

Specification	AXIOM175LN	Rev.: 1	Date: 2019-03-25
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Oscillator type: Ultra-Low Phase Noise OCXO with Sine Wave Output

Parameter	min.	typ.	max.	Unit	Condition
Frequency Range	10		20	MHz	
Frequency stability					
Initial tolerance @ +25°C		±50	±100	ppb	V _c @ VREF/2
vs. operating temperature range	Option 2 & 3 See tables 2 & 3				steady state
vs. supply voltage variation (pushing)			±1	ppb	V _s ±5%
vs. load change (pulling)			±1	ppb	R _L ±5%
Long term (aging) per day			±0.5	ppb	after 30 days operation
Long term (aging) 1 st year			±50	ppb	after 30 days operation
Long term (aging) 15 years			±500	ppb	after 30 days operation
Frequency adjustment range					
Electronic Frequency Control (EFC)	±0.5			ppm	(Note 2)
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 3)	+5	+8		dBm	
Harmonics			-30	dBc	
Spurious			-90	dBc	
Phase noise @ 10 MHz	See table 1				Option 1
Warm-up time			5	min	$\Delta f_{\text{final}}/f_0 < \pm 0.1$ ppm
Short term stability (Allan deviation)		2·10 ⁻¹² 2·10 ⁻¹² 5·10 ⁻¹²	5·10 ⁻¹² 1·10 ⁻¹¹ 5·10 ⁻¹¹		τ = 1 s τ = 10 s τ = 100 s
Reference voltage VREF output		5.0		V	
Supply voltage V_s	11.4	12.0	12.6	V	
Current consumption (steady state)			150	mA	@ +25°C
Current consumption (warm-up)			350	mA	
Enclosure (see drawing) (LxWxH) (Note 5)	27.8x27.8x15.5 max.			mm	
Weight			20	g	
Packing	Palette				

Notes:

1. Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise stated
2. Tuning range sufficient to compensate for 15 years aging
3. Higher output level up to +14 dBm on request
4. For phase noise of other frequencies please consult factory
5. Lower height H 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	15	V	V _c to GND
Storage Temperature	-55	+105	°C	

Phase Noise – Option 1:

Offset	10 MHz			Unit
	A	B	C	
1 Hz	-100	-105	-110	dBc/Hz
10 Hz	-130	-135	-140	dBc/Hz
100 Hz	-145	-150	-155	dBc/Hz
1 kHz	-150	-155	-160	dBc/Hz
10 kHz	-155	-160	-170	dBc/Hz
≥100 kHz	-155	-160	-170	dBc/Hz

Table 1

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

Ordering Code

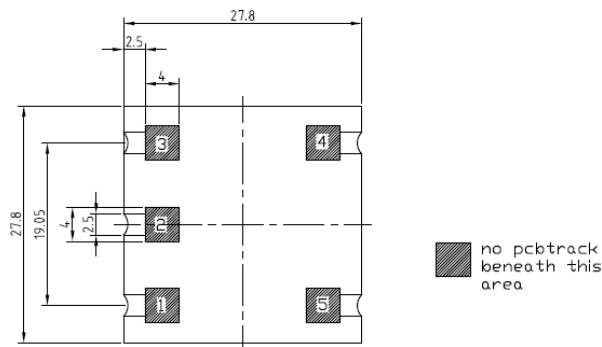
Model	Option 1 [Phase noise]	Option 2 [Stability]	Option 3 [Temperature range]	Revision	Frequency [MHz]
AXIOM175LN	Table 1	Table 2	Table 3	Rev.1	10.000

Example: AXIOM175LN-B-25-1B_Rev.1 – 10.000 MHz

Handling and Testing

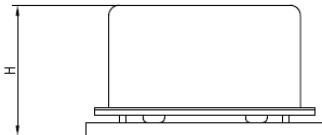
Parameter	Procedure	Source
Handling and Testing	Application Note AXAN-011	www.axtal.com
Processing	Application Note AXAN-012	www.axtal.com
Parameter	Procedure	Condition
Electrostatic discharge (ESD)		
THD devices	IEC60749-26	HBM 2000 V
SMD devices	IEC60749-27	MM 200 V
Washable	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
RoHS- Compliant	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Enclosure drawing



Pin connections

Pin #	Symbol	Function
1	RF OUT	RF Output
2	GND	Ground
3	V _C	Control Voltage (EFC)
4	VREF	Reference Voltage
5	V _S	Supply Voltage



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 - 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
1	D0	25.03.2019	First issue	HH	HH