Magic Xtal Ltd.

Only Magic Technologies!

MXO37H/14

Revised in March 2015

High frequency high stability low power miniature OCXO

Features

Very low power consumption - to 0.15W at +25°C
14 DIP compatible sizes and pins-out
Extended to 300 MHz frequency range (multiplication is used)
Up to 10 ppb temperature stability in (-40...+85)°C at 100 MHz
Very low aging – to 50 ppb/year at 100 MHz
Low Allan variance, 1s 1x10-11
Fast warming up – to 60 s typical, 15s - optionally

Typical Applications

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

Packaging 14 DIP compatible

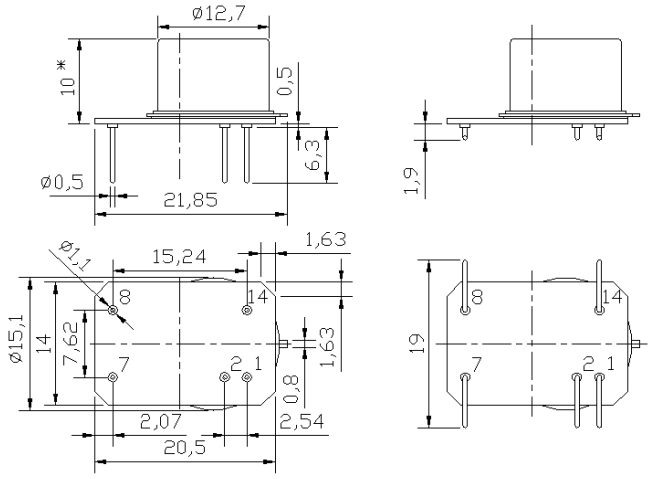
RoHS compliant

Description

The MXO37H/14 series like the other MXO37 series utilizes the internally heated resonator technology (IHR) providing very low power consumption, miniature sizes and fast warming up. Usage of the internal multiplication of frequency (by 3 or 5) enables extension of the operational frequencies up to 300 MHz and improvement as compared to the MXO37 series of the temperature stability and aging rate in 30-150 MHz range.

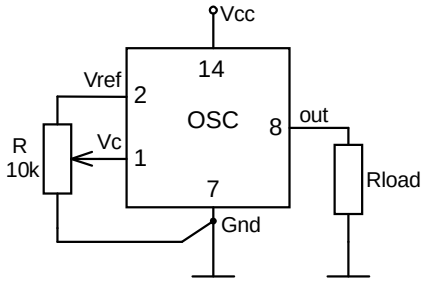
Physical Dimensions

MXO37H/14 **MXO37H/14S**



* - 9mm height is available on special request

Pin Connections



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

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Customers in China and HongKong please contract our distributor:ShangHai QiZhong Electronic Technology Co.,Ltd

Specification

High frequency high stability low power miniature OCXO

OCXO Specification		Sym.	Condition	Value Min.	Value Typ.	Value Max.	Unit	Note
Operational Frequency Range		f_0		30		300	MHz	Frequency multiplication
RF output								
HCMOS/ TTL compatible option	Load			10		5	kOhm pF	for 100MHz operational freq.
	H - level voltage	V_H	V_{cc}=5 V V_{cc}=3.3 V	3.8 2.4			V	
	L - level voltage	V_L				0.4	V	
	Rise & Fall time					2.5	ns	for 100MHz operational freq.
	Duty cycle			45		55	%	
Sine-wave option	Level	L	V_{cc}=5 V		+7	+11	dBm	
	Load	R_L			50		Ohm	
	Harmonics					-25	dBc	
Subharmonics						-40	dBc	
Power supply								
Voltage		V_{cc}		4.75	5.0	5.25	V	3.3V optional
Power consumption			Warm-up state Steady state, +25ºC		0.7 0.150		W W	
Warm-up time		t_{up}	to Δf/f=1e-7, at +25ºC	15	60		sec.	ref. to frequency after 10 min.
Frequency control*								
Control voltage range		V_c	V_{cc}=5 V_{cc}=3.3 V	0 0		4.2 2.8	V V	Positive tuning slope - standard option
Tuning range				±0.5			ppm	for 100MHz operational freq.
Reference voltage		V_{ref}	V_{cc}=5V V_{cc}=3.3 V	4.10 2.70	4.20 2.80	4.30 2.90	V V	
Frequency stability								
vs. temperature			-40ºC to +85ºC, ref 25ºC	±10	±50		ppb	For 100 MHz, see chart below
vs. supply voltage			ref Vcc typ.		±5		ppb	
vs. acceleration			Worst direction	±0.5		±1	ppb/G	
SSB Phase noise			10 Hz	-100			dBc/Hz	for 100MHz operational freq.
			100 Hz	-125				
			1 kHz	-145				
			10 kHz	-155				
			100 kHz	-160				
Allan variance			1 s	10	20		e-12	
Aging	per day		after 30 days of operation		±1		ppb	for 100MHz standard option (see chart below)
	first year				±0.1		ppm	

Environmental, mechanical conditions.	
Operating temperature range	See chart below.
Storage temperature range	-60ºC to +90ºC
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
Washing conditions	Washing with water or alcohol based detergent allowed only with final enough drying stage
Soldering conditions	Hand solder only – not reflow compatible. 260ºC 10s (on pins)

* No frequency control option – on customer requirement

Ordering code

MXO37H	/14	-	E	17	C	5	S	-	100 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	0ºC..50ºC
B	-10ºC..60ºC
C	0ºC..70ºC
D	-20ºC..70ºC
E	-30ºC..70ºC
F	-40ºC..85ºC
G	-55ºC..85ºC

3	**Stability over temperature**		
Code	*Specification*	*Temperature range code available*	
		for 100 MHz (mult. by 5)	*for 300 MHz (mult. by 3)*
XZ	±Xe-Z		
59	±5e-9	A	-
18	±1e-8	A…F	A
28	±2e-8	A…G	A…E
58	±5e-8	A…G	A…G
17	±1e-7	A…G	A…G

4	**Aging per day/year, ppb/ppm**	
Code	*Specification*	
B	0.2/0.02	For frequency range of 30-150 MHz
Z	0.3/0.03	
C	0.5/0.05	
D	1/0.1	
E	1.5/0.15	
F	2/0.2	For frequency range of 150-300 MHz
G	3/0.3	
H	5/0.5	

5	**Supply voltage**
Code	*Specification*
3	3.3V±5%
5	5V±5%

6	**Output**
Code	*Specification*
T	HCMOS/TTL
S	Sinewave

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