



Features

Low Power Consumption – to 0.15W at +25 °C
 14 DIP Compatible Packaging
 Very Low Phase-Noise Level to:
 -155 dBc/Hz at 1kHz
 -170 dBc/Hz floor
 Very Low Phase Jitter
 High Temperature Stability- to $\pm 5 \times 10^{-8}$ (-40...+85) °C
 Fast Warming up – to 45 s

Typical Applications

- Portable and Low Power
- Synthesizer Reference
 - Microwave Communications
 - Instrumentation
 - Radar Reference

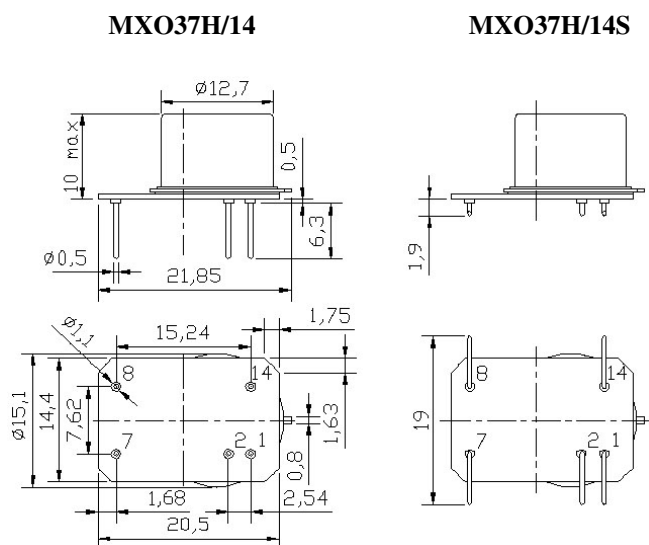
Packaging 14 DIP compatible



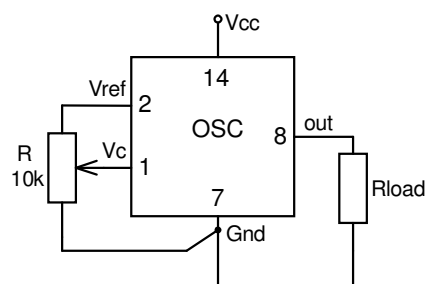
Description

The OCXOs of MXO37H series operate with direct oscillation at output frequency (no multiplication). Very low phase-noise and absence of sub-harmonics in the oscillator spectra allowed substantial reduction of phase jitter that makes the OCXO attractive for usage in UHF synthesizers and various microwave applications. The part uses the internal heating resonator technology (IHRT) with the oven system arranged inside TO-8 vacuum holder that results in miniature volume, very low power consumption and fast warming up of the OCXOs.

Physical Dimensions



Pin Connections



Pin	Signal
1	Electrical tuning
2	Reference voltage
7	GND
8	RF Out
14	+V Supply

Specification
MXO37H Series - High Frequency Vacuum-Sealed Miniature 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	$V_{cc}=5\text{ V}$ $V_{cc}=3.3\text{ V}$	3.8 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	$V_{cc}=5\text{ V}$	+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 optional
Power consumption			Warm-up state Steady state, +25°C		0.7 0.200	1.0 0.250	W	
Warm-up time		t_{up}	to $\Delta f/f=1e-7$, at +25°C			90	sec.	ref. to frequency after 30 min.
Frequency control*								
Control voltage range		V_c	$V_{cc}=5$ $V_{cc}=3.3\text{ V}$	0 0		4.2 2.8	V V	Positive tuning slope - standard option
Tuning range				± 1			ppm	for 100MHz operational freq.
Reference voltage		V_{ref}	$V_{cc}=5\text{ V}$ $V_{cc}=3.3\text{ V}$	4.10 2.70	4.20 2.80	4.30 2.90	V V	
Frequency stability								
vs. temperature			-40°C to +85°C, ref 25°C		± 50		ppb	See chart below
vs. supply voltage			ref Vcc typ.		± 5		ppb	
vs. acceleration			Worst direction			± 1	ppb/G	
SSB Phase noise				10 Hz	-95		dBc/Hz	for 100MHz 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		Non-condensing 95%						
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

MXO37H /14 - E 17 S 5 S - frequency, MHz
 1 2 3 4 5 6

1	Packaging type	
Code	Case	
/14	14 DIP	
/14S	14 DIP SMD	

2	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..85°C	

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

4	Aging			
Code	Requirements	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.

5	Supply voltage	
Code	Specification	
3	3.3V $\pm 5\%$	
5	5V $\pm 5\%$	

6	Output	
Code	Specification	
T	HCMOS/TTL	
S	Sinewave	

Deviations of the parameters are possible on Customer's requirements.

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