

<b>Specification</b>	<b>AXON20</b>	Rev.: 2	Date: 2014-06-20
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**Oscillator type: PLXO - Phase-Locked Crystal Oscillator – Low Phase Noise**

Parameter	min.	typ.	max.	Unit	Condition
<b>Reference frequency (input) <math>f_{REF}</math></b>	5		100	MHz	
<b>Output frequency <math>f_{OUT}</math></b>	80		160	MHz	Note 2
<b>Frequency stability (free running)</b>					
vs. operating temperature range			±10	ppm	
vs. supply voltage variation (pushing)			±2	ppm	$V_S \pm 5\%$
vs. load change (pulling)			±2	ppm	Load ±10%
Long term (aging) per year			±2	ppm	@ +40°C
<b>Reference input</b>					
Frequency accuracy			±2	ppm	
Signal waveform	Sine or square wave				
Input level	0.5		$V_S$	Vp-p	
Input impedance	10			kΩ	
Input capacitance			10	pF	
<b>Frequency locking</b>					
Frequency locking range	Lock on $f_{REF}$ under worst conditions over 10 years				
VCXO Control Voltage ( $V_C$ ) output	0.15		3.00	V	$R_{IN} = 470 \text{ k}\Omega$
Lock detect (LD) output	LD = High PLL locked LD = Low PLL out of lock				HCMOS levels
<b>Loop filter parameters</b>					
Natural loop frequency $f_N$	Note 3			Hz	
Phase margin $\Phi_R$	Note 3			°	
Channel spacing $f_{CH}$	Note 3			kHz	
Lock-in time	Note 3			s	
<b>RF output (locked)</b>					
Signal waveform	HCMOS				
Load	15			pF	±10%
Rise & decay time			5	ns	
Symmetry (duty cycle)	40		60	%	@ $V_S/2$
Suppression of channel spurious	-80			dBc	@ $N \cdot f_{CH}$ and $f_{OUT} \pm N \cdot f_{CH}$
Other non-harmonic spurious	-100			dBc	
Phase noise	Consult factory				
<b>Supply voltage <math>V_S</math></b>	3.15	3.3	3.45	V	Note 4
<b>Current consumption</b>			50	mA	
<b>Operating temperature range</b>	-20		+70	°C	
<b>Enclosure (see drawing) (LxWxH)</b>	20.0x13.1x6.1 max.			mm	IEC 61837-4 CO 29
<b>Weight</b>			3	g	
<b>Packing</b>	Tape & Reel				IEC 60286-3

**Notes:**

1. Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise stated
2. Internal Low Phase Noise VCXO
3. To be optimized to application w.r.t to phase noise and settling performance. Please consult factory
4. 5V supply voltage on request

### Absolute Maximum Ratings

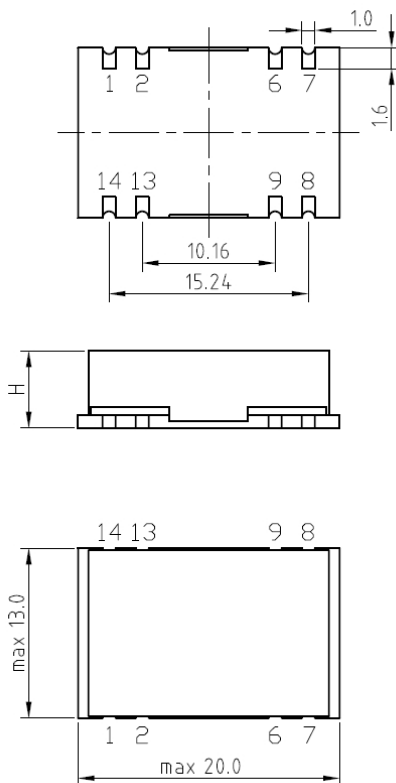
Parameter	min.	max.	Unit	Condition
Supply Voltage $V_S$	-0.5	$V_S + 10\%$	V	$V_S$ to GND
Reference Input Level	-	$V_S + 10\%$	Vp-p	
Storage Temperature	-40	+85	°C	

### Ordering Code

Model	Input Frequency [MHz]	Output Frequency [MHz]	Revision
AXON20	5 to 100	80 to 160	Rev.2

Example: AXON20-5.000-100.000\_Rev.2

### Enclosure drawing



### Pin connections:

Pin #	Symbol	Function
1	$V_C$	VCXO Control Voltage Output
2	LD	Lock Detect Output
6	GND	Ground
7	GND	Ground
8	RF OUT	RF Output
9	GND	Ground
13	FREF	Reference Frequency Input
14	$V_S$	Supply Voltage

### 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 type="checkbox"/> Yes <input checked="" 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	13.08.2008	First issue	BN	BN
1	D1	28.03.2011	Max. output frequency increased to 160 MHz	HH	HH
1	D2	01.10.2012	Minor editorial changes	BN	BN
2	D0	20.06.2014	Various parameters updated, environmental conditions updated, editorial changes	HH	HH