

Surface Mount

# Voltage Controlled Oscillator

# ROS-1605PV+

5V Tuning for PLL ICs 1500 to 1605 MHz

### Features

- Low phase noise, -98dBc/Hz at 10kHz offset, typ.
- 3.3V power supply
- Aqueous washable
- Protected by US patent 6,549,084



Generic photo used for illustration purposes only  
CASE STYLE: CK605

### Applications

- GPS
- PLL circuitry

**+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 Br (MHz)	PUSHING (MHz/V)	DC OPERATING POWER	
	Min.	Max.		Typ.	1	10	100	1000	VOLTAGE RANGE (V)	SENSI-TIVITY (MHz/V)	PORT CAP (pF)	3 dB MODULATION BANDWIDTH (MHz)		Typ.	Typ.			Typ.	Typ.
ROS-1605PV+	1500	1605	+0.5	-72	-98	-119	-139	0.5	5	32-50	9	160	-90	-17	-8	5	1	3.3	17

### 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)	5.5V
Absolute Max. Tuning Voltage (Vtune)	7V
All specifications	50 ohm system

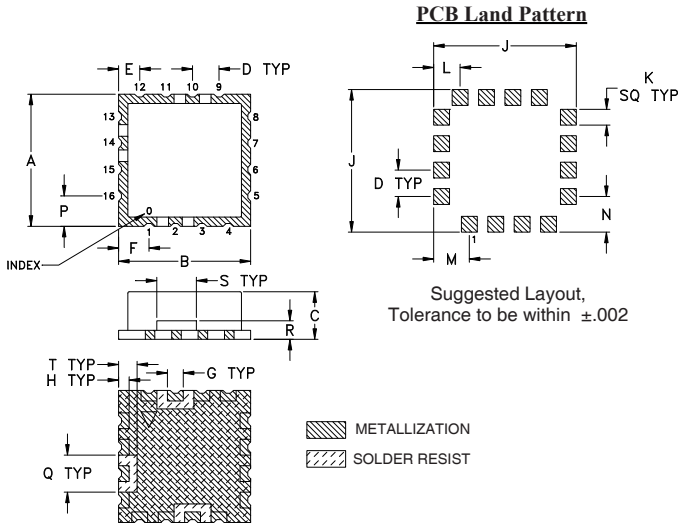
Permanent damage may occur if any of these limits are exceeded.

### Tape & Reel: F37

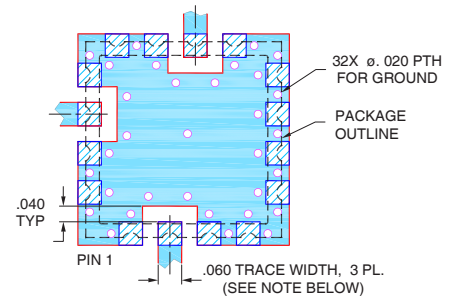
7" Reels with 10, 20, 50, 100 devices  
13" Reels with 200, 500 devices

### Environmental Ratings: ENV65

### Outline Drawing



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



#### NOTES:

1. TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS  $.030" \pm .002"$ ; 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

