

# Surface Mount Voltage Controlled Oscillator

# JTOS-1950

## Linear Tuning 1550 to 1950 MHz

### Features

- linear tuning characteristics, 22-30 MHz/V typ.
- wide frequency range, 1550 to 1950 MHz
- low phase noise, -144 dBc/Hz at 1 MHz offset, typ.
- aqueous washable
- protected by US patent 6,549,084

### Applications

- PCS
- DCS
- communication systems



CASE STYLE: BK377  
PRICE: \$19.95 ea. QTY (20)

### Electrical Specifications

FREQUENCY (MHz)		POWER OUTPUT (dBm)	TUNING VOLTAGE (V)		PHASE NOISE (dBc/Hz) SSB at offset frequencies: Typ.				PULLING pk-pk @ 12 dB (MHz)	PUSHING (MHz/V)	TUNING SENSITIVITY (MHz/V)	HARMONICS (dBc)		3 dB MODULATION BANDWIDTH (MHz)	DC OPERATING POWER	
Min.	Max.	Typ.	Min.	Max.	1 kHz	10 kHz	100 kHz	1 MHz	Typ.	Typ.	Typ.	Typ.	Max.	Typ.	Vcc (Volts)	Current (mA) Max.
1550	1950	+10	0.5	20	-70	-98	-122	-144	7	1.0	22-30	-14	-8	100	12	35

### Pin Connections

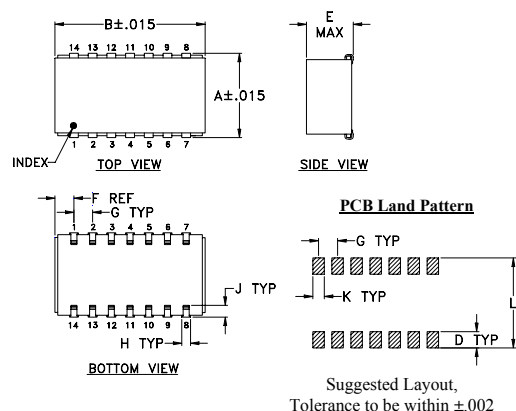
RF OUT	13
VCC	2
V-TUNE	5
GROUND	1,3,4,6,7,8,9,10,11,12,14

### Maximum Ratings

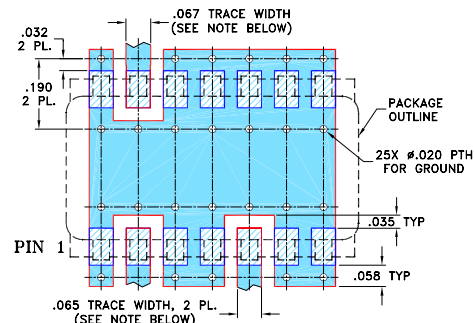
Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 100°C
Absolute Max. Supply Voltage (Vcc)	+13V
Absolute Max. Tuning Voltage (Vtune)	+22V

all specifications: 50 ohm system  
Permanent damage may occur if any of these limits are exceeded.

### Outline Drawing



### Demo Board MCL PIN: TB-04 Suggested PCB Layout (PL-005)



NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B 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	wt
.505	.800	--	.100	.250	.100	.100	.047	.065	.065	.525	grams
12.83	20.32	--	2.54	6.35	2.54	2.54	1.19	1.65	1.65	13.34	3.0

### Notes

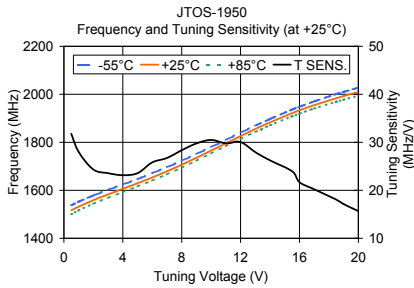
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M149186  
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MM/TD/CP/AM  
141204

