

Specification	AXLE175	Rev.: 2	Date: 2022-03-04
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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 (Δf / ΔV _c)	Positive				
EFC input impedance	100			kΩ	
RF output					
Signal waveform	Sine wave				
Load R _L	50			Ω	±5%
Output level (Note 2)	+10			dBm	
Harmonics			-30	dBc	
Spurious			-80	dBc	
PLL Products			-60	dBc	
Phase noise @ 1000 MHz (Note 3)		-110 -130 -150		dBc/Hz dBc/Hz dBc/Hz	@ 10 kHz @ 100 kHz @ 1 MHz
Lock Detect Output LD (Note 4)		0	1.5	V	Out of lock
	3.5	5		V	Locked
Supply voltage V_s	4.75	5.0	5.25	V	
Current consumption (Note 5)		150	200	mA	
Enclosure (see drawing) (LxWxH)	25.4x25.4x8.0 max.			mm	
Weight			10	g	
Packing	Palette				

Notes:

1. Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise stated
2. Output level up to +24 dBm available on request
3. Please consult factory for phase noise of other frequencies
4. Internal PLL with TCXO reference
5. Current consumption depends on output frequency

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	+125	°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]
AXLE175	Table 1	Table 2	Rev.2	1000.000

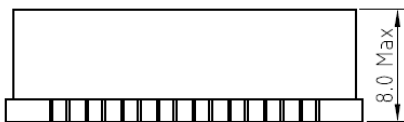
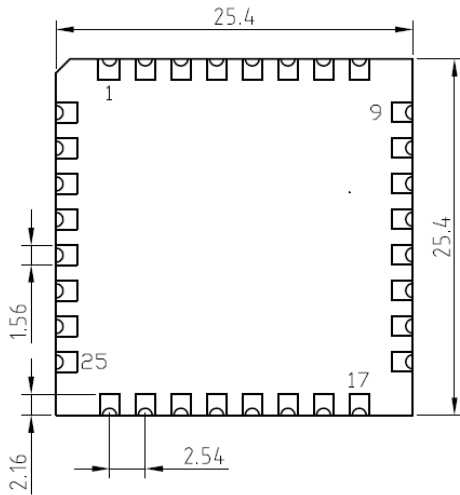
Example: AXLE175-10-2C_Rev.2 – 1000.000 MHz

Handling and Testing

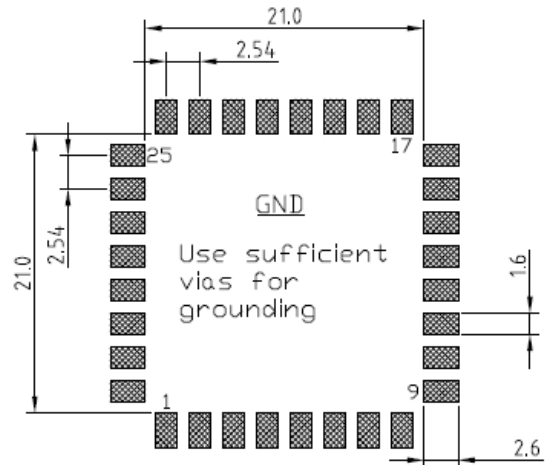
Parameter	Procedure		Source
Handling and Testing	Application Note AXAN-011		www.axtal.com
Processing	Application Note AXAN-012		www.axtal.com
Parameter	Procedure		Condition
Electrostatic discharge (ESD)			
THD devices	IEC60749-26	HBM	2000 V
SMD devices	IEC60749-27	MM	200 V
Washable	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
RoHS compliant	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Enclosure drawing

- Bottom View -



Recommended Footprint



Note:

1. 50Ω Transmission line for Pin 19 – RF Output

Pin connections

Pin #	Symbol	Function
1	LD	Lock Detect
2	V _C	Control Voltage (EFC)
19	RF OUT	RF Output
22	D.N.C.	Do Not Connect
31,32	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	16.07.2015	First issue	HH	ME
2	D0	17.08.2016	PLL products added, additional notes and editorial changes	HH	HH
2	D1	04.03.2022	Recommended Footprint added	ME	HH