Specification	AXIOM2000	Rev.: 1	Date: 2016-08-19

Oscillator type: **Ultra-Low Phase Noise OCXO**
3 UHF outputs with different frequencies

Features:

- **Internal Ultra-Low Phase Noise Reference OCXO**
- **1 direct OCXO output and 2 user definable multiplied outputs**
- **Phase coherent outputs**
- **Customizable frequency source**

Parameter	min.	typ.	max.	Unit	Condition
Nominal output frequency range RF1	50		160	MHz	ULN OCXO
Nominal output frequency range RF2	600		1600	MHz	Multiplied RF1 (Note 2)
Nominal output frequency range RF3	1200		3200	MHz	Frequency = 2x RF2
Frequency stability					
Initial tolerance @ +25°C			±300	ppb	@ V_C=2.5 V
vs. operating temperature range			±50	ppb	steady state
vs. supply voltage variation (pushing)			±10	ppb	V_S ±5%
Long term (aging) per day		±1	±2	ppb	after 30 days operation
Long term (aging) per year		±100	±200	ppb	after 30 days operation
Frequency adjustment range					
Electronic Frequency Control (EFC)	±1			ppm	
EFC voltage V_C	0		5	V	(Note 3)
EFC slope ($\Delta f / \Delta V_C$)		Positive			
EFC input impedance	100			kΩ	
RF output RF1					
Signal waveform		Sine wave			
Load R_L		50		Ω	±5%
Output level	+10			dBm	
Harmonics		-35	-30	dBc	
Spurious			-90	dBc	
Phase noise @ 100 MHz (Note 4)			-100 -130 -160 -170 -175	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	@ 10 Hz @ 100 Hz @ 1 kHz @ 10 kHz @ ≥100 kHz
Short-term stability (Allan deviation)		$5 \cdot 10^{-12}$	$1 \cdot 10^{-11}$		@ τ = 1 sec
RF output RF2	Phase coherent to RF1 (OCXO)				
Signal waveform		Sine wave			
Load R_L		50		Ω	±5%
Output level	+10	+13		dBm	
Harmonics		-50	-40	dBc	
Sub-harmonics (multiples of RF1)		-50	-45	dBc	
Spurious			-90	dBc	
Phase noise		Consult factory			

Parameter	min.	typ.	max.	Unit	Condition
RF output RF3	Phase coherent to RF1 (OCXO)				
Signal waveform		Sine wave			
Load R_L		50		Ω	±5%
Output level	0	+4		dBm	
Harmonics		-50	-40	dBc	
Sub-harmonics (multiples of RF1/RF2)		-45	-40	dBc	
Spurious			-90	dBc	
Phase noise		Consult factory			
Warm-up time @ +25°C		3	5	min	$\Delta f_{final}/f_0 < \pm 0.1$ ppm
Supply voltage V_S	11.4	12.0	12.6	V	
Current consumption (warm-up)			600	mA	
Current consumption (steady state)			350	mA	@ +25°C
Operating temperature range	-10		+60	°C	
Enclosure (see drawing) (LxWxH)		60x60x30 max.		mm	
Weight			200	g	
Packing		Palette			

Notes:

1. Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise stated
2. Frequency RF2 must be an integer multiple of frequency RF1 (ULN OCXO)
3. Other tuning voltages on request.
4. Please consult factory for phase noise of other frequencies

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	

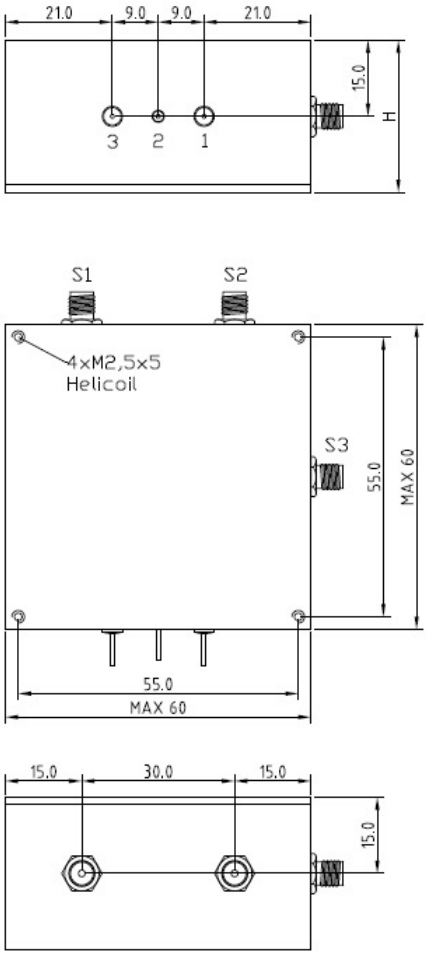
Ordering Code

Model	Output Frequency RF1 [MHz]	Output Frequency RF2 [MHz]	Output Frequency RF3 * [MHz]	Revision
AXIOM2000	100	1600	3200	Rev.1

Example: AXIOM2000-100-1600-3200_Rev.1 – 100.000 MHz

*Output frequency RF3 is optional

Enclosure drawing



Pin connections:

Pin #	Symbol	Function
1	V_S	Supply Voltage
2	GND	Ground
3	V_C	Control Voltage (EFC)
SMA1	RF OUT	RF Output RF2
SMA2	RF OUT	RF Output RF3*
SMA3	RF OUT	RF Output RF1

**Output RF3 blind screwed when not used*

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		

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	19.08.2016	First issue	HH	HH