

Specification	AXLE2000	Rev.: 2	Date: 2019-09-24
Oscillator type: UHF/SHF Low Phase Noise TCXO in Connectorized Package			

Parameter	min.	typ.	max.	Unit	Condition
Frequency range	1		7	GHz	Multiplication (Note 2)
Frequency stability					
Initial tolerance @ +25°C			±1.0	ppm	
vs. operating temperature range	±0.5 to ±5 See tables 1 & 2			ppm	Option 1 & 2
vs. supply voltage variation (pushing)			±0.1	ppm	V _s ±5%
vs. load change (pulling)			±0.1	ppm	R _L ±5%
Long term (aging) 1 st year			±1.0	ppm	after 30 days operation
RF output					
Signal waveform	Sine wave				
Load R _L	50			Ω	±5%
Output level	+10	+13		dBm	
Harmonics			-30	dBc	
Sub-harmonics			-40	dBc	
Spurious			-80	dBc	
PLL Products			-60	dBc	(Note 3)
Phase noise (Note 4)		-120	-110	dBc/Hz	@ 100 kHz
Lock detect (LD) output		0	1.0	V	Out of lock
	2.3	3.3		V	Locked
Supply voltage V_s	11.4	12.0	12.6	V	
Current consumption		250	350	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. Frequency multiplication factor N depends on output frequency f_{OUT}. Frequency multiplication is only required for higher frequencies or specific requirements. Please consult factory. Higher frequencies on request.
3. Internal PLL with TCXO reference.
4. Other phase noise on request.

Absolute Maximum Ratings

Parameter	min.	max.	Unit	Condition
Supply Voltage V _s	-0.5	V _s + 10%	V	V _s to GND
Storage Temperature	-55	+105	°C	

Frequency stability vs. temperature

Option 1	Stability [ppm]
05	±0.5
10	±1.0
15	±1.5
20	±2.0
25	±2.5
30	±3.0
35	±3.5
50	±5.0

Table 1

Lower Temperature		Upper Temperature	
Option 2	T [°C]	Option 2	T [°C]
0	0	A	+50
1	-10	B	+60
2	-20	C	+70
3	-30	D	+75
4	-40	E	+80
		F	+85

Table 2

Ordering Code

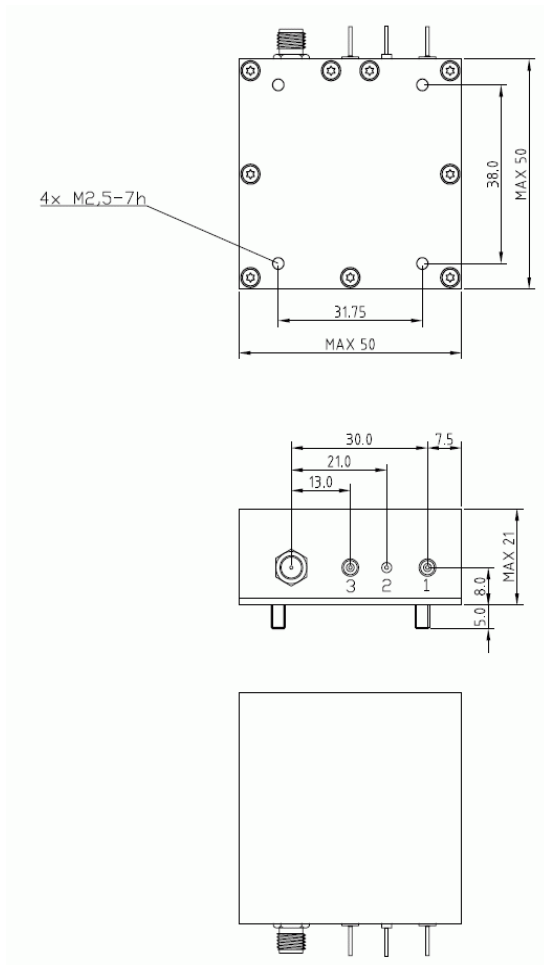
Model	Option 1 [Stability]	Option 2 [Temperature range]	Revision	Frequency [GHz]
AXLE2000	Table 1	Table 2	Rev.2	6.500

Example: AXLE2000-10-2C_Rev.2 – 6.500 GHz

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	V _S	Supply Voltage
2	GND	Ground
3	LD	Lock Detect Output
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	21.09.2015	First issue	HH	HH
1	D1	01.02.2016	PLL Spurious added	HH	HH
2	D0	24.09.2019	Frequency range changed, editorial changes	HH	HH