Specification	AXLE130	Rev.: 1	Date: 2016-08-17

Oscillator type: UHF Temperature Compensated Crystal SMD Oscillator

Parameter	min.	typ.	max.	Unit	Condition
Frequency range	500		2500	MHz	
Frequency stability					
Initial tolerance @ +25°C			±1	ppm	
vs. operating temperature range	±0.5 to ±3 See tables 1 & 2			ppm	Option 1 & 2
vs. supply voltage variation (pushing)			±0.2	ppm	V_S ±5 %
Long term (aging) per year		±1	±2	ppm	
Frequency adjustment range					
Electronic Frequency Control (EFC)	±5			ppm	
EFC voltage V_C	0.5	2.5	4.5	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	+7			dBm	
Harmonics			-30	dBc	
Spurious			-80	dBc	
PLL Products			-60	dBc	
Phase noise @ 1000 MHz (Note 2)		-105 -115		dBc/Hz dBc/Hz	@ 1 kHz @ 10 kHz
Lock Detect Output LD (Note 3)	 3.5	0 5	1.5	V V	Out of lock Locked
Supply voltage V_S (Note 4)	4.75	5.0	5.25	V	
Current consumption		70	100	mA	
Enclosure (see drawing) (LxWxH)	20.0x20.0x8.0 max.			mm	
Weight			20	g	
Packing	Palette				

Notes:

1. Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise state
2. Please consult factory for phase noise of other frequencies
3. Internal PLL with TCXO reference
4. 3.3 V supply voltage available on request

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	7	V	V_C 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

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 [MHz]
AXLE130	Table 1	Table 2	Rev.1	1000.000

Example: AXLE130-10-2C_Rev.1 – 1000.000 MHz

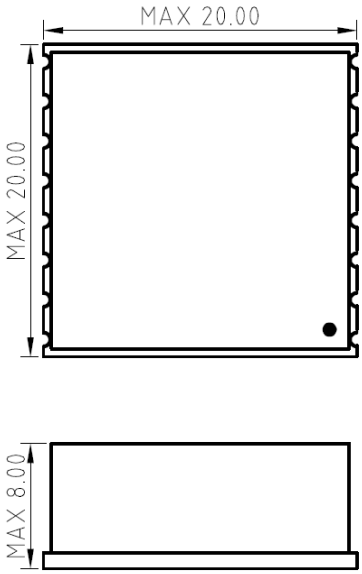
Handling and Testing

Parameter	Procedure	Source
Handling and Testing	Application Note AXAN-011	www.axtal.com
Processing	Application Note AXAN-012	www.axtal.com

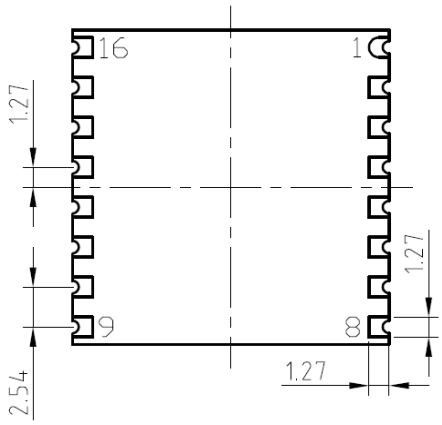
Parameter	Procedure		Condition
Electrostatic discharge (ESD)			
THD devices	IEC60749-26	HBM	2000 V
SMD devices	IEC60749-27	MM	200 V
Washable	☐ Yes ✖ No		
RoHS- Compliant	✖ Yes ☐ No		

Enclosure drawing

- Top View -



- Bottom View -



Pin connections

Pin #	Symbol	Function
1	V_C	Control Voltage (EFC)
4	LD	Lock Detect
5	DNC	Do Not Connect
16	RF OUT	RF Output
2, 7, 9, 13	V_S	Supply Voltage
All others	GND	Ground, case

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	17.08.2016	First issue	HH	HH