AXTAL ADVANCED XTAL PRODUCTS

Designed and Manufactured in Germany

Specification	AXIOM5050M	Rev.: 1	Date: 2014-06-20

Oscillator type: Low Phase Noise OCXO with Multiple Outputs

Parameter	min.	typ.	max.	Unit	Condition
Frequency range	50		150	MHz	
Frequency stability					
Initial tolerance @ +25°C			±300	ppb	@ V_C = 5.0 V
vs. operating temperature range	Option 2 & 3 See tables 1 & 2				steady state
vs. supply voltage variation (pushing)			±10	ppb	V_S ±5%
vs. load change (pulling)			±5	ppb	R_L ±5%
Long term (aging) per day		±1	±2	ppb	after 30 days operation
Long term (aging) 1st year		±100	±200	ppb	after 30 days operation
Frequency adjustment range					
Electronic Frequency Control (EFC)	±1	±2		ppm	
EFC voltage V_C	0	5.0	10.0	V	
EFC slope ($\Delta f / \Delta V_C$)	Positive				
EFC input impedance	100			kΩ	
RF output					
RF output ports (Note 2)	2, 4, 6				Option 1
Signal waveform	Sine wave				
Load R_L	50			Ω	±5%
Output level (each port)	+5			dBm	(Note 3)
Isolation between RF ports		30		dB	
Harmonics			-30	dBc	
Spurious			-90	dBc	
Warm-up time @ +25°C		3	5	min	$\Delta f_{final}/f_0$ < ±0.1 ppm
Phase noise	Consult factory				
Supply voltage V_S (Note 4)	11.4	12.0	12.6	V	
Current consumption (steady state)			300	mA	@ +25°C
Current consumption (warm-up)			500	mA	
Enclosure (see drawing) (LxWxH)	50.0x50.0x21.0 max.			mm	
Weight			60	g	
Packing	Palette				

Notes:

1. Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise stated
2. Odd number of ports on request
3. Higher output level on request. Unused ports must be terminated with 50 Ω
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	15	V	V_C to GND
Storage Temperature	-55	+125	°C	

Frequency stability vs. temperature

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

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
5	-55	F	+85

Table 2 **Standard: "1B" = -10°C to +60°C**

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

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

Ordering Code

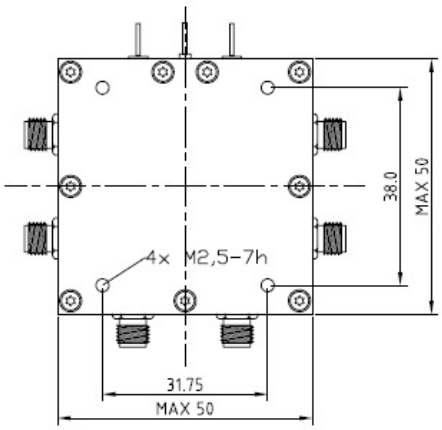
Model	Option 1 [Output ports]	Option 2 [Stability]	Option 3 [Temperature range]	Revision	Frequency [MHz]
AXIOM5050M	2, 4, 6	Table 1	Table 2	Rev.1	100.000

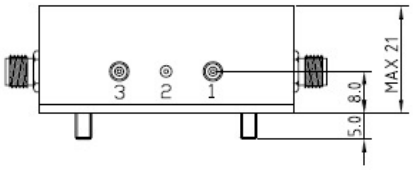
Example: AXIOM5050M-6-25-1B_Rev.1 – 100.000 MHz

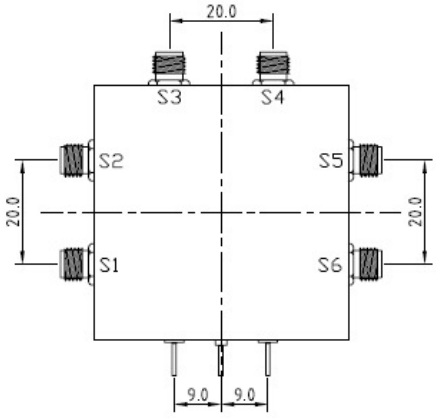
Handling and Testing

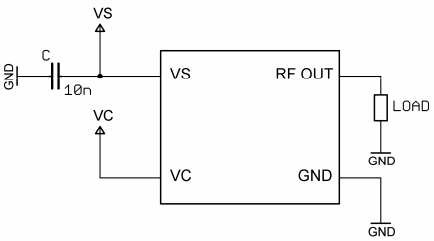
Parameter	Procedure		Source
Handling and Testing	Application Note AXAN-011		www.axtal.com
Processing	Application Note AXAN-012		www.axtal.com
Parameter	**Procedure**		**Condition**
Electrostatic discharge (ESD)			
THD devices	IEC60749-26	HBM	2000 V
SMD devices	IEC60749-27	MM	200 V
Washable	✖ Yes ☐ No		
RoHS- Compliant	✖ Yes ☐ No		

Enclosure drawing









* See Application Note AXAN-011

Pin connections:

Pin #	Symbol	Function
1	V_S	Supply Voltage
2	GND	Ground
3	V_C	Control Voltage (EFC)
SMA (6x)	RF OUT	RF Outputs

Ports	SMA Connectors *
2	SMA S3 – S4
4	SMA S2 – S5
6	SMA S1 – S6

*Unused connectors are not present

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	20.06.2014	First issue	HH	HH