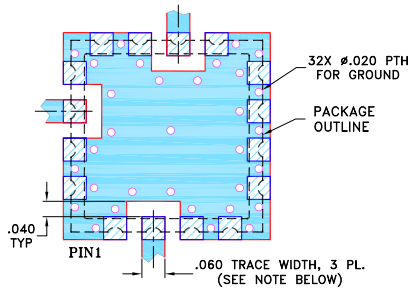


Suggested Layout,
Tolerance to be within ±.002

METALLIZATION

SOLDER RESIST

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

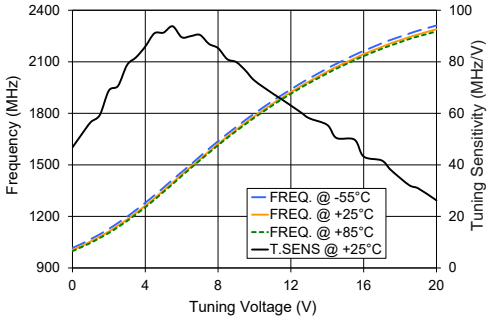
Performance Data & Curves*

ROS-2160W+

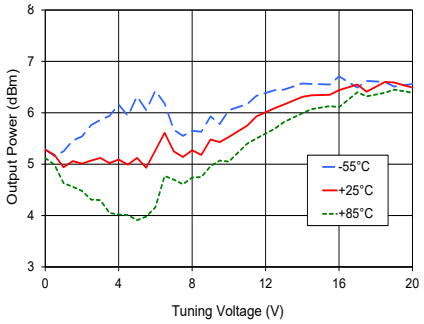
V TUNE	TUNE SENS (MHz/V)	FREQUENCY (MHz)			POWER OUTPUT (dBm)			Icc (mA)	HARMONICS (dBc)			FREQ. PUSH (MHz/V)	FREQ. PULL (MHz)	PHASE NOISE (dBc/Hz) at offsets				FREQ OFFSET (kHz)	PHASE NOISE at 1660 MHz (dBc/Hz)
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C		F2	F3	F4			1kHz	10kHz	100kHz	1MHz		
0.00	46.81	1016.8	1005.3	997.6	5.29	5.28	5.12	23.52	-11.9	-33.1	-46.1	1.47	3.08	-67.35	-91.9	-112.3	-132.3	1.0	-69.44
0.50	51.82	1040.5	1028.7	1021.3	5.16	5.18	4.99	23.47	-12.1	-41.5	-39.1	1.38	6.92	-69.81	-93.2	-113.5	-133.5	2.0	-80.21
1.00	56.58	1068.0	1054.6	1046.0	5.25	4.94	4.63	23.45	-12.3	-39.3	-36.5	1.44	4.73	-68.73	-92.7	-113.5	-133.5	3.5	-85.88
2.00	68.88	1127.9	1112.6	1103.7	5.54	5.01	4.48	23.50	-12.1	-31.4	-35.0	1.30	5.80	-69.30	-94.7	-114.9	-135.0	6.0	-93.42
3.00	78.78	1198.6	1182.4	1173.3	5.86	5.12	4.30	23.59	-12.3	-27.2	-33.5	1.16	4.45	-70.07	-96.8	-117.7	-137.7	8.5	-95.90
4.00	85.93	1279.6	1262.7	1253.6	6.16	5.09	4.02	23.66	-13.0	-24.3	-32.1	1.12	2.12	-69.21	-97.1	-118.6	-138.7	10.0	-98.40
5.00	91.33	1367.5	1351.2	1342.5	6.32	5.12	3.91	23.76	-14.6	-22.3	-30.1	0.97	1.01	-69.77	-98.1	-119.7	-140.0	20.8	-105.97
6.00	89.54	1458.4	1443.7	1435.3	6.43	5.27	4.16	23.86	-15.6	-22.1	-27.2	0.66	2.36	-69.55	-97.7	-119.7	-140.2	35.5	-110.82
7.00	90.45	1548.7	1533.5	1525.8	5.67	5.25	4.70	23.96	-21.3	-23.0	-28.3	0.30	1.51	-69.02	-97.5	-119.2	-140.0	60.7	-116.47
8.00	85.31	1637.9	1622.2	1614.0	5.65	5.27	4.74	24.06	-30.1	-21.5	-26.6	0.23	1.76	-70.45	-98.2	-120.4	-141.4	86.7	-118.62
9.00	79.89	1721.0	1705.4	1697.0	5.93	5.48	4.96	24.20	-22.1	-21.5	-25.8	0.11	0.68	-70.51	-98.4	-120.8	-141.9	100.0	-120.39
10.00	72.72	1799.2	1783.7	1774.9	6.05	5.53	5.05	24.31	-18.1	-21.5	-26.1	0.05	0.43	-69.37	-98.1	-121.0	-142.3	148.1	-123.96
11.00	67.71	1872.6	1856.4	1846.7	6.17	5.75	5.40	24.35	-15.7	-21.7	-27.4	0.04	1.59	-68.28	-98.3	-120.7	-142.1	177.0	-125.68
12.50	60.61	1972.4	1955.5	1945.6	6.44	6.09	5.69	24.46	-14.3	-22.0	-31.9	0.09	5.63	-69.46	-97.9	-121.0	-142.3	211.6	-127.39
14.50	50.45	2088.7	2070.8	2059.8	6.56	6.34	6.07	24.46	-13.1	-22.0	-29.7	0.23	3.72	-68.43	-97.3	-120.5	-141.6	302.4	-130.62
15.50	49.77	2140.0	2120.0	2109.1	6.55	6.35	6.13	24.41	-12.7	-21.9	-29.2	0.33	6.60	-68.36	-97.6	-120.1	-141.0	361.5	-132.04
16.00	43.23	2163.4	2144.9	2133.0	6.71	6.44	6.11	24.42	-13.0	-22.1	-29.1	0.38	2.81	-68.52	-97.6	-120.3	-140.8	507.5	-135.39
17.50	37.98	2228.0	2207.9	2195.3	6.62	6.41	6.32	24.34	-13.0	-22.4	-29.9	0.64	5.38	-67.23	-95.8	-118.6	-139.4	606.7	-136.92
18.50	32.13	2264.1	2243.6	2232.2	6.60	6.60	6.39	24.34	-13.4	-22.7	-30.0	0.75	7.14	-69.07	-96.9	-119.4	-140.0	851.6	-140.16
19.00	30.88	2281.4	2259.6	2247.6	6.51	6.59	6.45	24.30	-13.2	-22.8	-30.6	0.86	8.87	-67.07	-96.6	-118.8	-139.4	1000.0	-141.32

