Magic Xtal Ltd

Only Magic Technologies!

MXO37H/R

Low Power Miniature OCXO

Revised in March 2011

Features

Low power consumption - 0.15W at +25^{0}C
Up to 130MHz fundamental frequency operation
Fast warming up - to 60 s
Low Phase Noise level (-168 dBc/Hz, TYP, floor)
Hermetically Sealed steel package

Typical Applications

Portable Wireless Communication
Mobile Test equipment
Synthesizers
Battery Powered Application

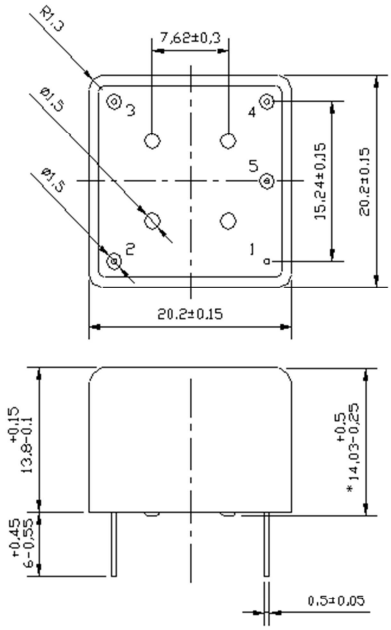
Packaging type R: 20.4 x 20.4 x 14 mm

RoHS compliant

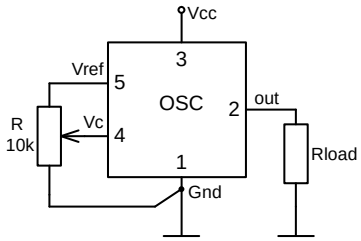
Description

The MXO37H/R series utilizes the internal heated resonator technology (IHR) resulting in very small oscillator volume (5 ccm) and less than 0.15W power consumption at as high as 50 ppb temperature stability and low phase-noise level. Being enclosed in hermetically sealed steel packaging the MXO37H/R model is intended for employment in harsh environmental conditions (100% humidity, high or low pressure, etc.) and are excellent to use in various portable or (and) battered systems instead of conventional type OCXOs or high-end DTCXOs.

Physical Dimensions



Pin Connections



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

YOU ARE WELCOME TO CONTACT US: By mail: Second Teplovoznaya Street, build. 2, Omsk, Russia, ZIP code: 644039. P.O.Box : 2313, ZIP code: 644046, Omsk, Russia. By Fax & Telephone: +7 (3812) 433-967 By E-mail: mxl@mxtal.ru Our website: www.magicxtal.com

Specification

Low Power Miniature OCXO

Parameter		Sym.	Conditions	Value Min.	Value Typ.	Value Max.	Unit	Note
Frequency range		f_0		30		130	MHz	
RF output								
HCMOS (TTL) option	Load			10		5	kOhm pF	For 100MHz frequency
	H-level voltage	V_H		3.8			V	For 5V
	L-level voltage	V_L				0.4	V	
	Duty cycle			45		55	%	
	Rise/Fall time					2.5	ns	for 100 MHz operational frequency
Sine-wave option	Level	L		+5	+7	+11	dBm	
	Load	R_L			50		Ohm	
	Harmonics level					-25	dBc	
Sub-harmonics level					none			
Power supply								
Voltage		V_{cc}		4.75	5.0	5.25	V	3.3V optional
Power consumption			Warm-up state Steady state, +25єC		0.7 0.15	 0.25	W W	
Warm-up time		t_{up}	to Δf/f=1e-7, at +25єC		60	90	s	ref. to frequency after 30 min.
Frequency control*								
Control voltage range		V_c		0 0		4.2 2.8	V	For 5V Tuning slope - positive For 3.3VTuning slope - positive
Tuning range*				±0.5	±1.0		ppm	
Reference voltage		V_{ref}		4.1 2.7	4.2 2.8	4.3 2.9	V	For 5V For 3.3V
Frequency stability								
vs. temperature			-40єC to +85єC, ref 25єC		±0.1		ppm	See chart below
vs. supply voltage			ref Vcc typ.		±5		ppb	
SSB Phase noise			10 Hz		-95		dBc/Hz	tor 100MHz operational frequency
			100 Hz		-125			
			1k Hz		-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	-40 to +85єC Standard. Other options - see chart below.
Storage temperature range	-60єC to +95єC
Humidity	Hermetically sealed
Mechanical shock	Per MIL-STD-202, 30G half sine pulse, 11ms
Vibration	Per MIL-STD-202, 5G swept sine 10 to 2000 Hz
Soldering conditions	260єC 10s

*No frequency control option – on customer requirement

Ordering code

MXO37H/R	-	F	27	S	5	S	100MHz
		1	2	3	4	5	6

1	Temperature range
Code	Specification
A	0^0C…50^0C
B	-10^0C…60^0C
C	0^0C…70^0C
D	-20^0C…70^0C
E	-30^0C…70^0C
F	-40^0C…85^0C

2	Stability over temperature	
Code	Specification	Temperature range code available
XY	±Xe-Y	
38	±3e-8	A….B
58	±5e-8	A….E
17	±1e-7	A….F
27	±2e-7	A….F
37	±3e-7	A….F

3	Aging		
Code	Specification	Per day**	First year**
L	Relaxed	$5x10^{-9}$	$0,5x10^{-6}$
S	Standard	$3x10^{-9}$	$0,3x10^{-6}$
P	Improved	$2x10^{-9}$	$0,2x10^{-6}$

**Aging of 100MHz oscillator

4	Supply voltage
Code	Specification
3	3,3V±5%
5	5V±5%

5	Output
Code	Specification
T	HCMOS/TTL
S	Sine wave

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

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