AXTAL ADVANCED XTAL PRODUCTS

Specification	AXE135M	Rev.: 2	Date: 2015-11-23

Oscillator type: Crystal Oscillator (SPXO) in DIL8 package

Parameter	min.	typ.	max.	Unit	Condition
Frequency range	0.1 10 1		60 50 800	MHz MHz MHz	HCMOS Sine wave PECL / LVDS
Frequency stability					
Overall stability	±20 to ±100			ppm	(Note 2)
vs. operating temperature range	±10 to ±50 See tables 1 & 2			ppm	Option 3 & 4
Long term (aging) per year			± 3	ppm	
RF output					
Signal waveform	Sine wave HCMOS/TTL PECL LVDS				Option 2 = "S" Option 2 = "H" Option 2 = "P" Option 2 = "L"
Load	50 Ω 15 pF or 2 TTL 50 Ω + Bias				Option 2 = "S" Option 2 = "H" Option 2 = "P" or "L"
Amplitude		0 +10		dBm dBm	Option 2 = "S" / 3.3 V Option 2 = "S" / 5.0 V
	According to relevant Logic Standard				Option 2 = "H", "P","L"
Symmetry (duty cycle)	40 45		60 55	% %	Option 2 = "H" Option 2 = "P", or "L"
Oscillator Enable/Disable function (HCMOS and Sine wave output only)	Enable: Pin 1 High or Open Disable: Pin 1 Low				$V_H \geq 2.0$ V $V_L \leq 0.8$ V
Supply voltage V_S	3.15 4.75	3.3 5.0	3.45 5.25	V V	Option 1 = "3" Option 1 = "5"
Current consumption (steady state) **(**Note 3)	15 ~ 30 25 ~ 100 25 ~ 100			mA mA mA	Option 2 = "S" Option 2 = "H" Option 2 = "P" or "L"
Enclosure (see drawing) (LxWxH)	12.7x12.7x5.1 max.			mm	IEC 60679-3 CO 21
Weight			5	g	
Packing	Tube or Pallet				IEC 60286-3
Screening Option (MIL-PRF-55310	Level B or C				On request

Notes:

1. Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise stated
2. Overall tolerance includes initial tolerance, stability over temperature, pushing, pulling and vibration
3. Depending on frequency and supply voltage
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
Operable Temperature	-55	+125	°C	
Storage Temperature	-55	+125	°C	

Frequency stability vs. temperature

Option 3	Stability [ppm]
10	±10
15	±15
20	±20
30	±30
50	±50
100	±100

Table 1

Lower Temperature			Upper Temperature	
Option 4	T [°C]		Option 4	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
			G	+105
			H	+125

Table 2

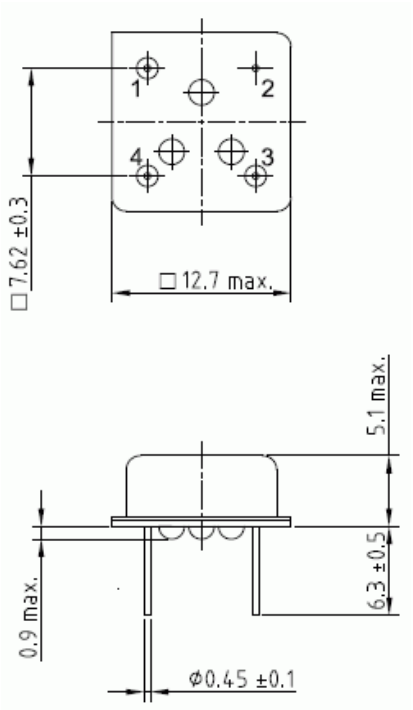
Note: Not all combinations of stability and temperature range are available. Please consult factory

Ordering Code

Model	Option 1 [Supply Voltage]	Option 2 [RF output]	Option 3 [Stability]	Option 4 [Temperature range]	Revision	Frequency [MHz]
AXE135M	3 or 5	S, H, P, L	Table 1	Table 2	Rev.2	10.000

Example: AXE135M-5-S-10-1B_Rev.2 – 10.000 MHz

Enclosure drawing



Pin connections

Sine wave and HCMOS Output:

Pin #	Symbol	Function
1	OE	Output Enable/Disable
2	GND	Ground
3	RF OUT	RF Output
4	Vs	Supply Voltage

PECL and LVDS Output:

Pin #	Symbol	Function
1	N.C. or Comp OUT	No connection or Complementary RF Output
2	GND	Ground
3	RF OUT	RF Output
4	Vs	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	D1	01.10.2012	Editorial changes	BN	BN
1	D2	04.04.2014	Environmental conditions updated, editorial changes	HH	HH
1	D2	23.11.2015	Temperature ranges extended to -55°C ~+125°C, Screening	BN	BN