Magic Xtal Ltd

Only magic technologies!

MXODR

Revised in September 2011

Ultra-miniature DOCXOs

Features

Ultra Miniature Packaging
High Stability - to ± 2x10^{-10} over (-10 to +60)℃
Low Aging - to ± 2x10^{-10}/day, 3x10^{-8}/year
Low Phase Noise level (-163 dBc/Hz, TYP, floor)

Typical Applications

Rubidium Standard Replacement
GPS Receivers
Instrumentation
Stratum 2 Clock Systems

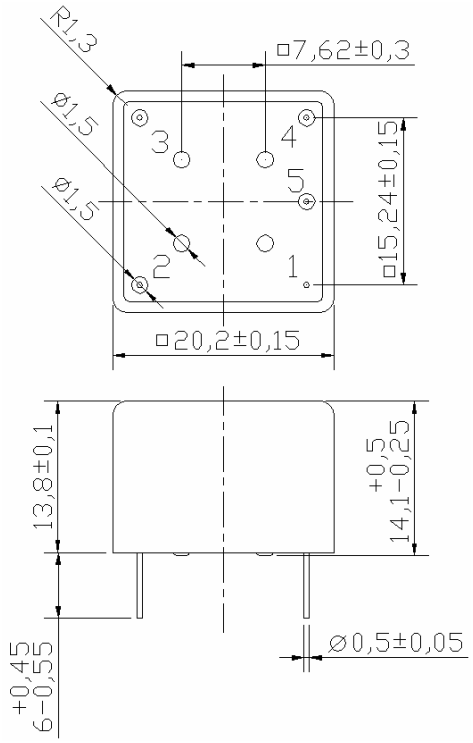
Packaging type R: 20.4 x 20.4 x 14.1 mm

RoHS compliant

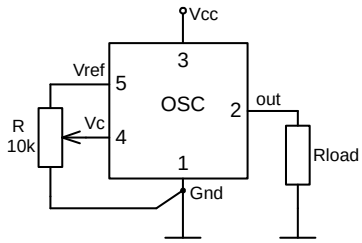
Description

The MXODR series use combines advantageous of the double-oven and internal heated resonator technologies (IHR) resulting in smallest in the world volume (6 cc) and less than 1W power consumption at 0.2 ppb temperature stability and 0.2 ppb/day aging (for 10MHz). The MXODR oscillators are excellent to use in Stratum II clock system, instrumentations, and other high-end applications. The double-oven OCXOs are produced for operational frequency range from 8 to 60 MHz.

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, 433-968 By E-mail: mxl@mxtal.ru Our website: www.magicxtal.com

Ultra Stable Miniature OCXOs

Specification

Parameter		Sym.	Conditions	Value			Unit	Note
				Min.	Typ.	Max.		
Frequency range		f_0		8		60	MHz	
RF output								
HCMOS (TTL) option	Load			10		15	kOhm pF	
	H-level voltage	V_H		3.6			V	
	L-level voltage	V_L				0.4	V	
	Duty cycle			45		55	%	
	Rise/Fall time					10	ns	for 10 MHz operational frequency
Sine-wave option	Level	L		+6	+8	+10	dBm	
	Load	R_L			50		Ohm	
	Harmonics level					-25	dBc	
Sub-harmonics level			Operational frequency ≤25 MHz Operational frequency >25 MHz		none	 -40	 dBc	 Frequency multiplier used
Power supply								
Voltage		V_{cc}		4.75	5.0	5.25	V	3.3V optional
Power consumption			Warm-up state Steady state, +25ºC		 1.25	4.5 1.5	W W	
Warm-up time		t_{up}	to Δf/f=1e-8, at +25ºC			5	min	ref. to frequency after 30 min.
Frequency control*								
Control voltage range		V_c		0		4.2	V	Tuning slope - positive
Tuning range					±0.5		ppm	
Reference voltage		V_{ref}		4.05	4.2	4.35	V	2.8V for Vcc=3.3V
Frequency stability								
vs. temperature			-10ºC to +60ºC, ref 25ºC			±0.2	ppb	See chart below
vs. supply voltage			ref Vcc typ.			±0.2	ppb	
SSB Phase noise			1 Hz		-95		dBc/Hz	tor 10MHz operational frequency
			10 Hz		-125			
			100 Hz		-145			
			1 kHz		-155			
			10 kHz		-163			
			100 kHz		-163			
Allan variance			1 s		5		e-12	
Aging	per day		after 30 days of operation			±0.5	ppb	Standard option **S** (see chart below)
	first year					±50	ppb	

Environmental, mechanical conditions.	
Operating temperature range	-10ºC to +60ºC Standard. Other options - see chart below.
Storage temperature range	-60ºC to +90ºC
Humidity	Hermetically sealed
Mechanical shock	Per MIL-STD-202, 30G half sine pulse, 11ms
Vibration	Per MIL-STD-202, 5G swept sine 10 to 1000 Hz
Soldering conditions	260ºC 10s

* No frequency control option – on customer requirement

Ordering code

MXODR	-	B	50	S	5	T	-	10 MHz
		1	2	3	4	5		

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

2	Stability over temperature	
Code	*Specification*	*Temperature range code available*
XZ	±Xe-Y	
20	±2e-10	A…B
50	±5e-10	A…E
39	±3e-9	A…F

3		Aging	
Code	*Specification*	*Per day**	*First year**
S	Standard	0.5 ppb	50 ppb
P	Improved	0.2 ppb	30 ppb

* for 10 MHz operational freq.

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

5	Output
Code	*Specification*
T	HSMOS/TTL
S	Sinewave

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

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