

<b>Specification</b>	<b>AXIOM5050ULN</b>	Rev.: 4	Date: 2022-08-19
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**Oscillator type: OCXO with Ultra-Low Phase Noise Floor of -180 dBc/Hz**

Parameter	min.	typ.	max.	Unit	Condition
<b>Frequency range</b>	80		160	MHz	
<b>Standard frequencies</b>	100.000 / 120.000			MHz	
<b>Frequency stability</b>					
Initial tolerance @ +25°C			±300	ppb	@ V <sub>C</sub> = 5 V
vs. operating temperature range	Option 2 & 3 See tables 2 & 3				steady state
vs. supply voltage variation (pushing)		±20		ppb	V <sub>S</sub> ±5%
Long term (aging) per day		±1	±2	ppb	after 30 days operation
Long term (aging) 1 <sup>st</sup> year		±100	±200	ppb	after 30 days operation
<b>Frequency adjustment range</b>					
Electronic Frequency Control (EFC)	±1	±2		ppm	
EFC voltage V <sub>C</sub>	0	5	10	V	
EFC slope (Δf / ΔV <sub>C</sub> )	Positive				
EFC input impedance	100			kΩ	
<b>RF output</b>					
Signal waveform	Sine wave				
Load R <sub>L</sub>	50			Ω	
Output level	+14	+16		dBm	@ V <sub>C</sub> = 5 V
Harmonics			-40	dBc	
Spurious			-90	dBc	
Warm-up time @ +25°C			5	min	Δf <sub>final</sub> /f <sub>0</sub> < ±0.2 ppm
G-Sensitivity			1.0	ppb/g	per axis
<b>Phase Noise</b>	See table 1				Option 1
Noise floor		-183	-180	dBc/Hz	@ ≥ 100 kHz
<b>Supply voltage V<sub>S</sub></b> (Note 2)	11.4	12.0	12.6	V	
<b>Current consumption</b> (steady state)			250	mA	@ +25°C
<b>Current consumption</b> (warm-up)			450	mA	
<b>Enclosure (see drawing) (LxWxH)</b>	50.0x50.0x21.0 max.			mm	
<b>Weight</b>			60	g	
<b>Packing</b>	Palette				

**Notes:**

1. Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise stated
2. Other supply voltages on request

**Absolute Maximum Ratings**

Parameter	min.	max.	Unit	Condition
Supply Voltage V <sub>S</sub>	-0.5	V <sub>S</sub> + 10%	V	V <sub>S</sub> to GND
Control Voltage V <sub>C</sub>	-0.5	15	V	V <sub>C</sub> to GND
Storage Temperature	-55	+105	°C	

**Phase Noise – Option 1:**

Offset	80~110 MHz						>110~160 MHz					Unit
	A	B	C	D	E	F	A	B	C	D	E	
10 Hz	-90	-95	-100	-103	-105	-110	-85	-90	-95	-97	-100	dBc/Hz
100 Hz	-120	-125	-130	-135	-137	-140	-115	-120	-125	-127	-130	dBc/Hz
1 kHz	-150	-155	-160	-162	-164	-167	-147	-150	-153	-155	-157	dBc/Hz
10 kHz	-175	-175	-175	-176	-178	-178	-172	-172	-172	-174	-176	dBc/Hz
≥100 kHz	-180	-180	-180	-180	-180	-180	-180	-180	-180	-180	-180	dBc/Hz

Table 1

Note: - Other phase noise parameters on request  
- For frequencies above 110 MHz not all options may be available

