

Specification	AXIOM35HR	Rev.: 2	Date: 2018-12-15
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Oscillator type: High Stability VHF Very Low Power OCXO
Produced in association with Magic Xtal – Model MXO37H/R

Parameter	min.	typ.	max.	Unit	Condition
Frequency range	30		300	MHz	Frequency multiplication
Standard frequencies	100.000			MHz	
Frequency stability					
Initial tolerance @ +25°C		±100		ppb	V _c @ VREF/2
vs. operating temperature range	Option 2 & 3 See tables 1 & 2				steady state
vs. supply voltage variation (pushing)		±2		ppb	V _s ±5 %
vs. load change (pulling)		±2		ppb	R _L ±5 %
Long term (aging) per day, after 30 days operation (Note 2)			±2 ±5	ppb ppb	< 150 MHz ≥ 150 MHz
Long term (aging) per day / per year	Option 4, see table 3			ppb	after 30 days operation
Frequency adjustment range					
Electronic Frequency Control (EFC)	±0.5	±1.0		ppm	
EFC voltage V _c	0	VREF/2	VREF	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		+8	+11	dBm	
Harmonics			-25	dBc	
Sub-harmonics			-40	dBc	
Spurious			-80	dBc	
Warm-up time @ +25°C		60		sec	Δf _{final} /f ₀ < ±0.1 ppm
Phase noise @ 100.000 MHz		-95 -130 -145 -150 -155		dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	@ 10 Hz @ 100 Hz @ 1 kHz @ 10 kHz @ 100 kHz
G-Sensitivity		±1		ppb/g	
Short term stability (Allan deviation)		2·10 ⁻¹¹			τ = 1 s
Reference voltage VREF output		2.8 4.2		V V	Option 1 = "33" Option 1 = "50"
Supply voltage V_s	3.15 4.75	3.3 5.0	3.45 5.25	V V	Option 1 = "33" Option 1 = "50"
Power consumption (steady state)		0.15		W	@ +25°C
Power consumption (warm-up)		0.70		W	
Enclosure (see drawing) (LxWxH)	20.4x20.4x14.1 max.			mm	(Note 3)
Weight			15	g	
Packing	Palette				

Notes:

1. Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise stated
2. Frequency referred to f_{final} at 15 minutes after switch-on
3. Package height of 12 and 13 mm and 0.8 mm pins 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	5	V	V_C to GND
Storage Temperature	-60	+90	°C	

Frequency stability vs. temperature

Option 2	Stability [ppb]
03	±3
05	±5
10	±10
20	±20
50	±50

Table 1

Lower Temperature		Upper Temperature	
Option 3	T [°C]	Option 3	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

Standard: "1B" = -10°C to +60°C

Frequency aging

Option 4	Per day	Per year	Option 4	Per day	Per year
	[ppb]	[ppm]		[ppb]	[ppm]
	30 MHz to <150 MHz			150 MHz to 300 MHz	
B	±0.2	±0.02	F	±2	±0.2
Z	±0.3	±0.03	G	±3	±0.3
C	±0.5	±0.05	H	±5	±0.5
D	±1	±0.1			
E	±1.5	±0.15			

Note: Not all combinations of stability, temperature range and aging may be available. Please consult factory.

Ordering Code

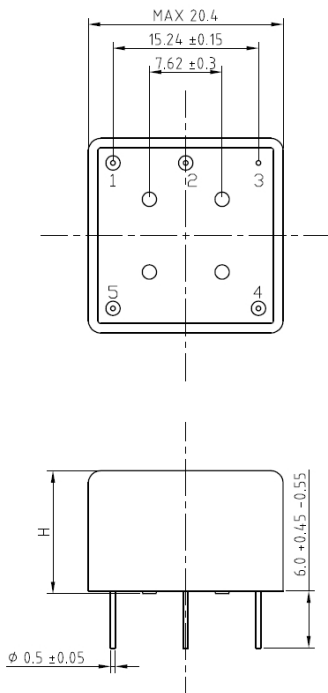
Model	Option 1 [Supply Voltage]	Option 2 [Stability]	Option 3 [Temperature range]	Option 4 [Aging]	Revision	Frequency [MHz]
AXIOM35HR	33 or 50	Table 1	Table 2	Table 3	Rev.2	100.000

Example: AXIOM35HR-50-05-1B-D_Rev.2 – 100.000 MHz

Handling and Testing

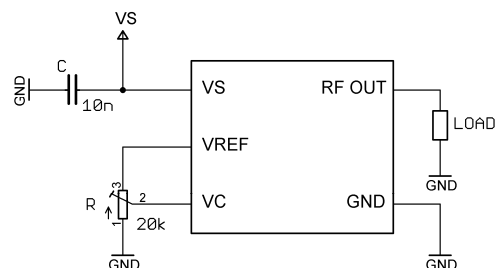
Parameter	Procedure		Source
Handling and Testing	Application Note AXAN-011		www.axtal.com
Processing	Application Note AXAN-012		www.axtal.com
Parameter	Procedure		Condition
Electrostatic discharge (ESD)			
THD devices	IEC60749-26	HBM	2000 V
SMD devices	IEC60749-27	MM	200 V
Washable	<input checked=""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

Enclosure drawing



Pin connections:

Pin #	Symbol	Function
1	V_C	Control Voltage (EFC)
2	VREF	Reference voltage
3	GND	Ground
4	RF OUT	RF Output
5	V_S	Supply Voltage



* See Application Note AXAN-011

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

Revision History

Rev.	Drawing	Date [dd.mm.yyyy]	Remarks	Author	Checked
1	D0	22.04.2015	First issue	HH	HH
1	D1	18.09.2015	Editorial changes	HH	HH
1	D2	29.02.2016	Editorial changes	HH	HH
2	D2	15.12.2018	Aging Options added	BN	BN