



Revised in January 2007

MXOH Series - High Frequency Low Phase-Noise OCXOs

Features

Very Low Phase-Noise Level:
 -155 dBc/Hz at 1kHz;
 -170 dBc/Hz floor
 Very Low Phase Jitter
 High Stability (up to $\pm 1 \times 10^{-8}$ over -30°C to 70°C)
 Operational Frequency up to 120 MHz
 Miniature Packaging

Typical Applications

Synthesizer Reference
 Microwave Communications
 Instrumentation
 Radar Reference

Packaging type R: 20.4 x 20.4 x 11.7 mm

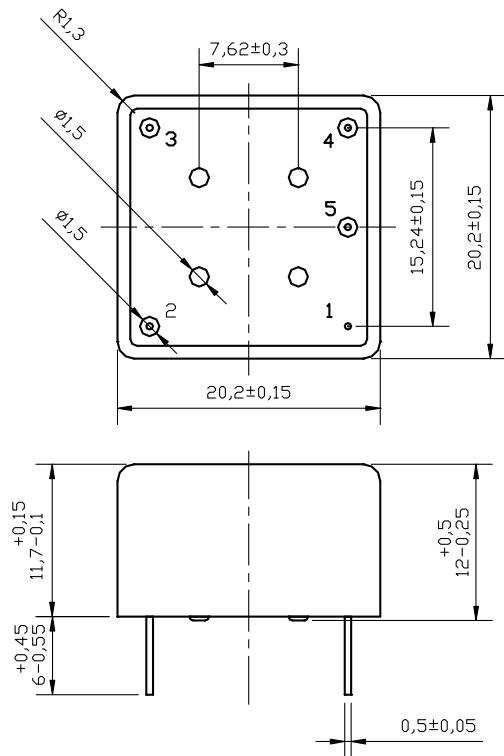


RoHS compliant

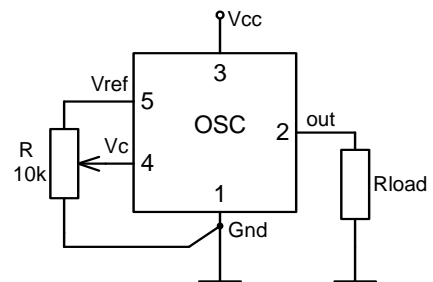
Description

The OCXOs of series MXOH operate with direct oscillation at the output frequency (no multiplication). Very low phase-noise level and absence of sub-harmonics in the oscillator spectra allowed substantial reduction of the phase jitter making the OCXO attractive for application a variety of UHF and microwave applications. Original oven design provides high temperature stability at small OCXO size and power consumption.

Physical Dimensions



Pin Connections



Pin	Signal
1	GND
2	RF Out
3	+V Supply
4	Electrical tuning
5	Reference voltage

Specification
MXOH Series - High Frequency Low Phase-Noise OCXOs

OCXO Specification	Sym.	Condition	Value			Unit	Note
			Min.	Typ.	Max.		
Operational Frequency Range	f_0		30		120	MHz	
RF output							
HCMOS/TTL compatible option	Load		10		5	kOhm pF	for 100MHz operational freq.
	H - level voltage	V_H	$V_{cc}=5$ or 12 V $V_{cc}=3.3$ V	3.9 2.4		V	
	L - level voltage	V_L			0.4	V	
	Rise & Fall time				2.5	ns	
	Duty cycle			45		55	
Sine-wave option	Level	L	$V_{cc}=5$ or 12 V	+5	+7	+11	dBm
	Load	R_L			50		Ohm
	Harmonics					-25	dBc
Subharmonics				none		dBc	
Power supply							
Voltage	V_{cc}		4.75	5.0	5.25	V	3.3V, 12V optional
Power consumption		Warm-up state Steady state, +25°C		3.2 1	3.5 1.2	W W	
Warm-up time	t_{up}	to $\Delta f/f=1e-7$, at +25°C			180	sec.	ref. to frequency after 30 min.
Frequency control*							
Control voltage range	V_c	$V_{cc}=5$ or 12 V $V_{cc}=3.3$ V	0 0		4.3 2.8	V V	Positive tuning slope - standard option
Tuning range			± 1			ppm	for 100MHz operational freq.
Reference voltage	V_{ref}	$V_{cc}=5$ or 12 V $V_{cc}=3.3$ V	4.10 2.70	4.30 2.80	4.40 2.90	V V	
Frequency stability							
vs. temperature		-30°C to +70°C, ref 25°C		± 30		ppb	See chart below
vs. supply voltage		ref Vcc typ.		± 3		ppb	
vs. acceleration		Worst direction			± 1	ppb/G	
SSB Phase noise		10 Hz		-95		dBc/Hz	for 100 MHz operational freq.
		100 Hz		-125			
		1 kHz		-153			
		10 kHz		-165			
		100 kHz		-168			
Allan variance		1 s		30		e-12	
Aging	per day	after 30 days of operation			± 3	ppb	Standard option S (see chart below)
	first year				± 0.3	ppm	
Environmental, mechanical conditions.							
Operating temperature range	-30°C to +70°C Standard. Other options - see chart below.						
Storage temperature range	-60°C to +90°C						
Humidity	Hermetically sealed						
Mechanical shock	Per MIL-STD-202, 30G half sine pulse, 11ms						
Vibration	Per MIL-STD-202, 10G swept sine 10 to 2000 Hz						
Soldering conditions	260°C 10s						

* No frequency control option – on customer requirement

Ordering code

MXOHR - E 17 S 5 S - 100 MHz
1 2 3 4 5

1	Temperature range
Code	Specification
A	0°C..50°C
B	-10°C..60°C
C	0°C..70°C
D	-20°C..70°C
E	-30°C..70°C
F	-40°C..80°C

2	Stability over temperature		
Code	Specification	Temperature range code available	
XZ	$\pm Xe-Z$		
59	$\pm 5e-9$	A..B	
18	$\pm 1e-8$	A..E	
28	$\pm 2e-8$	A..E	
58	$\pm 5e-8$	A..F	
17	$\pm 1e-7$	A..F	

3	Aging			
Code	Specification	Per day*	First year*	
L	Relaxed	5 ppb	0.5 ppm	
S	Standard	3 ppb	0.3 ppm	
P	Improved	2 ppb	0.2 ppm	

* For 100MHz operational freq.

4	Supply voltage	
Code	Specification	
3	3.3V \pm 5%	
5	5V \pm 5%	
2	12V \pm 10%	

5	Output	
Code	Specification	
T	HCMOS/TTL	
S	Sinewave	

Deviation of the parameters is possible on customers' requirements.