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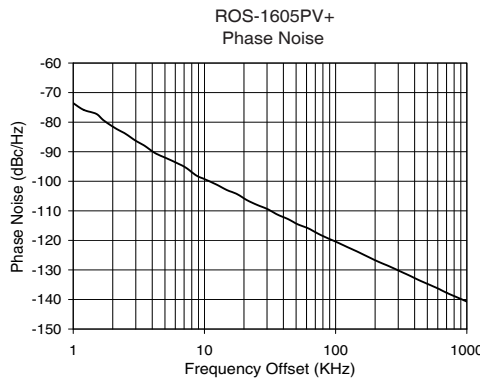
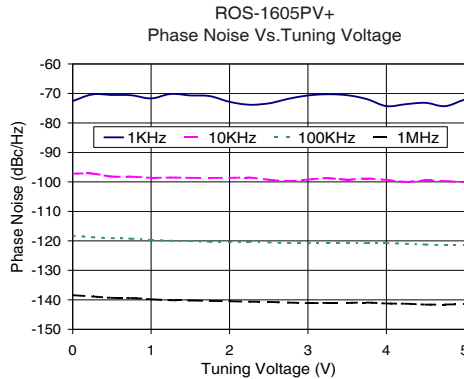
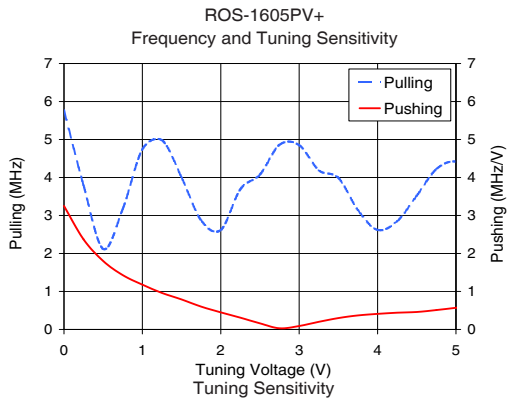
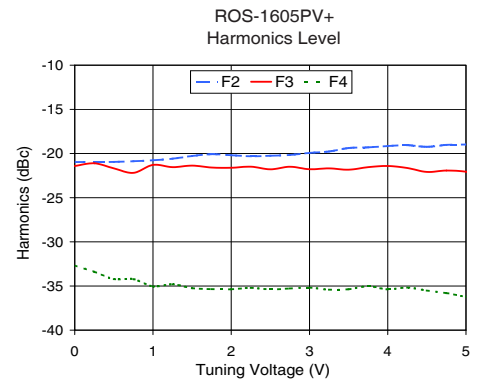
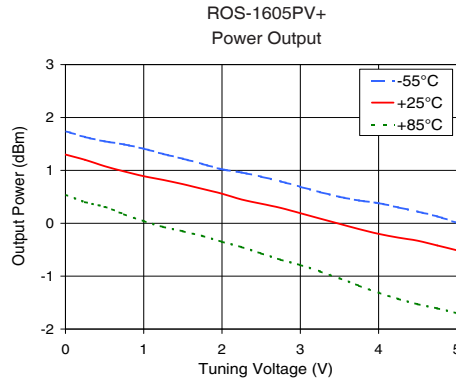
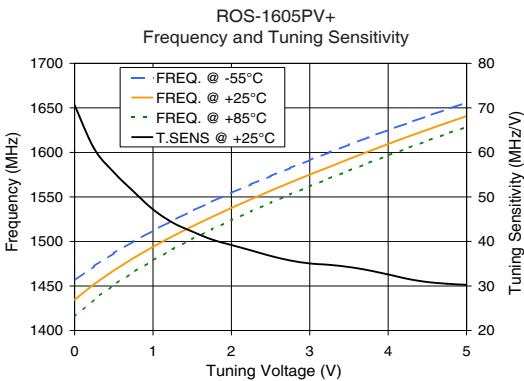
[www.minicircuits.com](http://www.minicircuits.com) P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 sales@minicircuits.com

