

<b>Specification</b>	<b>AXIOM2000</b>	Rev.: 1	Date: 2016-08-19
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**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
<b>Nominal output frequency range RF1</b>	50		160	MHz	ULN OCXO
<b>Nominal output frequency range RF2</b>	600		1600	MHz	Multiplied RF1 (Note 2)
<b>Nominal output frequency range RF3</b>	1200		3200	MHz	Frequency = 2x RF2
<b>Frequency stability</b>					
Initial tolerance @ +25°C			±300	ppb	@ V <sub>C</sub> =2.5 V
vs. operating temperature range			±50	ppb	steady state
vs. supply voltage variation (pushing)			±10	ppb	V <sub>S</sub> ±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
<b>Frequency adjustment range</b>					
Electronic Frequency Control (EFC)	±1			ppm	
EFC voltage V <sub>C</sub>	0		5	V	(Note 3)
EFC slope (Δf / ΔV <sub>C</sub> )	Positive				
EFC input impedance	100			kΩ	
<b>RF output RF1</b>					
Signal waveform	Sine wave				
Load R <sub>L</sub>	50			Ω	±5%
Output level	+10			dBm	
Harmonics		-35	-30	dBc	
Spurious			-90	dBc	
Phase noise @ 100 MHz (Note 4)			-100	dBc/Hz	@ 10 Hz
			-130	dBc/Hz	@ 100 Hz
			-160	dBc/Hz	@ 1 kHz
			-170	dBc/Hz	@ 10 kHz
			-175	dBc/Hz	@ ≥100 kHz
Short-term stability (Allan deviation)		5·10 <sup>-12</sup>	1·10 <sup>-11</sup>		@ τ = 1 sec
<b>RF output RF2</b>					
Phase coherent to RF1 (OCXO)					
Signal waveform	Sine wave				
Load R <sub>L</sub>	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
<b>RF output RF3</b>	Phase coherent to RF1 (OCXO)				
Signal waveform	Sine wave				
Load $R_L$	50			$\Omega$	$\pm 5\%$
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				
<b>Warm-up time @ +25°C</b>		3	5	min	$\Delta f_{final}/f_0 < \pm 0.1$ ppm
<b>Supply voltage <math>V_S</math></b>	11.4	12.0	12.6	V	
<b>Current consumption (warm-up)</b>			600	mA	
<b>Current consumption (steady state)</b>			350	mA	@ +25°C
<b>Operating temperature range</b>	-10		+60	°C	
<b>Enclosure (see drawing) (LxWxH)</b>	60x60x30 max.			mm	
<b>Weight</b>			200	g	
<b>Packing</b>	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	

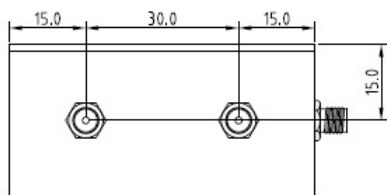
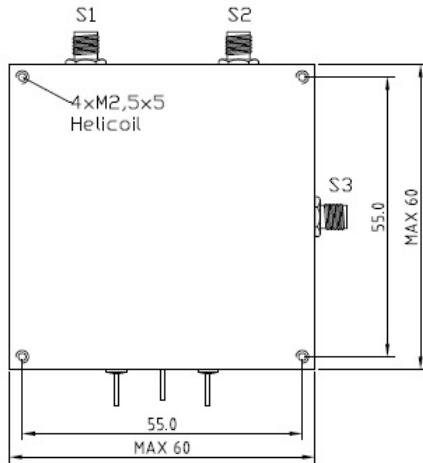
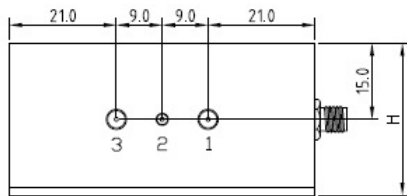
**Ordering Code**

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	<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	19.08.2016	First issue	HH	HH