

<b>Specification</b>	<b>AXLE5032LN</b>	Rev.: 1	Date: 2016-01-30
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**Oscillator type: Low Noise High Stability (VC)TCXO in 5x3.2 mm package**

Parameter	min.	typ.	max.	Unit	Condition
<b>Frequency range</b>	10		52	MHz	
<b>Nominal frequencies</b>	10, 12.8, 13, 16, 16.384, 20, 25, 26, 40, 50			MHz	Other frequencies on request
<b>Frequency stability</b>					
Initial tolerance @ 25°C			±1	ppm	@ V <sub>Cnom</sub> Note 2
vs. operating temperature range	± 0.2 to ± 2.0			ppm	Option 4&5 (Tables 1~3)
vs. supply voltage variation			±0.05	ppm	V <sub>S</sub> ±5 %
vs. load change			±0.05	ppm	Load ±10 %
Long term (aging) 1 <sup>st</sup> year			±1	ppm	@+40°C Note 3
<b>Frequency adjustment range</b>					
Electronic Frequency Control (EFC)	±5		±10	ppm	Option 1 = "V"
EFC voltage V <sub>C</sub>	0.5	1.5	2.5	V	
EFC slope (Δf / ΔV <sub>C</sub> )	Positive				
EFC input impedance	100			kΩ	
<b>RF output</b>					
Signal waveform	Clipped Sine Wave HCMOS				Option 3 = "C" Option 3 = "H"
Load	10 kΩ    10 pF 12 pF (15 pF max.)				Option 3 = "C" Option 3 = "H"
Amplitude (peak-peak)	0.8			V	Option 3 = "C"
VOL			0.4	V	Option 3 = "H"
VOH	2.4			V	
Duty cycle	45		55	%	
Rise/fall time			6	ns	
<b>Phase noise @ 10.000 MHz</b>					
*with EFC-function (Option 1 = "V")		-120*	-125**	dBc/Hz	@ 100 Hz
**without EFC-function (Option 1 = "_")		-140*	-145**	dBc/Hz	@ 1 kHz
		-153*	-155**	dBc/Hz	@ 10 kHz ~ 100 kHz
<b>Enable/Disable function</b>					
<b>Supply voltage V<sub>S</sub></b> (Note 4)	2.565	2.7	2.835	V	Option 2 = "27"
	4.75	5.0	5.25	V	Option 2 = "50"
<b>Current consumption</b>			3	mA	Option 3 = "C"
			8	mA	Option 3 = "H"
<b>Enclosure (see drawing) (LxWxH)</b>	5.0x3.2x1.5			mm	
<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. Tolerance will be increased after reflow soldering
3. Lower aging on request
4. Supply voltage 3.0 V or 3.3 V on request
5. All combinations of options might not be available. Please consult factory

**Absolute Maximum Ratings**

Parameter	min.	max.	Unit	Condition
Supply Voltage V <sub>S</sub>	-0.5	V <sub>S</sub> + 10%	V	V <sub>S</sub> to GND
Control Voltage V <sub>C</sub>	-0.5	6	V	V <sub>C</sub> to GND
Storage Temperature	-55	+105	°C	

## Frequency stability vs. temperature

Option 4	Stability* [ppm]
02	±0.2
028	±0.28
05	±0.5
10	±1.0
15	±1.5
20	±2.0

**Table 1**

\*stability referred to  $(f_{\max}+f_{\min})/2$

Lower Temperature		Upper Temperature	
Option 5	T [°C]	Option 5	T [°C]
0	0	A	+50
1	-10	B	+60
2	-20	C	+70
3	-30	D	+75
4	-40	E	+80
5	-50	F	+85
6	-55	G	+90
		H	+95

**Table 2**

Temperature range [°C]	Frequency stability [Option 2]					
	02	028	05	10	15	20
-20 ~ +70	O	O	X	X	X	X
-40 ~ +85	O	O	XX	X	X	X
-55 ~ +95	-	-	-	O	O	O

**Table 3 "Availability"** XX = Standard, X = available, O = available on request, - not available

## Ordering Code

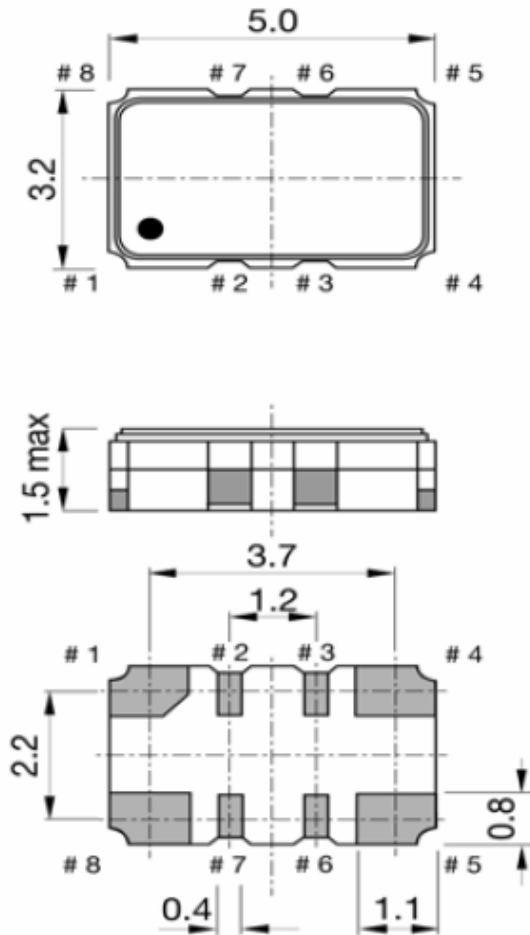
Model	Option 1 [EFC]*	Option 2 [Supply Voltage]	Option 3 [RF output]	Option 4 [Stability]	Option 5 [Temperature range]	Revision	Frequency [MHz]
AXLE5032LN	_ or "V"	27 or 50	C or H	Table 1	Table 2	Rev.1	10.000

Example: AXLE5032LN-V-50-C-05-4F\_Rev.1 – 10.000 MHz

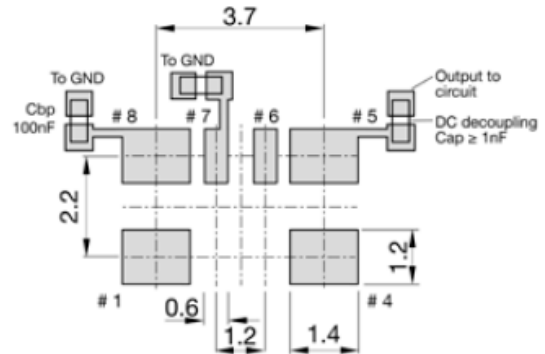
## Handling and Testing

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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
RoHS compliant	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

## Enclosure drawing



## Soldering pattern:



## Pin connections

Pin #	Symbol	Function
1	I.C. or V <sub>C</sub>	Do not connect or Control Voltage (EFC)
2	I.C.	Do not connect
3	I.C.	Do not connect
4	GND	Ground
5	RF OUT	RF Output. For Clipped Sine wave connect DC-decoupling cap of 1nF
6	OE	Tristate or do not connect
7	PNF	Phase noise filter External capacitor 33 nF
8	V <sub>S</sub>	Supply Voltage Connect external bypass capacitor of 100 nF

## 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	D1	30.01.2016	First issue AXLE5032LN	BN	BN