

Specification	AXIOM75LG	Rev.: 1	Date: 2016-09-09
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Oscillator type: Ultra-Low Phase Noise OCXO with Low G-Sensitivity

Parameter	min.	typ.	max.	Unit	Condition
Frequency Range	80		125	MHz	
Standard frequencies	100.000/120.000			MHz	
Frequency stability					
Initial tolerance @ +25°C			±300	ppb	V _C @ VREF/2
vs. operating temperature range	Option 2 & 3 See tables 2 & 3				steady state
vs. supply voltage variation (pushing)			±10	ppb	V _S ±5%
vs. load change (pulling)			±5	ppb	R _L ±5%
Long term (aging) per day		±1	±2	ppb	after 30 days operation
Long term (aging) 1 st year		±100	±200	ppb	after 30 days operation
Frequency adjustment range					
Electronic Frequency Control (EFC)	±1	±2		ppm	
EFC voltage V _C	0	VREF/2	VREF	V	
EFC slope (Δf / ΔV _C)	Positive				
EFC input impedance	100			kΩ	
RF output					
Signal waveform	Sine wave				
Load R _L	50			Ω	±5%
Output level (Note 2)	+7			dBm	
Harmonics			-30	dBc	
Spurious			-90	dBc	
Warm-up time		3	5	min	Δf _{final} /f ₀ < ±0.1 ppm
Phase noise @ 100 MHz (Note 3)			-100 -130 -160 -170 -175	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	@ 10 Hz @ 100 Hz @ 1 kHz @ 10 kHz @ ≥100 kHz
G-Sensitivity (Note 4)	See table 1				Option 1
Reference voltage VREF output (Note 5)		10.0		V	
Supply voltage V_S (Note 5)	11.4	12.0	12.6	V	
Current consumption (steady state)			150	mA	@ +25°C (Note 6)
Current consumption (warm-up)			350	mA	(Note 6)
Enclosure (see drawing) (LxWxH)	25.8x25.8x12.7 max.			mm	IEC 60679-3 CO 43
Weight			20	g	
Packing	Palette				

Notes:

1. Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise stated
2. Other output level on request
3. For other frequencies please consult factory
4. Measured with flat random vibration profile (0.01 g²/Hz, 20 Hz ~ 2000 Hz)
5. Other supply and reference voltage on request
6. May be higher for wide operating temperature range

Absolute Maximum Ratings

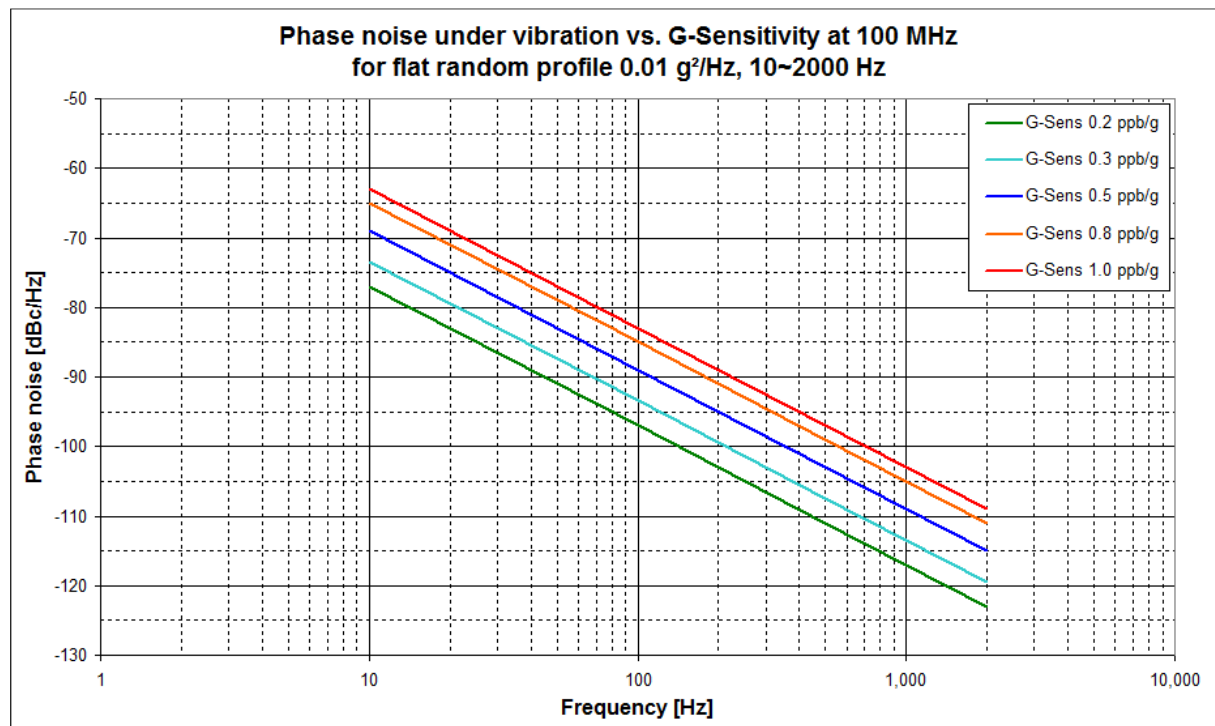
Parameter	min.	max.	Unit	Condition
Supply Voltage V_S	-0.5	$V_S + 10\%$	V	V_S to GND
Control Voltage V_C	-0.5	15	V	V_C to GND
Storage Temperature	-55	+125	°C	

