

Specification	AXLE7050A	Rev.: 1	Date: 2016-01-27
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Oscillator type: High Stability SMD (VC)TCXO in 7x5 mm package

Parameter	min.	typ.	max.	Unit	Condition
Frequency range	10		52	MHz	
Nominal frequencies	10, 12.8, 16.384, 19.2, 19.44, 20, 24.576, 25, 26, 30.72., 38.4, 38.88, 40			MHz	Other frequencies on request
Frequency stability					
Initial tolerance @ 25°C			±0.5	ppm	@ V _{Cnom} Note 2
vs. operating temperature range	± 0.05 to ± 2.0 See tables 1 ~ 3			ppm	Option 4 & 5
vs. supply voltage variation			±0.1	ppm	V _S ±5 %
vs. load change			±0.2	ppm	Load ±5 %
Long term (aging) 1 st year			±1	ppm	@+40°C Note 3
Frequency adjustment range					
Electronic Frequency Control (EFC)	±5		±12	ppm	Option 1 = "V"
EFC voltage V _C	0.5	1.5	2.5	V	
EFC slope (Δf / ΔV _C)	Positive				
EFC input impedance	100			kΩ	
RF output					
Signal waveform	Clipped Sine Wave HCMOS				Option 3 = "C" Option 3 = "H"
Load	10 kΩ 10 pF 15 pF				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	
Phase noise @ 25°C				dBc/Hz	See table 4
Supply voltage V_S	3.15	3.3	3.45	V	Option 2 = "33"
	4.75	5.0	5.25	V	Option 2 = "50"
Current consumption			6.0	mA	
Enclosure (see drawing) (LxWxH)	7.1x5.1x1.85			mm	
Weight			3	g	
Packing	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. All combinations of options might not be available. Please consult factory

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	6	V	V _C to GND
Storage Temperature	-55	+125	°C	

Frequency stability vs. temperature

Option 4	Stability* [ppm]
005	±0.05
01	±0.1
02	±0.2
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]					
	005	01	02	05	10	15, 20
-20 ~ +70	O	X	X	X	X	X
-40 ~ +85	-	O	X	X	X	X
-50 ~ +90	-	-	X	X	X	X
-55 ~ +95	-	-	-	X	X	X

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

Available Phase noise level (on request)

Offset	10 MHz	12.8 ~ 20 MHz	20.48~38.4 MHz	40 MHz
@ 10 Hz	<-95 dBc/Hz			
@ 100 Hz	<-120 dBc/Hz			
@ 1 kHz	<-140 dBc/Hz	<-135 dBc/Hz	<-130 dBc/Hz	<-125 dBc/Hz
@ 10 kHz	<-145 dBc/Hz			
@ 100 kHz	<-150 dBc/Hz			

Table 4: Phase noise

Ordering Code

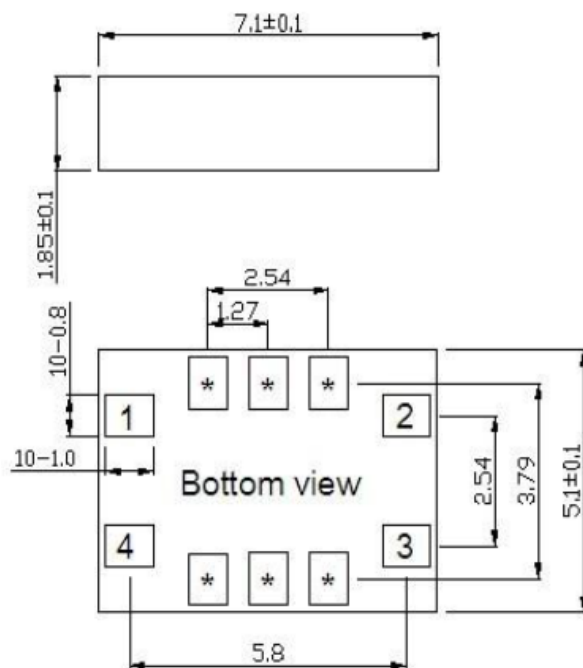
Model	Option 1 [EFC]*	Option 2 [Supply Voltage]	Option 3 [RF output]	Option 4 [Stability]	Option 5 [Temperature range]	Revision	Frequency [MHz]
AXLE7050A	_ or "V"	33 or 50	C or H	Table 1	Table 2	Rev.1	10.000

Example: AXLE7050A-V-5-C-05-4F_Rev.1 – 10.000 MHz

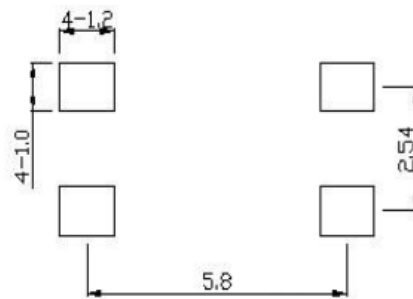
Handling and Testing

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	☒ Yes ☐ No		
RoHS compliant	☒ Yes ☐ No		
Moisture Sensitivity Level	MSL 3		J_STD-020

Enclosure drawing



Soldering pattern:



Pin connections

Pin #	Symbol	Function
1	I.C. or V_C	Do not connect or Control Voltage (EFC)
2	GND	Ground
3	RF OUT	RF Output
4	V_S	Supply Voltage
*	I.C.	Do not connect

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	D1	20.01.2016	First issue AXLE7050A	BN	BN
1	D2	27.01.2016	MSL level added	BN	BN