

Specification	AXIOM55	Rev.: 4	Date: 2014-04-18
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Oscillator type: Low Phase Noise VHF OCXO with Sine Wave Output

Parameter	min.	typ.	max.	Unit	Condition
Frequency range	50		150	MHz	
Standard frequencies	50.000/100.000/106.500/ 125.000/132.000/141.000			MHz	
Frequency stability					
Initial tolerance @ +25°C			±300	ppb	V _c @ VREF/2
vs. operating temperature range	Option 2 & 3 See tables 2 & 3				steady state
vs. supply voltage variation (pushing)			±10	ppb	V _s ± 5 %
vs. load change (pulling)			±10	ppb	R _L ±5 %
Long term (aging) per day (after 30 days operation) (Note 2)			±10 ±2	ppb ppb	AT-Cut SC-Cut
Long term (aging) 1 st year (after 30 days operation) (Note 2)		±300 ±50	±500 ±200	ppb ppb	AT-Cut SC-Cut
Frequency adjustment range	See table 5				Option 4
Mechanical Frequency Control (EFC)	±1			ppm	Option 4 = "T"
Electronic Frequency Control (EFC)	±1			ppm	Option 4 = "U"
EFC voltage V _c	0	VREF/2	VREF	V	Option 4 = "U"
EFC slope ($\Delta f / \Delta V_c$)	Positive				Option 4 = "U"
EFC input impedance	100			kΩ	Option 4 = "U"
RF output	See table 1				Option 1
Signal waveform	Sine wave				
Load R _L	50			Ω	±5%
Output level (Note 3)	+7			dBm	
Harmonics			-30	dBc	
Spurious			-90	dBc	
Warm-up time @ +25°C		3	5	min	$\Delta f_{\text{final}}/f_0 < \pm 0.1 \text{ ppm}$
Phase Noise	Consult factory				
Reference voltage VREF output (Note 4)		10.0		V	
Supply voltage V_s (Note 4)	11.4	12.0	12.6	V	
Current consumption (steady state)			150	mA	@ +25°C (Note 5)
Current consumption (warm-up)			350	mA	(Note 5)
Enclosure (see drawing) (LxWxH)	51.0x51.0x20.5max.			mm	IEC 60679-3 CO 40
Weight			70	g	
Packing	Palette				

Notes:

1. Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise stated
2. Lower aging on request
3. Other output level on request
4. Other supply and reference voltage on request
5. May be higher for wide operating temperature range

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	15	V	V_C to GND
Storage Temperature	-55	+125	°C	

RF connector

Option 1	RF connector
_ (blank)	Pin 3
S	SMA connector

Table 1

Frequency stability vs. temperature

Option 2	Stability [ppb]
05	±5
10	±10
25	±25
50	±50
100	±100
200	±200

Table 2

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
5	-55	F	+85

Table 3

Standard: "1B" = -10°C to +60°C

Temperature range [°C]	Frequency stability [Option 2]					
	05	10	25	50	100	200
0 ~ +50	O	SC	SC	SC	AT	AT
-10 ~ +60	O	SC	SC	SC	SC	AT
-20 ~ +70	O	SC	SC	SC	SC	SC
-30 ~ +70	O	SC	SC	SC	SC	SC
-40 ~ +75	-	O	SC	SC	SC	SC
-40 ~ +85	-	O	O	SC	SC	SC
-55 ~ +85	-	-	O	SC	SC	SC

Table 4 "Availability" AT, SC = AT-Cut, SC-Cut available, O = available on request, - not available

Frequency control

Option 4	Frequency control
_ (blank)	No Frequency Control
T	Internal Trimmer
U	Control Voltage

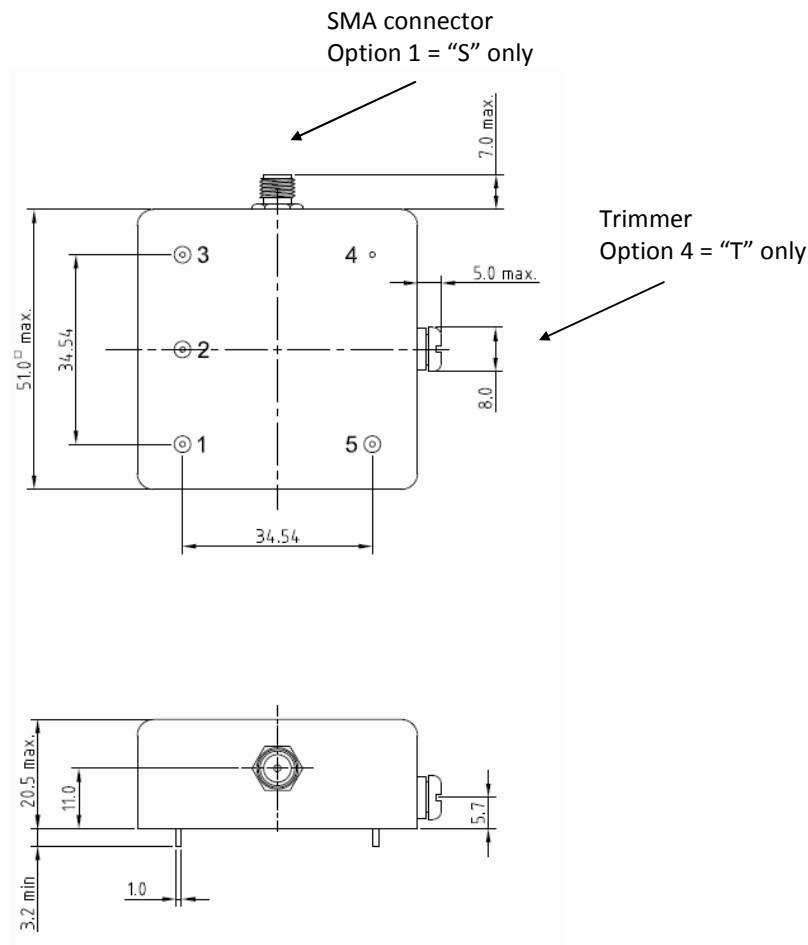
Table 5

Ordering Code

Model	Option 1 [RF connector]	Option 2 [Stability]	Option 3 [Temperature range]	Option 4 [Frequency control]	Revision	Frequency [MHz]
AXIOM55	Table 1	Table 2	Table 3	Table 5	Rev.4	100.000

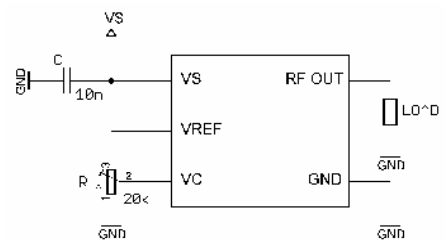
Example: AXIOM55-S-100-1B-U_Rev.4 – 100.000 MHz

Enclosure drawing



Pin connections

Pin #	Symbol	Function
1	V _C	Control Voltage (EFC) (Option 4 = "U" only, otherwise not connected)
2	VREF	Reference Voltage
3	RF OUT	RF Output (Option 1 = _ (blank) only, otherwise not connected)
4	GND	Ground
5	V _S	Supply Voltage
SMA	RF OUT	RF Output (Option 1 = "S" only, otherwise not installed)



* See Application Note AXAN-011

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		

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
3	D0	14.10.2013	Major revision	CG	BN
4	D0	18.04.2014	Frequency range changed, various parameters updated, environmental conditions updated, editorial changes	HH	HH