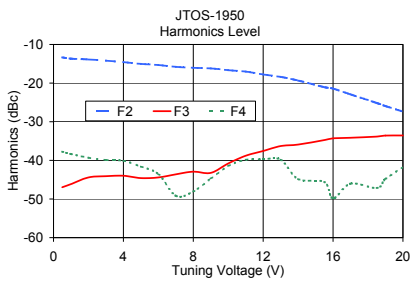
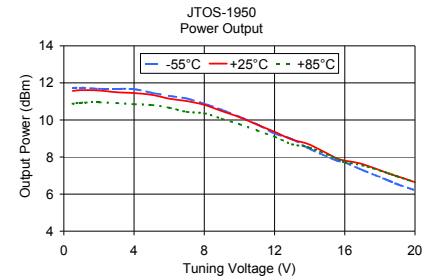


# Performance Data & Curves

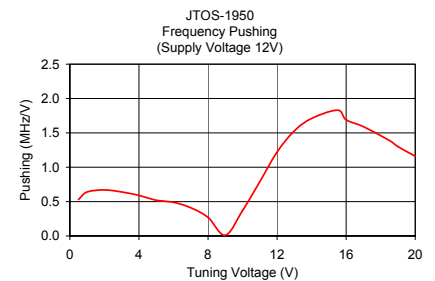
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V TUNE	TUNING SENS. (MHz/V)	FREQUENCY (MHz)			POWER OUTPUT (dBm)		
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C
0.50	31.77	1537.19	1516.19	1499.79	11.73	11.57	10.88
1.00	27.99	1552.49	1532.07	1516.26	11.74	11.61	10.93
2.00	24.34	1578.22	1559.00	1543.90	11.68	11.59	10.95
3.00	23.56	1601.85	1582.91	1568.57	11.68	11.50	10.91
4.00	23.15	1624.28	1606.37	1592.28	11.66	11.45	10.85
5.00	23.56	1646.84	1629.54	1615.97	11.47	11.36	10.81
6.00	25.82	1671.25	1653.56	1640.11	11.30	11.15	10.66
7.00	26.73	1696.35	1679.60	1666.23	11.16	11.02	10.44
8.00	28.36	1723.00	1706.80	1693.60	10.88	10.82	10.36
9.00	29.76	1751.20	1735.56	1722.69	10.55	10.48	10.07
10.00	30.50	1780.56	1765.66	1753.00	10.17	10.15	9.77
11.00	29.77	1809.95	1796.00	1783.86	9.77	9.75	9.44
12.00	30.05	1840.11	1825.94	1813.79	9.27	9.36	9.09
13.00	27.95	1869.34	1855.67	1843.31	8.97	8.94	8.69
14.00	26.23	1897.22	1883.15	1870.75	8.44	8.67	8.51
15.50	23.95	1936.57	1921.51	1907.93	7.83	7.95	7.94
16.00	21.68	1948.09	1933.49	1919.58	7.71	7.81	7.73
17.00	20.21	1970.58	1954.72	1940.89	7.30	7.62	7.55
18.50	18.05	2001.05	1983.99	1968.91	6.73	7.11	7.12
19.00	17.13	2010.21	1993.02	1977.63	6.53	6.96	6.95
20.00	15.66	2027.45	2009.78	1994.09	6.21	6.64	6.64



V TUNE	HARMONICS (dBc)			FREQ. PUSHING (MHz/V)
	F2	F3	F4	
0.50	-13.34	-46.96	-37.74	0.53
1.00	-13.68	-46.13	-38.35	0.64
2.00	-13.89	-44.42	-39.31	0.67
3.00	-14.19	-44.09	-39.91	0.64
4.00	-14.57	-43.98	-40.11	0.59
5.00	-15.03	-44.58	-41.61	0.52
6.00	-15.31	-44.42	-43.54	0.49
7.00	-15.80	-43.62	-49.17	0.41
8.00	-16.05	-42.92	-48.07	0.27
9.00	-16.19	-43.23	-44.72	0.01
10.00	-16.66	-40.81	-41.46	0.37
11.00	-17.02	-38.79	-39.84	0.79
12.00	-17.76	-37.58	-39.74	1.22
13.00	-18.39	-36.30	-39.81	1.53
14.00	-19.34	-35.91	-44.84	1.71
15.50	-21.06	-34.75	-45.58	1.83
16.00	-21.42	-34.31	-49.84	1.69
17.00	-22.93	-34.14	-46.02	1.59
18.50	-25.14	-33.85	-47.16	1.39
19.00	-25.95	-33.58	-44.81	1.30
20.00	-27.37	-33.55	-41.76	1.16



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