Specification	AXIOM5050LN	Rev.: 3	Date: 2021-10-19

Oscillator type: Ultra-Low Phase Noise 10 MHz OCXO

Parameter	min.	typ.	max.	Unit	Condition
Frequency range	10		20	MHz	
Standard frequencies		10.000		MHz	
Frequency stability					
Initial tolerance @ +25°C		±50	±100	ppb	@ V_C = 2.5 V
vs. operating temperature range		Option 2 & 3 See tables 2 & 3		ppb	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) 1st 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	±0.8		ppm	(Note 2)
EFC voltage V_C	0	2.5	5.0	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	+12	+14	+16	dBm	
Harmonics		-40	-30	dBc	
Spurious			-90	dBc	
Warm-up time @ +25°C			5	min	$\Delta f_{final}/f_0 < \pm 100$ ppb
Phase noise @ 10 MHz (Note 3)		See table 1			Option 1
Short term stability (Allan deviation)		$2 \cdot 10^{-12}$ $2 \cdot 10^{-12}$ $5 \cdot 10^{-12}$	$5 \cdot 10^{-12}$ $1 \cdot 10^{-11}$ $5 \cdot 10^{-11}$		τ = 1 s τ = 10 s τ = 100 s
Supply voltage V_S	11.4	12.0	12.6	V	
Current consumption (steady state)			200	mA	@ +25°C
Current consumption (warm-up)			400	mA	
Enclosure (see drawing) (LxWxH)		50.0x50.0x21.0 max.		mm	
Weight			60	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. For phase noise of other frequencies please consult factory

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	D	E	
1 Hz	-100	-105	-110	-112	-114	dBc/Hz
10 Hz	-130	-135	-140	-141	-142	dBc/Hz
100 Hz	-150	-155	-160	-156	-158	dBc/Hz
1 kHz	-163	-165	-165	-163	-163	dBc/Hz
≥10 kHz	-170	-170	-170	-165	-165	dBc/Hz
Noise floor	typ. 173			typ. -168		dBc/Hz

Table 1

Note: - Other phase noise parameters on request

Frequency stability vs. temperature – Options 2 & 3

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

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

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]
AXIOM5050LN	Table 1	Table 2	Table 3	Rev.3	10.000

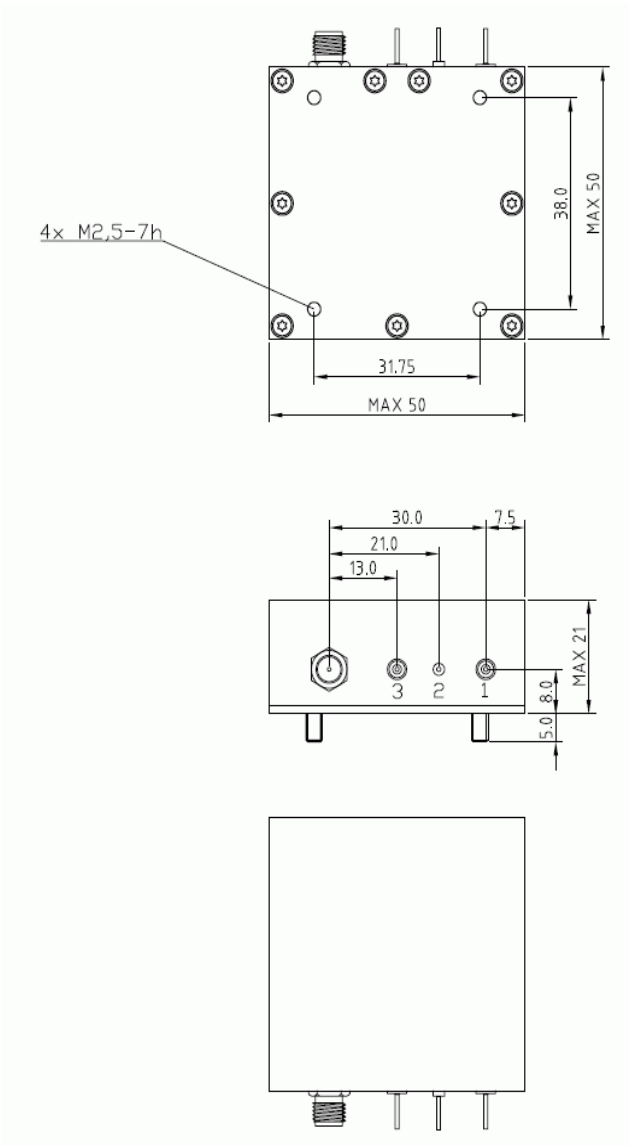
Example: AXIOM5050LN-C-10-1B_Rev.3 – 10.000 MHz

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	✖ Yes ☐ No		
RoHS- Compliant	✖ Yes ☐ No		

Enclosure drawing



Pin connections:

Pin #	Symbol	Function
1	V_S	Supply Voltage
2	GND	Ground
3	V_C	Control Voltage (EFC)
SMA	RF OUT	RF Output

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
1	D0	29.08.2019	First issue	HH	HH
2	D0	04.12.2019	Tuning range & harmonics changed	KS	HH
3	D0	19.10.2021	Tuning range & phase noise options updated	HH	KS