

# Surface Mount Voltage Controlled Oscillator

# JTOS-1950

## Linear Tuning 1550 to 1950 MHz

### Features

- linear tuning characteristics, 23-32 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



CASE STYLE: BK377  
PRICE: \$19.95 ea. QTY (5-49)

### Applications

- PCS
- DCS
- communication systems

### Electrical Specifications

FREQUENCY (MHz)	POWER OUTPUT (dBm)	TUNING VOLTAGE (V)	PHASE NOISE (dBc/Hz)				PULLING pk-pk @ 12 dBz (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.	Typ.	Vcc (Volts)
Min.	Max.	Typ.	Min.	Max.	1 kHz	10 kHz	100 kHz	1 MHz	Typ.	Typ.	Typ.	Max.	Typ.			
1550	1950	+7.0	0.5	20	-75	-103	-125	-144	7	0.6	23-32	-14	-10	8.0	12	30

### Pin Connections

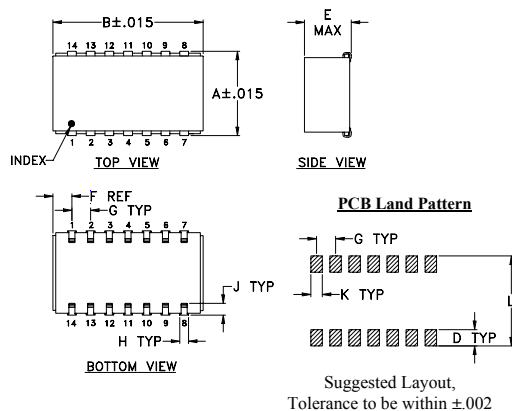
RF OUT	13
VCC	2
V-TUNE	5
GROUND	1,3,4,6,7,8,9,10,11,12,14

### Maximum Ratings

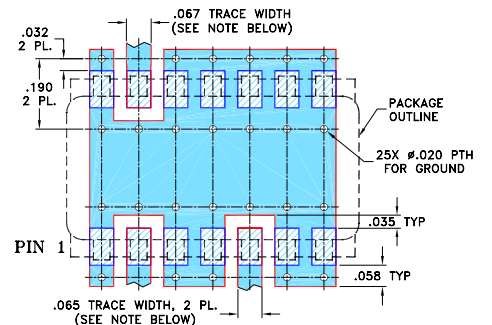
Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 100°C
Absolute Max. Supply Voltage (Vcc)	+13V
Absolute Max. Tuning Voltage (Vtune)	+22V

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)



### 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

**Mini-Circuits**  
ISO 9001 ISO 14001 AS 9100 CERTIFIED

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Provides ACTUAL Data Instantly at [minicircuits.com](http://minicircuits.com)

IF/RF MICROWAVE COMPONENTS

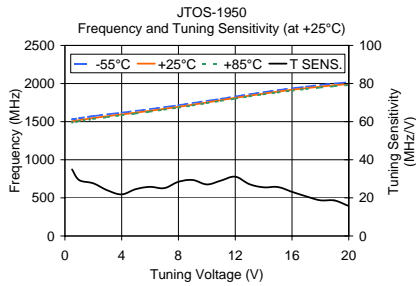
For detailed performance specs & shipping online see web site

Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet 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).

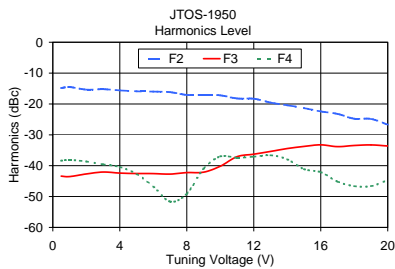
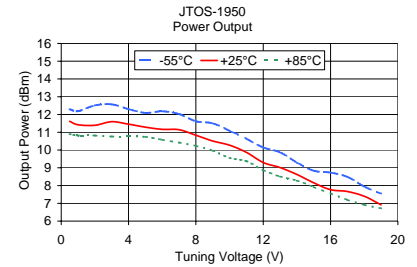
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# Performance Data & Curves

# JTOS-1950



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	34.94	1529	1504	1490	12.30	11.61	10.90
1.00	29.36	1545	1519	1506	12.19	11.42	10.82
2.00	27.64	1572	1547	1534	12.51	11.39	10.81
3.00	23.93	1595	1572	1560	12.57	11.60	10.76
4.00	21.82	1618	1595	1583	12.30	11.45	10.76
5.00	24.60	1641	1618	1606	12.09	11.29	10.74
6.00	25.76	1665	1642	1631	12.18	11.16	10.58
7.00	25.12	1689	1668	1657	12.03	11.14	10.42
8.00	28.43	1715	1694	1683	11.62	10.84	10.23
9.00	29.41	1744	1722	1712	11.50	10.51	9.97
10.00	27.05	1771	1752	1743	11.08	10.27	9.55
11.00	29.09	1800	1782	1771	10.63	9.87	9.38
12.00	31.13	1830	1812	1801	10.14	9.30	8.86
13.00	27.16	1858	1840	1831	9.87	9.01	8.51
14.00	25.52	1886	1868	1857	9.30	8.63	8.28
15.00	25.68	1913	1894	1882	8.83	8.15	7.92
16.00	23.17	1937	1918	1906	8.73	7.77	7.56
17.00	20.79	1959	1939	1928	8.49	7.67	7.20
18.00	18.72	1981	1959	1947	7.95	7.40	6.92
19.00	18.62	1999	1978	1964	7.54	6.92	6.71
20.00	15.71	2017	1995	1982	7.49	6.59	6.27



V TUNE	HARMONICS (dBc)			FREQ. PUSHING (MHz/V)
	F2	F3	F4	
0.50	-14.85	-43.39	-38.40	1.41
1.00	-14.52	-43.54	-38.13	1.44
2.00	-15.35	-42.67	-38.64	1.61
3.00	-15.21	-42.06	-39.57	1.40
4.00	-15.60	-42.39	-40.43	1.28
5.00	-15.91	-42.54	-42.70	1.30
6.00	-15.98	-42.56	-46.73	1.15
7.00	-16.17	-42.73	-51.62	0.95
8.00	-17.07	-42.25	-49.10	0.85
9.00	-17.08	-42.10	-40.96	0.54
10.00	-17.20	-40.18	-37.01	0.16
11.00	-18.22	-37.08	-37.41	-0.27
12.00	-18.32	-36.29	-37.09	-0.75
13.00	-19.55	-35.39	-36.61	-0.97
14.00	-20.41	-34.44	-37.92	-1.16
15.00	-21.33	-33.76	-41.11	-1.35
16.00	-22.41	-33.25	-42.09	-1.28
17.00	-23.22	-33.82	-45.16	-1.17
18.00	-24.78	-33.46	-46.62	-1.00
19.00	-24.85	-33.27	-46.62	-0.97
20.00	-26.70	-33.62	-44.70	-0.80