*at 25°C unless mentioned otherwise

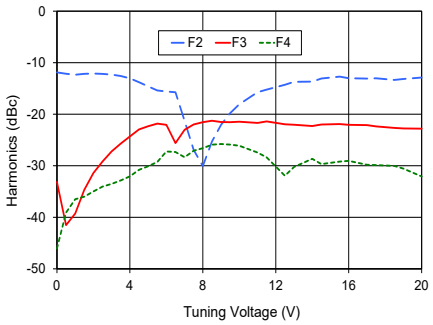
ROS-2160W+
Frequency and Tuning Sensitivity



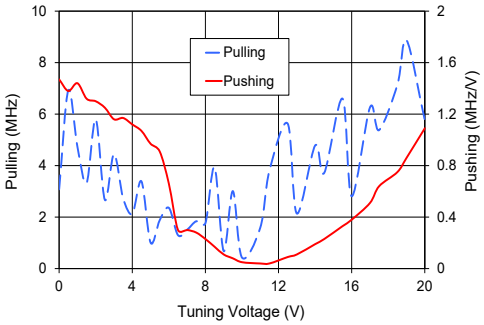
ROS-2160W+
Power Output



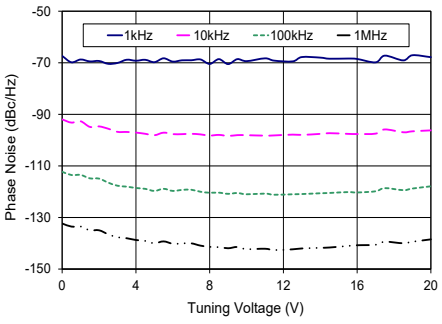
ROS-2160W+
Harmonics Level



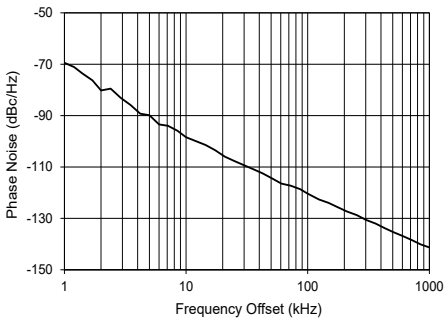
ROS-2160W+
Frequency Pulling & Pushing (Vcc ± 5%)



ROS-2160W+
Phase Noise Vs. Tuning Voltage



ROS-2160W+
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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