

 **TCI** 

THE SOURCE SOURCE
TECHTROL CYCLONETICS, INC.



815 MARKET STREET
NEW CUMBERLAND, PENNSYLVANIA 17070

TM

VOLTAGE CONTROLLED CRYSTAL OSCILLATOR 40 to 125 MHz

XOV2000

5 volt option available

Phase Noise: typical at 100 MHz

100 Hz	-122 dBc/Hz
1 KHz	-152 dBc/Hz
10 KHz	-165 dBc/Hz
100 KHz	-165 dBc/Hz

Output Power:	+13 dBm
Frequency Stability:	±5 PPM
Temperature Range:	0° to 50° C
Harmonics:	-30 dBc
Spurious:	-90 dBc
Supply Voltage:	+12 to +15 VDC
Current:	35 ma typical



Mounting: 0.030" solder pins

1" x 1" x 0.5"
(25 mm x 25 mm x 13 mm)

VOLTAGE CONTROLLED CRYSTAL OSCILLATOR 40 to 125 MHz

XOV220

Options available,
contact the factory

Phase Noise: typical at 100 MHz

100 Hz	-123 dBc/Hz
1 KHz	-153 dBc/Hz
10 KHz	-168 dBc/Hz
100 KHz	-170 dBc/Hz

Output Power:	+13 dBm
Frequency Stability:	±5 PPM
Temperature Range:	0° to 50° C
Harmonics:	-30 dBc
Spurious:	-90 dBc
Supply Voltage:	+12 to +15 VDC
Current:	35 ma typical



Mounting: 0.030" solder pins

1.5" x 1.5" x 0.5"
(38 mm x 38 mm x 13 mm)

VOLTAGE CONTROLLED CRYSTAL OSCILLATOR 40 to 125 MHz

XOV220K

SMA connector optional

Phase Noise: typical at 100 MHz

100 Hz	-123 dBc/Hz
1 KHz	-153 dBc/Hz
10 KHz	-168 dBc/Hz
100 Khz	-170 dBc/Hz

Output Power:	+13 dBm
Frequency Stability:	±3 x 10 ⁻⁷
Temperature Range:	0° to 50° C
Harmonics:	-30 dBc
Spurious:	-90 dBc
Supply Voltage:	+12 to +15 VDC
Current:	1.5 watts (idle)



Mounting: 0.030" solder pins

2" x 2" x 0.75"
(51 mm x 51 mm x 19 mm)

20 LOG₁₀ N DEGRADATION

N	dB
2	6.02
3	9.54
4	12.04
5	13.97
6	15.56
7	16.90
8	18.06
9	19.08
10	20.00
15	23.52
20	26.02
25	27.95
30	29.54
40	32.04
50	33.97
60	35.56
70	36.90
80	38.06
90	39.08
100	40.00
150	43.52
200	46.02
250	47.95
300	49.54
350	50.88
400	52.04
500	53.97
600	55.56
700	56.90
800	58.06
900	59.08
1000	60.00
2000	66.02
3000	69.54
4000	72.04
5000	73.97

POWER INTO 50 OHM

dBm	Milliwatts	50 OHM MV (RMS)
-40	.00010	2.223
-30	.0010	7.071
-20	.0100	20.36
-10	.1000	70.07
0	1.000	223.6
+1	1.259	250.9
+2	1.585	281.5
+3	1.995	315.8
+4	2.512	354.4
+5	3.162	397.6
+6	3.981	446.1
+7	5.012	500.6
+8	6.310	561.7
+9	7.943	630.1
+10	10.00	707.1
+11	12.59	793.4
+12	15.85	890.2
+13	19.95	999.7
+14	25.12	1121
+15	31.62	1257
+16	39.81	1411
+17	50.12	1583
+18	63.10	1778
+19	79.43	1993
+20	100.0	2236
+21	125.9	2509
+22	158.5	2815
+23	199.5	3158
+24	251.2	3544
+25	316.2	3976
+26	398.1	4461
+27	501.2	5006
+28	631.0	5617
+29	794.3	6301
+30	1,000	7071

VOLTAGE STANDING WAVE RATIO

VSWR	Return Loss (dB)	VSWR	Return Loss (dB)	VSWR	Return Loss (dB)
1.0	∞	1.30	17.70	4.0	4.44
1.01	46.02	1.35	16.54	4.5	3.93
1.02	40.09	1.40	15.56	5.0	3.52
1.03	36.60	1.45	14.72	6.0	2.92
1.04	34.15	1.50	13.98	7.0	2.50
1.05	32.25	1.55	13.32	8.0	2.18
1.06	30.72	1.60	12.74	9.0	1.94
1.07	29.42	1.70	11.73	10.0	1.74
1.08	28.29	1.80	10.88	15.0	1.16
1.09	27.31	1.90	10.16	20.0	0.87
1.10	26.45	2.00	9.54	25.0	0.70
1.15	23.12	2.50	7.36	30.0	0.58
1.20	20.83	3.00	6.02		
1.25	19.09	3.50	5.10		



**TECHTROL
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FREQUENCY DEVIATION

	.01 PPM 1 x 10 ⁻⁹ .000001%	.1 PPM 1 x 10 ⁻⁷ .00001%	1 PPM 1 x 10 ⁻⁶ .0001%	5 PPM 5 x 10 ⁻⁶ .0005%	10 PPM 1 x 10 ⁻⁵ .001%	100 PPM 1 x 10 ⁻⁴ .01%	1000 PPM 1 x 10 ⁻³ .1%	10,000 PPM 1 x 10 ⁻² .1%
10 MHz	.1 Hz	1 Hz	10 Hz	50 Hz	100 Hz	1 KHz	10 KHz	100 KHz
100 MHz	1 Hz	10 Hz	100 Hz	500 Hz	1 KHz	10 KHz	100 KHz	1 MHz
1 GHz	10 Hz	100 Hz	1 KHz	5 KHz	10 KHz	100 KHz	1 MHz	10 MHz
10 GHz	100 Hz	1 KHz	10 KHz	50 KHz	100 KHz	1 MHz	10 MHz	100 MHz

Techtrol Cyclonetics, Inc. — a woman-owned

small business—designs and manufacturers microwave frequency sources, crystal oscillators, multipliers, and related components.

In business for over 20 years, TCI specializes in ultra-low phase noise and high-stability devices. TCI serves both the military and commercial markets with its self-contained design and manufacturing facility, including:

- prototype or full-production quantities
- complete machine shop and fabrication facility
- MIL-spec approved quality assurance program
- component aging and testing laboratories
- computer aided electronic circuit design and simulation

TCI also offers consulting and engineering services. We pride ourselves on our ability to not only help our clients with their frequency source needs, but also to apply our expertise and knowledge to help develop new applications and solve systems performance problems.

TCI—through its Advanced Noise Technologies (ANT) Division—offers advanced noise signature instrumentation. We manufacture traceable AM and PM noise calibration standards as well as high-coherence radar exciters and specialized test instruments for a variety of applications. ANT personnel are also engaged in specialized low-noise measurement research projects, and we welcome the opportunity to discuss how we can apply these unique skills to your applications.



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