## Performance Data & Curves\*

## ROS-1605PV+

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 1553 MHz (dBc/Hz)
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C		F2	F3	F4			1kHz	10kHz	100kHz	1MHz		
		0.00	70.60	1456.0	1434.5	1415.3	1.74		1.30	0.54	12.21			-21.0	-21.4	-32.7	3.25		
0.50	55.54	1486.9	1467.4	1451.2	1.55	1.08	0.31	12.17	-21.0	-21.7	-34.2	1.80	2.12	-70.5	-98.2	-119.1	-139.3	2.1	-82.08
0.75	51.25	1500.1	1481.3	1465.5	1.49	0.98	0.17	12.15	-20.9	-22.2	-34.2	1.43	3.17	-70.6	-98.2	-119.3	-139.4	3.5	-87.97
1.00	47.20	1512.2	1494.1	1478.8	1.41	0.89	0.04	12.14	-20.8	-21.3	-35.1	1.18	4.74	-71.7	-98.6	-119.7	-139.8	6.1	-93.72
1.25	44.23	1523.5	1505.9	1491.2	1.31	0.82	-0.07	12.13	-20.6	-21.5	-34.8	0.96	4.98	-70.2	-98.5	-120.0	-140.1	8.7	-98.07
1.50	42.23	1534.3	1516.9	1502.7	1.22	0.74	-0.15	12.12	-20.3	-21.4	-35.3	0.79	4.00	-70.7	-98.6	-120.1	-140.2	10.0	-99.27
1.75	40.44	1544.6	1527.5	1513.5	1.12	0.65	-0.24	12.11	-20.1	-21.6	-35.4	0.60	2.87	-70.9	-98.7	-120.3	-140.4	21.1	-106.40
2.00	39.21	1554.5	1537.6	1523.8	1.02	0.56	-0.35	12.09	-20.2	-21.6	-35.4	0.45	2.62	-72.8	-98.6	-120.3	-140.5	36.1	-111.30
2.25	38.00	1564.2	1547.4	1533.7	0.96	0.45	-0.45	12.07	-20.3	-21.5	-35.2	0.31	3.69	-73.8	-98.6	-120.3	-140.6	61.6	-115.88
2.50	36.74	1573.4	1556.9	1543.4	0.88	0.37	-0.57	12.06	-20.3	-21.8	-35.4	0.16	4.08	-73.4	-99.3	-120.5	-140.7	88.0	-119.37
2.75	35.73	1582.4	1566.1	1552.8	0.79	0.29	-0.69	12.05	-20.2	-21.5	-35.3	0.03	4.86	-71.8	-99.7	-120.7	-140.9	100.0	-120.41
3.00	35.06	1591.3	1575.0	1561.9	0.69	0.19	-0.79	12.03	-19.9	-21.8	-35.2	0.09	4.85	-70.7	-99.2	-120.8	-141.1	150.3	-124.03
3.25	34.75	1600.1	1583.8	1570.8	0.59	0.09	-0.91	12.02	-19.8	-21.7	-35.4	0.20	4.19	-70.3	-98.8	-120.7	-141.0	179.6	-125.72
3.50	34.26	1608.7	1592.5	1579.4	0.50	-0.01	-1.04	12.00	-19.4	-21.8	-35.4	0.30	3.99	-70.6	-99.2	-120.6	-141.0	214.7	-127.34
3.75	33.52	1617.0	1601.0	1588.0	0.43	-0.11	-1.18	11.99	-19.3	-21.5	-35.0	0.37	3.14	-71.9	-98.9	-120.8	-140.9	306.7	-130.37
4.00	32.60	1625.1	1609.4	1596.5	0.38	-0.20	-1.31	11.99	-19.2	-21.4	-35.4	0.41	2.62	-74.3	-99.3	-120.8	-141.2	360.2	-131.78
4.25	31.59	1633.0	1617.6	1604.9	0.30	-0.27	-1.43	11.98	-19.1	-21.6	-35.2	0.44	2.85	-73.6	-100.0	-121.0	-141.3	505.5	-134.80
4.50	30.90	1640.7	1625.5	1613.0	0.22	-0.33	-1.53	11.98	-19.2	-22.1	-35.5	0.46	3.52	-73.2	-99.5	-121.3	-141.6	604.2	-136.30
4.75	30.51	1648.4	1633.2	1621.0	0.13	-0.42	-1.61	11.97	-19.0	-21.9	-35.8	0.51	4.22	-74.3	-99.7	-121.4	-141.6	995.8	-140.67
5.00	30.26	1656.0	1640.8	1628.7	0.01	-0.51	-1.70	11.96	-19.0	-22.1	-36.2	0.57	4.42	-72.1	-100.0	-121.4	-141.5	1000.0	-140.73

\*at 25°C unless mentioned otherwise



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