



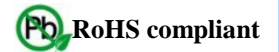
Features

14DIP Compatible 8mm Height Packaging
 Very Low Power Consumption: 0.15W at +25°C
 High Stability: up to $\pm 5 \times 10^{-9}$ over -30°C to 70°C
 Fast Warming-up: 60 s typical
 Low Phase Noise: -168 dBc/Hz floor at 100MHz
 Low Aging: 2e-10/day, 2e-8/year
 Wide Frequency range: 8 – 120 MHz

Typical Applications

Portable Wireless Communications
 Mobile Test equipment
 Synthesizers
 Battery Powered Application

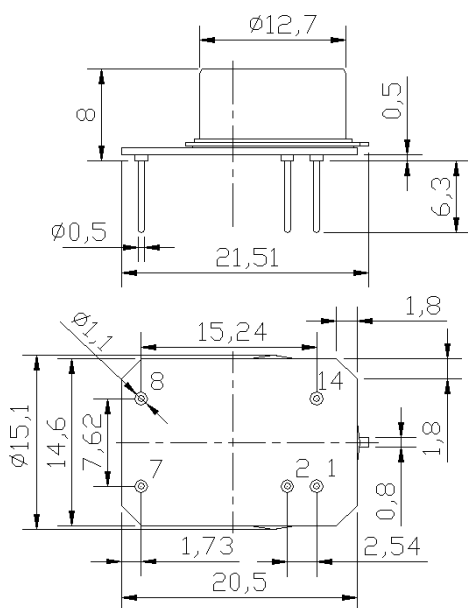
8mm height 14 DIP compatible



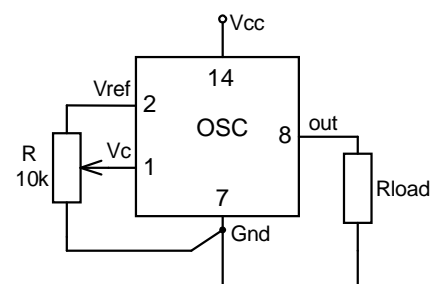
Description

The MXO37 series utilizes the internal heating resonator (IHR) technology incorporating the whole oven system together with the crystal plate inside the TO-8 vacuum holder. Such OCXO concept results in radical reduction of its volume, power consumption and warm-up time. In spite of the miniature sizes and extremely low power consumption such oscillators exhibit excellent temperature stability, low phase-noise and aging rate being at the level of high-end OCXOs using conventional oven designs.

Physical Dimensions



Pin Connections



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

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Specification
Ultra – Low Power Miniature Low Profile OCXO

Parameter	Sym.	Conditions	Value			Unit	Note	
			Min.	Typ.	Max.			
Frequency range	f_0		8		120	MHz		
RF output								
HCMOS	Load		10		10 / 5	kOhm pF	10MHz / 100MHz op. 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		
	Duty cycle			45		55	%	
	Rise/Fall time					10 / 3	ns	10MHz / 100MHz op. freq.
Sub-harmonics level				none				
Power supply								
Voltage	V_{cc}		4.75	5.0	5.25	V	3.3V available	
Power consumption		Warm-up state Steady state, +25°C		0.7 0.150		W W		
Warm-up time	t_{up}	to $\Delta f/f=1e-7$, at +25°C		60		s	ref. to frequency after 15 min	
Frequency control								
Control voltage range	V_c	$V_{cc}=5\text{ V}$ $V_{cc}=3.3\text{ V}$	0 0		4.2 2.8	V V	Tuning slope - positive	
Tuning range			± 0.5	± 1		ppm		
Reference voltage	V_{ref}	$V_{cc}=5\text{ V}$ $V_{cc}=3.3\text{ V}$	4.1	4.2	4.3	V		
			2.7	2.8	2.9	V		
Frequency stability								
vs. temperature		-40°C to +85°C, ref 25°C	± 10			ppb	See chart below	
vs. supply voltage		ref V_{cc} typ.		± 2		ppb		
vs. acceleration		Worst direction			± 1	ppb/G		
SSB Phase noise			1 Hz	-97 / -	-92 / -		dBc/Hz	For 10MHz/100 MHz operational frequency.
			10 Hz	-127 / -95	-122/-90			
			100 Hz	-152 / -125	-145/-120			
			1 kHz	-162 / -153	-155/-150			
			10 kHz	-166 / -165	-163/-162			
			100 kHz	-166 / -168	-163/-165			
Aging	per day	after 30 days of operation			± 0.5	ppb	10MHz op. freq. See chart below	
	first year				± 0.05	ppm		
Environmental, mechanical conditions.								
Operating temperature range	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, 5G 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. 260°C 10s (on pins)							

Ordering code

MXO37	/14L	-	F	58	C	5	-	10 MHz
			1	2	3	4		

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..85°C
G	-55°C..85°C

2	Stability over temperature			
Code	Specification	Temperature range code available		
		10MHz	100MHz	
XZ	$\pm Xe-Z$			
59	$\pm 5e-9$	A...E		
18	$\pm 1e-8$	A...G	A	
28	$\pm 2e-8$	A...G	A...B	
38	$\pm 3e-8$	A...G	A...E	
58	$\pm 5e-8$	A...G	A...G	
17	$\pm 1e-7$	A...G	A...G	

3	Aging per day/year, ppb/ppm	
Code	Specification	
B	0.2/0.02	≤ 10 MHz
Z	0.3/0.03	
C	0.5/0.05	≤ 20 MHz
D	1/0.1	≤ 40 MHz
E	1.5/0.15	≤ 50 MHz
F	2/0.2	≤ 100 MHz
G	3/0.3	≤ 120 MHz
H	5/0.5	

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

Deviation of the parameters is possible on customers' requirements.

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