

<b>Specification</b>	<b>AXIOM37-14LN</b>	Rev.: 1	Date: 2015-09-18
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**Oscillator type: Low Noise Low Power OCXO in DIL14 package**  
**Magic Xtal Model MXO37/14P**

Parameter	min.	typ.	max.	Unit	Condition
<b>Frequency range</b>	8		150	MHz	
<b>Standard frequencies</b>	10.000			MHz	
<b>Frequency stability</b>					
Initial tolerance @ +25°C		±100		ppb	V <sub>c</sub> @ VREF/2
vs. operating temperature range	Option 2 & 3 See tables 1 & 2				steady state
vs. supply voltage variation (pushing)		±2		ppb	V <sub>s</sub> ±5 %
vs. load change (pulling)		±2		ppb	Load ±5 %
Long term (aging) per day, after 30 days operation (Note 2)			±2	ppb	< 50 MHz
			±5	ppb	≥ 50 MHz
Long term (aging) 1 <sup>st</sup> year, after 30 days operation (Note 2)			±150	ppb	< 50 MHz
			±500	ppb	≥ 50 MHz
<b>Frequency adjustment range</b>					
Electronic Frequency Control (EFC)	±0.5	±1.0		ppm	
EFC voltage V <sub>c</sub>	0	VREF/2	VREF	V	
EFC slope (Δf / ΔV <sub>c</sub> )	Positive				
EFC input impedance	100			kΩ	
<b>RF output</b>					
Signal waveform	HCMOS				
Load	10			pF	±10%
Symmetry (duty cycle)	45		55	%	@ V <sub>s</sub> /2
Rise & decay time			10	ns	@ 10% ~ 90% V <sub>s</sub>
Spurious			-80	dBc	
Warm-up time @ +25°C (Note 3)		60		sec	Δf <sub>final</sub> /f <sub>0</sub> < ±0.1 ppm
Phase noise @ 10.000 MHz		-95		dBc/Hz	@ 1 Hz
		-125		dBc/Hz	@ 10 Hz
		-145		dBc/Hz	@ 100 Hz
		-155		dBc/Hz	@ 1 kHz
		-165		dBc/Hz	@ 10 kHz
		-168		dBc/Hz	@ 100 kHz
G-Sensitivity			±1	ppb/g	
<b>Short term stability (Allan deviation)</b>		2·10 <sup>-11</sup>			τ = 1 s
<b>Reference voltage VREF output</b>		2.8		V	Option 1 = "33"
		4.2		V	Option 1 = "50"
<b>Supply voltage V<sub>s</sub></b>	3.15	3.3	3.45	V	Option 1 = "33"
	4.75	5.0	5.25	V	Option 1 = "50"
<b>Power consumption (steady state)</b>		0.15		W	@ +25°C
<b>Power consumption (warm-up)</b>		0.70		W	
<b>Enclosure (see drawing) (LxWxH)</b>	20.6x15.2x10.0 max.			mm	(Note 4)
<b>Weight</b>			15	g	
<b>Packing</b>	Palette				

**Notes:**

1. Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise stated
2. Lower aging rates on request
3. Frequency referred to f<sub>final</sub> at 10 minutes after switch-on
4. Package height of 8 and 9 mm and SMD version available on request

### Absolute Maximum Ratings

Parameter	min.	max.	Unit	Condition
Supply Voltage $V_S$	-0.5	$V_S + 10\%$	V	$V_S$ to GND
Control Voltage $V_C$	-0.5	5	V	$V_C$ to GND
Storage Temperature	-60	+90	°C	

### Frequency stability vs. temperature

Option 2	Stability [ppb]
03	±3
05	±5
10	±10
20	±20
30	±30
50	±50

Table 1

Lower Temperature		Upper Temperature	
Option 3	T [°C]	Option 3	T [°C]
0	0	A	+50
1	-10	B	+60
2	-20	C	+70
3	-30	D	+75
4	-40	E	+80
		F	+85

Table 2

Standard: "1B" = -10°C to +60°C

Note: Not all combinations of stability and temperature range may be available. Please consult factory.

