

Specification	AXIOM75ULN	Rev.: 4	Date: 2019-08-16
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Oscillator type: Ultra-Low Phase Noise OCXO with Sine Wave Output

Parameter	min.	typ.	max.	Unit	Condition
Frequency Range	80		130	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 ($\Delta f / \Delta V_c$)	Positive				
EFC input impedance	100			kΩ	
RF output					
Signal waveform	Sine wave				
Load R _L	50			Ω	±5%
Output level (Note 2)	+7	+12		dBm	
Harmonics			-30	dBc	
Spurious			-90	dBc	
Warm-up time		3	5	min	$\Delta f_{\text{final}}/f_0 < \pm 0.1$ ppm
Phase noise	See table 1				Option 1
G-Sensitivity			1.0	ppb/g	per axis
Reference voltage VREF output (Note 3)		10.0		V	
Supply voltage V_s (Note 3)	11.4	12.0	12.6	V	
Current consumption (steady state)			150	mA	@ +25°C (Note 4)
Current consumption (warm-up)			350	mA	(Note 4)
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. Other supply and reference voltage on request
4. 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	+105	°C	

Phase Noise – Option 1:

Offset	80~110 MHz					>110~130 MHz					Unit
	A	B	C	D	E	A	B	C	D	E	
10 Hz	-90	-95	-100	-103	-105	-85	-90	-95	-97	-100	dBc/Hz
100 Hz	-120	-125	-130	-135	-137	-115	-120	-125	-127	-130	dBc/Hz
1 kHz	-150	-155	-160	-162	-164	-147	-150	-153	-155	-157	dBc/Hz
10 kHz	-170	-170	-170	-172	-174	-170	-170	-170	-170	-172	dBc/Hz
≥100 kHz	-175	-175	-175	-175	-175	-175	-175	-175	-175	-175	dBc/Hz

Table 1

Note: Other phase noise parameters on request

Frequency stability vs. temperature

Option 2	Stability [ppb]
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]			
	25	50	100	200
0 ~ +50	X	X	X	X
-10 ~ +60	X	X	X	X
-20 ~ +70	X	X	X	X
-30 ~ +70	X	X	X	X
-40 ~ +75	O	X	X	X
-40 ~ +85	-	O	X	X
-55 ~ +85	-	-	O	X

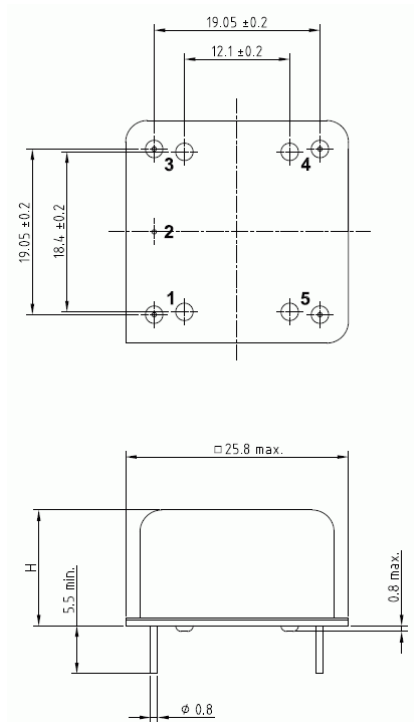
Table 4 "Availability" X = available, O = available on request, - not available

Ordering Code

Model	Option 1 [Phase noise]	Option 2 [Stability]	Option 3 [Temperature range]	Revision	Frequency [MHz]
AXIOM75ULN	Table 1	Table 2	Table 3	Rev.4	100.000

Example: AXIOM75ULN-C-50-1B_Rev.4 – 100.000 MHz

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

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	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
RoHS- Compliant	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

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 Resistance to soldering heat	2-20 2-58	5.6.3	208H 210F		3.6.52 3.6.48	Test Ta Method 1 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 - 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

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
2	D1	27.12.2013	Operating temperature range ordering code added	BN	BN
3	D0	08.05.2014	Various parameters updated, G-Sensitivity added, environmental conditions updated, editorial changes	HH	HH
4	D0	16.08.2019	Frequency range extended, phase noise & stability options updated, editorial changes	HH	HH