**Frequency stability vs. temperature**

Option 2	Stability [ppb]
50	±50
100	±100
200	±200
500	±500

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

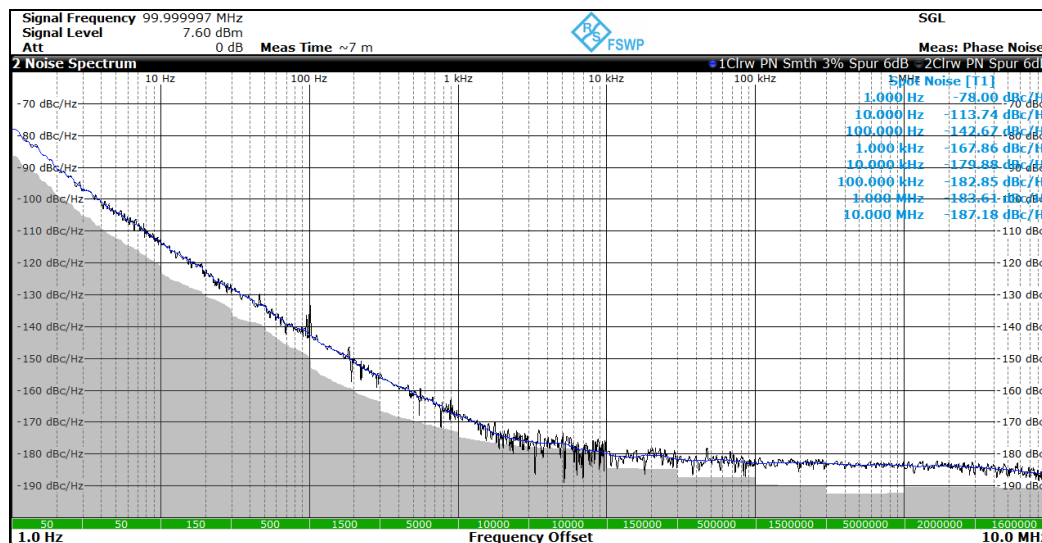
Standard: "1B" = -10°C to +60°C

**Ordering Code**

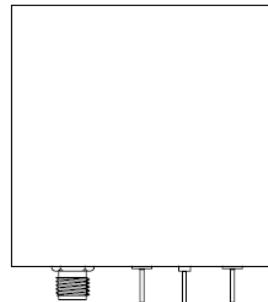
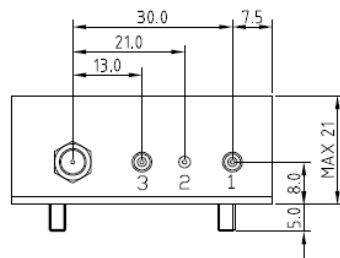
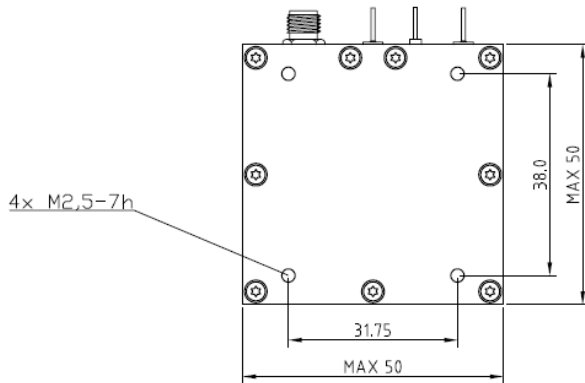
Model	Option 1 [Phase noise]	Option 2 [Stability]	Option 3 [Temperature range]	Revision	Frequency [MHz]
AXIOM5050ULN	Table 1	Table 2	Table 3	Rev.4	100.000

Example: AXIOM5050ULN-C-50-1B\_Rev.4 – 100.000 MHz

**Typical Phase Noise Performance at 100 MHz – Option "F"**



Enclosure drawing



Pin connections:

Pin #	Symbol	Function
1	V <sub>s</sub>	Supply Voltage
2	GND	Ground
3	V <sub>c</sub>	Control Voltage (EFC)
SMA	RF OUT	RF Output

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 <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 - 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	07.11.2014	First issue	HH	HH
2	D0	31.10.2016	Frequency range extended	HH	HH
3	D0	19.08.2019	Phase noise options and various parameters updated, editorial changes	HH	HH
4	D0	19.08.2022	Temperature stability/range options added, editorial changes	HH	HH