### Ordering Code

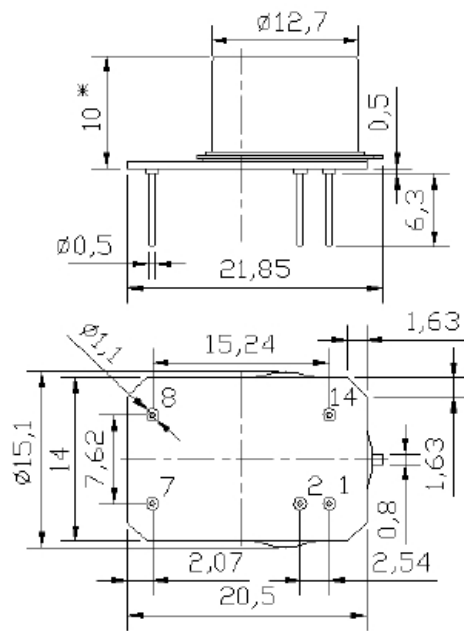
Model	Option 1 [Supply Voltage]	Option 2 [Stability]	Option 3 [Temperature range]	Revision	Frequency [MHz]
AXIOM37-14LN	33 or 50	Table 1	Table 2	Rev.1	10.000

Example: AXIOM37-14LN-50-05-1B\_Rev.1 – 10.000 MHz

### Handling and Testing

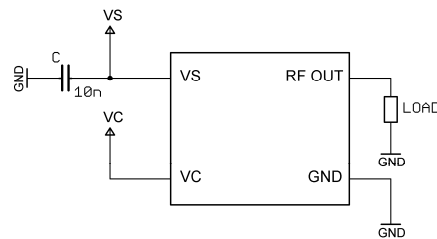
Parameter	Procedure		Source
Handling and Testing	Application Note AXAN-011		
Processing	Application Note AXAN-012		
Parameter	Procedure		Condition
Electrostatic discharge (ESD)			
THD devices	IEC60749-26	HBM	2000 V
SMD devices	IEC60749-27	MM	200 V
Washable	☒ Yes ☐ No		
RoHS- Compliant	☒ Yes ☐ No		

## Enclosure drawing



## Pin connections:

Pin #	Symbol	Function
1	V <sub>C</sub>	Control Voltage (EFC)
2	VREF	Reference voltage
7	GND	Ground
8	RF OUT	RF Output
14	V <sub>S</sub>	Supply Voltage



\* See Application Note AXAN-011

## Environmental conditions

Test	IEC 60068 Part ...	IEC 60679-1 Clause	MIL-STD-202G Method	MIL-STD-810F Method	MIL-PRF-55310D Clause	Test conditions (IEC)
Sealing tests (if applicable)	2-17	5.6.2	112E		3.6.1.2	Gross leak: Test Qc, Fine leak: Test Qk
Solderability	2-20	5.6.3	208H		3.6.52	Test Ta Method 1
Resistance to soldering heat	2-58		210F		3.6.48	Test Td <sub>1</sub> Method 2 Test Td <sub>2</sub> Method 2
Shock*	2-27	5.6.8	213B	516.4	3.6.40	Test Ea, 3 x per axes 100g, 6 ms half-sine pulse
Vibration, sinusoidal*	2-6	5.6.7.1	201A 204D	516.4-4	3.6.38.1 3.6.38.2	Test Fc, 30 min per axes, 10 Hz - 55 Hz 0,75mm; 55 Hz - 2 kHz, 10g
Vibration, random*	2-64	5.6.7.3	214A	514.5	3.6.38.3 3.6.38.4	Test Fdb
Endurance tests			108A			
- ageing		5.7.1			4.8.35	30 days @ 85°C, OCXO @25°C
- extended aging		5.7.2				1000h, 2000h, 8000h @85°C

## Revision History

Rev.	Drawing	Date [dd.mm.yyyy]	Remarks	Author	Checked
1	D0	22.04.2015	First issue	HH	HH
1	D1	18.09.2015	Editorial changes	HH	HH