AXTAL ADVANCED XTAL PRODUCTS

Designed and Manufactured in Germany

Specification	AXIOM275	Rev.: 1	Date: 2018-10-26

Oscillator type: Ultra-Low Phase Noise OCXO in Vibration-isolated Package

Parameter	min.	typ.	max.	Unit	Condition
Frequency range	80		120	MHz	
Standard frequencies		100.000		MHz	
Frequency stability					
Initial tolerance @+25°C			±500	ppb	@ V_C = 4V
vs. operating temperature range			±100	ppb	steady state (Note 2)
vs. supply voltage variation (pushing)			±20	ppb	V_S ±5%
vs. load change (pulling)			±20	ppb	R_L ±5%
Long term (aging) per day			±2	ppb	after 30 days operation
Long term (aging) per year			±200	ppb	after 30 days operation
Frequency adjustment range					
Electronic Frequency Control (EFC)	±1	±2		ppm	
EFC voltage V_C	0	4	8	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	+7	+10	+13	dBm	
Harmonics			-30	dBc	
Spurious at rest			-80	dBc	
Phase noise at rest @ 100 MHz		-95	-90	dBc/Hz	@ 10 Hz
		-130	-125	dBc/Hz	@ 100 Hz
		-160	-155	dBc/Hz	@ 1 kHz
		-168	-165	dBc/Hz	@ 10 kHz
		-175	-170	dBc/Hz	@ ≥100 kHz
Phase noise @ 100 MHz		-60	-55	dBc/Hz	@ 10 Hz
under random vibration		-85	-75	dBc/Hz	@ 100 Hz
with 0.01 g^2/Hz, 10 ~ 2000 Hz		-145	-135	dBc/Hz	@ 1 kHz
(Note 3)		-168	-160	dBc/Hz	@ 10 kHz
		-175	-165	dBc/Hz	@ ≥100 kHz
Warm-up time @ +25°C			5	Min	$\Delta f_{final}/f_0$ < ±0.1 ppm
Supply voltage V_S	11.4	12.0	12.6	V	(Note 4)
Current consumption (steady state)			100	mA	@ +25°C
Current consumption (warm-up)			300	mA	
Operating temperature range	-40		+70	°C	(Note 2)
Enclosure (see drawing) (LxWxH)		25.4x25.4x15.0 max.		mm	
Enclosure drawing number		AXZ10.01126.01			
Weight			50	g	

Notes:

1. Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise stated
2. Other stability and temperature range on request
3. For other vibration profiles please consult factory
4. Other supply voltage on request

Absolute Maximum Ratings

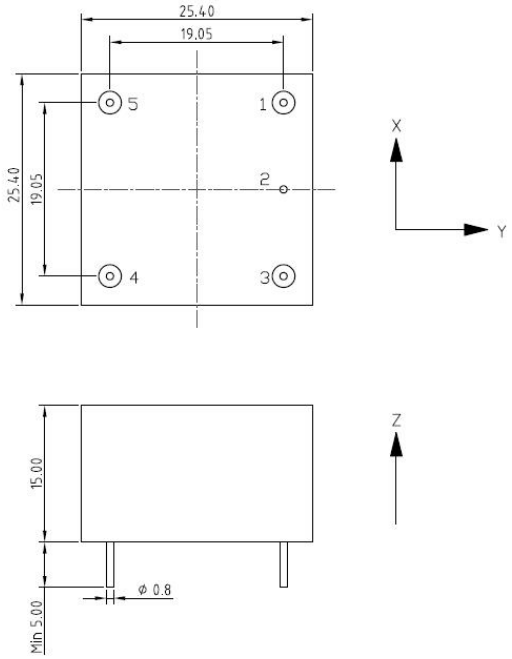
Parameter	min.	max.	Unit	Condition
Supply Voltage V_S	-0.5	V_S + 10%	V	V_S to GND
Control Voltage V_C	-0.5	+10	V	V_C to GND
Storage Temperature	-55	+85	°C	

Ordering Code

Model	Revision	Frequency [MHz]
AXIOM275	Rev.1	100.000

Example: AXIOM275_Rev.1 – 100.000 MHz

Enclosure drawing



Pin connections:

Pin #	Symbol	Function
1	RF OUT	RF Output
2	GND	Ground
3	V_C	Control Voltage (EFC)
4	N.C.	No Connection
5	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	✖ Yes ☐ No		
RoHS- Compliant	✖ Yes ☐ 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_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	26.10.2018	First issue	ME	HH