

# Surface Mount Voltage Controlled Oscillator

# JTOS-2000+ JTOS-2000

## Wide Band 1370 to 2000 MHz

### Features

- wide frequency range, 1370 to 2000 MHz typ.
- linear tuning characteristics
- low phase noise, -135 dBc/Hz at 1 MHz offset
- aqueous washable
- protected by US patent 6,549,084

### Applications

- instrumentation
- PCS/DCS
- communication systems



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

**+ RoHS compliant in accordance with EU Directive (2002/95/EC)**

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

### Electrical Specifications

FREQUENCY (MHz)		POWER OUTPUT (dBm)	TUNING VOLTAGE (V)		PHASE NOISE (dBc/Hz) SSB at offset frequencies: Typ.				PULLING pk-pk @ 12 dBz (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.
1370	2000	+12.0	1.0	22	-70	-95	-115	-135	40	1.5	30-50	-11	-8	1.0	8	30

### Pin Connections

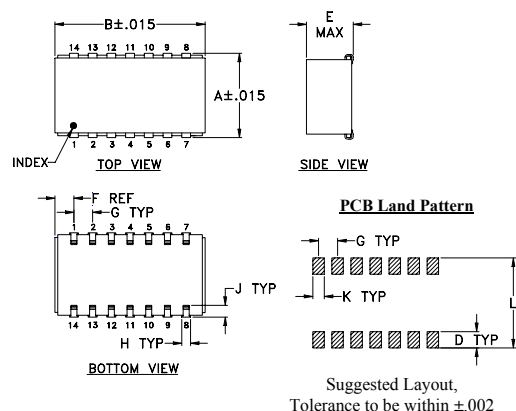
RF OUT	13
VCC	2
V-TUNE	5
GROUND	1,3,4,6,7,8,9,10,11,12,14

### Maximum Ratings

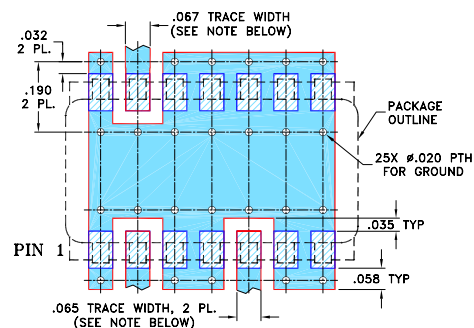
Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 100°C
Absolute Max. Supply Voltage (Vcc)	+10V
Absolute Max. Tuning Voltage (Vtune)	+25V

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

**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

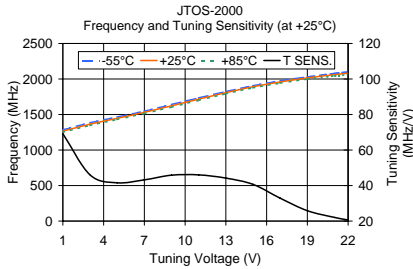
For detailed performance specs & shopping online see web site

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).

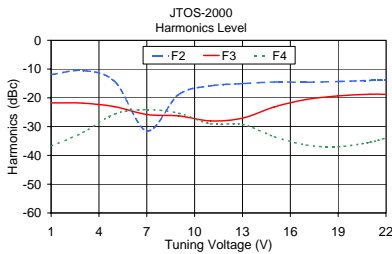
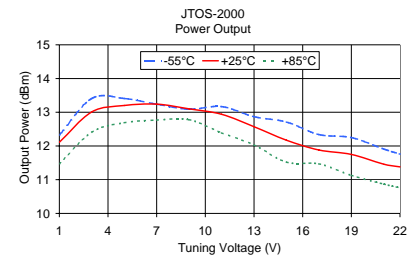
REV. B  
M102713  
JTOS-2000  
ED-5346  
MM/TD/CP/AM  
091223  
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# Performance Data & Curves

# JTOS-2000+ JTOS-2000



V TUNE	TUNING SENS. (MHz/V)	FREQUENCY (MHz)			POWER OUTPUT (dBm)		
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C
1.00	69.23	1284.71	1266.03	1250.18	12.32	12.11	11.47
3.00	46.00	1384.20	1364.13	1346.86	13.41	13.01	12.41
5.00	41.55	1464.49	1446.30	1429.90	13.41	13.20	12.69
7.00	43.22	1547.52	1530.72	1514.72	13.24	13.24	12.77
9.00	45.84	1640.53	1621.98	1604.43	13.09	13.10	12.78
11.00	46.00	1733.86	1715.81	1699.63	13.17	12.94	12.39
13.00	44.21	1823.35	1807.46	1791.67	12.87	12.57	12.03
15.00	40.65	1905.18	1890.65	1875.57	12.71	12.17	11.52
17.00	32.90	1974.74	1958.16	1941.17	12.34	11.88	11.47
19.00	25.83	2030.28	2015.46	1999.05	12.25	11.75	11.13
21.00	22.06	2078.26	2060.55	2041.93	11.91	11.46	10.87
22.00	20.61	2099.05	2081.16	2061.53	11.76	11.38	10.76



V TUNE	HARMONICS (dBc)			FREQ. PUSHING (MHz/V)
	F2	F3	F4	
1.00	-11.92	-21.75	-36.75	1.43
3.00	-10.52	-21.85	-32.02	1.17
5.00	-14.40	-23.07	-25.57	1.53
7.00	-31.46	-25.80	-24.13	2.65
9.00	-18.84	-26.27	-25.34	2.97
11.00	-15.84	-28.01	-29.01	2.08
13.00	-15.06	-27.06	-29.23	0.59
15.00	-14.49	-23.16	-33.49	0.18
17.00	-14.56	-20.56	-36.39	0.12
19.00	-14.32	-19.32	-36.98	0.16
21.00	-13.93	-18.76	-35.43	0.02
22.00	-13.80	-18.80	-33.96	0.20

