

Specification	AXIOM37-8LG	Rev.: 1	Date: 2016-02-29
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Oscillator type: Ultra-Low Power Miniature OCXO with HCMOS Output
Low G-sensitivity and high mechanical robustness
Produced in association with Magic Xtal – Model MXO37/8D

Parameter	min.	typ.	max.	Unit	Condition
Frequency range	8		100	MHz	
Standard frequencies	10.000 / 100.000			MHz	
Frequency stability					
Initial tolerance @ +25°C		±100		ppb	
vs. operating temperature range	Option 2 & 3 See tables 1 & 2				steady state
vs. supply voltage variation (pushing)		±2		ppb	V _S ±5%
vs. load change (pulling)		±2		ppb	Load ±10 %
Long term (aging) per day, after 30 days operation (Note 2)			±2 ±5	ppb Ppb	< 50 MHz ≥ 50 MHz
Long term (aging) 1 st year, after 30 days operation (Note 2)			±200 ±500	ppb ppb	< 50 MHz ≥ 50 MHz
Frequency adjustment range					
Electronic Frequency Control (EFC)	±0.5	±1.0		ppm	
EFC voltage V _C	0		VREF	V	
EFC slope (Δf / ΔV _C)	Positive				
RF output					
Signal waveform	HCMOS				
Load	10			pF	±10%
Symmetry (duty cycle)	45		55	%	@ V _S /2
Rise & decay time			10	ns	@ 10% ~ 90% V _S
Warm-up time @ +25°C Δf _{final} /f ₀ < ±0.1 ppm (Note 3)		70 60		sec sec	Option 1 = "33" Option 1 = "50"
Phase noise @ 10.000 MHz		-97 -127 -152 -162 -166		dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	@ 1 Hz @ 10 Hz @ 100 Hz @ 1 kHz @ 10 kHz
G-sensitivity		0.5	1.0	ppb/g	Worst axis
Reference voltage VREF output		2.8 4.2		V V	Option 1 = "33" Option 1 = "50"
Supply voltage V_S	3.15 4.75	3.3 5.0	3.45 5.25	V V	Option 1 = "33" Option 1 = "50"
Power consumption (steady state)		0.23		W	@ +25°C
Power consumption (warm-up)		1.0		W	
Enclosure (see drawing) (LxWxH)	15.1x15.1x10.5 max.			mm	
Weight			10	g	
Packing	Palette				

Notes:

1. Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise state
2. Lower aging rates on request
3. Typical values for 10 MHz. Frequency referred to f_{final} at 15 minutes after switch-on

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	10	V	V_C to GND
Storage Temperature	-60	+90	°C	

Frequency stability vs. Temperature

Option 2	Stability [ppb]
05	±5
10	±10
20	±20
30	±30
50	±50
100	±100

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

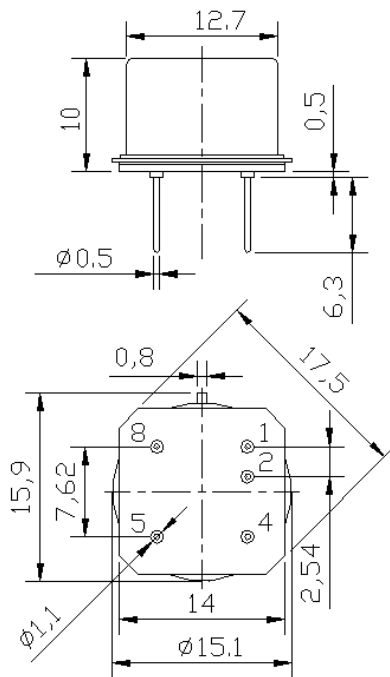
Model	Option 1 [Supply Voltage]	Option 2 [Stability]	Option 3 [Temperature range]	Revision	Frequency [MHz]
AXIOM37-8LG	33 or 50	Table 1	Table 2	Rev.1	10.000

Example: AXIOM37-8LG-50-05-1B_Rev.1 – 10.000 MHz

Handling and Testing

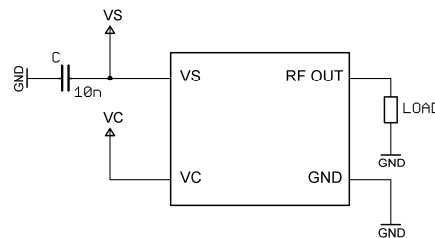
Parameter	Procedure	Source
Handling and Testing	Application Note AXAN-011	www.axtal.com
Processing	Application Note AXAN-012	www.axtal.com
Solderability	Hand soldering required. Reflow soldering not allowed !	
Parameter	Procedure	Condition
Electrostatic discharge (ESD)		
THD devices	IEC60749-26	HBM 2000 V
SMD devices	IEC60749-27	MM 200 V
Washable	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
RoHS- Compliant	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Enclosure drawing



Pin connections:

Pin #	Symbol	Function
1	V _C	Control Voltage (EFC)
2	VREF	Reference voltage
4	GND	Ground
5	RF OUT	RF Output
8	V _S	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-55310E 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 Resistance to soldering heat	2-20	5.6.3	208H		3.6.52	Test Ta Method 1
Shock*	2-27	5.6.8	213B	516.4	3.6.40	Test Ea, 3 x per axes 500g, 1 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 1.5mm; 55 Hz - 2 kHz, 30g
Vibration, random*	2-64	5.6.7.3	214A	514.5	3.6.38.3 3.6.38.4	Test Fdb
Humidity			103B		-	Non-condensing @ 95% RH, cond. B
Endurance tests - ageing - extended aging		5.7.1 5.7.2	108A		4.8.35	30 days @ 85°C, OCXO @25°C 1000h, 2000h, 8000h @85°C

Revision History

Rev.	Drawing	Date [dd.mm.yyyy]	Remarks	Author	Checked
1	D0	22.04.2015	First issue – Replacement of AXIOM37-8D	HH	HH
1	D1	18.09.2015	Editorial changes	HH	HH
1	D2	29.02.2016	Editorial changes	HH	HH