G-Sensitivity:

Option 1	G-Sensitivity worst axis	Unit
A	0.8	ppb/g
B	0.5	ppb/g
C	0.4	ppb/g
D	0.3	ppb/g
E	0.25	ppb/g

Table 1

Phase noise vs. G-Sensitivity at 100 MHz



Note: Double PSD results in 3 dB worse phase noise

Frequency stability vs. temperature

Option 2	Stability [ppb]
05	±5
10	±10
25	±25
50	±50
100	±100
200	±200

Table 2

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
5	-55	F	+85

Table 3

Standard: "1B" = -10°C to +60°C

Temperature range [°C]	Frequency stability [Option 2]					
	05	10	25	50	100	200
0 ~ +50	O	X	X	X	X	X
-10 ~ +60	O	X	X	X	X	X
-20 ~ +70	O	X	X	X	X	X
-30 ~ +70	O	O	X	X	X	X
-40 ~ +75	-	O	X	X	X	X
-40 ~ +85	-	-	O	X	X	X
-55 ~ +85	-	-	O	X	X	X

Table 4 "Availability"

X = available, O = available on request, - not available

Ordering Code

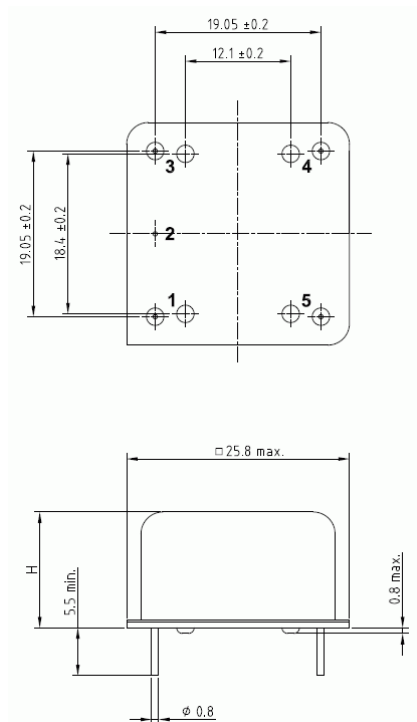
Model	Option 1 [G-Sensitivity]	Option 2 [Stability]	Option 3 [Temperature range]	Revision	Frequency [MHz]
AXIOM75LG	Table 1	Table 2	Table 3	Rev.1	100.000

Example: AXIOM75LG-B-25-1B_Rev.1 – 100.000 MHz

Handling and Testing

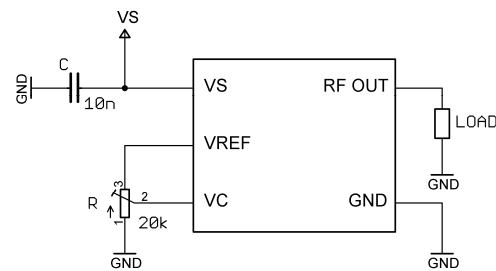
Handling and Testing			
Parameter	Procedure		Source
Handling and Testing	Application Note AXAN-011		www.axtal.com
Processing	Application Note AXAN-012		www.axtal.com
Parameter	Procedure		Condition
Electrostatic discharge (ESD)			
THD devices	IEC60749-26	HBM	2000 V
SMD devices	IEC60749-27	MM	200 V
Washable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

Enclosure drawing



Pin connections

Pin #	Symbol	Function
1	RF OUT	RF Output
2	GND	Ground
3	V _C	Control Voltage (EFC)
4	VREF	Reference Voltage
5	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-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 ₁ Method 2 Test Td ₂ 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

Other environmental conditions on request

Data sheet is for information purposes only and may be subject to modifications or may be discontinued without notice.

Revision History

Rev.	Drawing	Date [dd.mm.yyyy]	Remarks	Author	Checked
1	D0	07.05.2014	First issue	HH	HH
1	D1	09.09.2016	PN vs. G-Sensitivity Example Chart added	HH	HH