

Specification	AXE55310-26	Rev.: 2	Date: 2018-09-18
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HCMOS Crystal Oscillator (XO) compliant to MIL-PRF-55310/26
Double-sealed package, height 7.5 mm

Parameter	min.	typ.	max.	Unit	Condition
Frequency range	4		65	MHz	
Frequency stability				ppm	
Initial accuracy @ 23°C		± 15 ~ ± 25		ppm	See table 1 (page 3)
vs. operating temperature range		± 40 ~ ± 100		ppm	See table 1 (page 3)
Operating temperature range (see table 1 page 3)	-55		+125	°C	Range A
	-55		+105	°C	Range B
	-20		+70	°C	Range C
vs. supply voltage variation			±2	ppm	V _{DD} ±10%
Maximum change over 30 days			±0.7~±1.5	ppm	
Long term (aging) after 30 days			±5~±10	ppm/year	See table 1 (page 3)
RF output					
Signal waveform	HCMOS				
Load	10 kΩ 15 pF				±5 %
Rise & decay time			5 ~ 10	ns	See table 1 (page 3)
Symmetry (duty cycle)	40~45		55~60	%	See table 1 (page 3)
Start-up time			15	ms	
Supply voltage V_{DD}	4.5	5.0	5.5	V	
Current consumption (without load)			10~70	mA	See table 1 (page 3)
Storage temperature range	-62		+125	°C	
Enclosure (see drawing) (L x W x H)	20.7x13.1x7.5max.			mm	IEC 60679-3 CO02
Pin configuration	A : 14 pin B : 4 pin				See table 1 (page 3)
Weight			14	g	
Marking	Part number Date Code & Serial number				Note 2
Product Screening Level	B, C or S				See table 2
Technology	Class 1 (discrete SMD)				MIL-PRF-55310
Packing	Palette or sticks				IEC 60286-3
Handling and Testing	In accordance with AXAN-011				www.axtal.com
Processing	In accordance with AXAN-012				www.axtal.com

Notes:

1. Terminology and test conditions according to MIL-PRF55310 and IEC60679-1, unless otherwise stated
2. Date Code format wwAXyy with ww = calendar week, yy = year

Part Number Ordering Code:

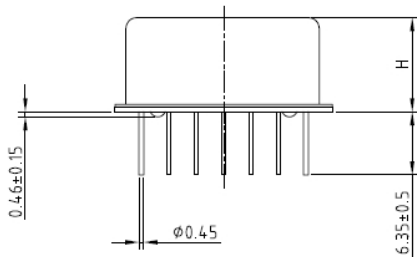
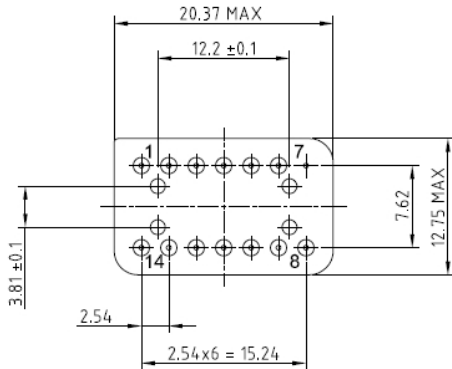
Model	Product Screening Level	Dash number*	Operating temperature range (A, B, or C)*	Frequency (M = MHz, k = kHz)
AXE55310-26	B	37	A	12M0000

* see table 1

Example: AXE55310-26-B-37A-12M0000

Enclosure drawings

Configuration A (14/14 pins)



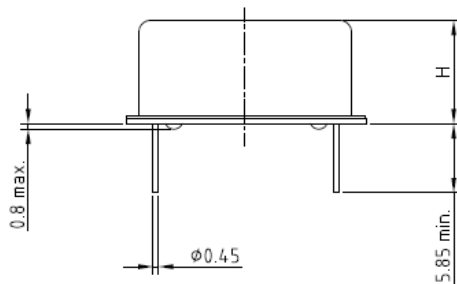
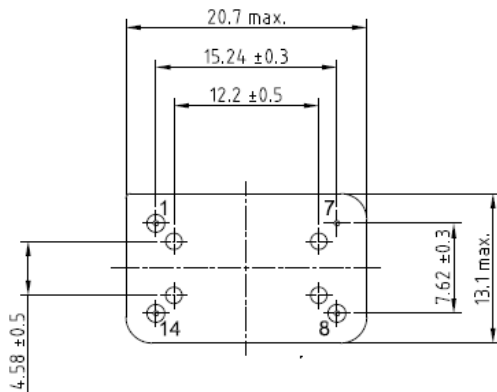
Pin connections

Pin #	Symbol	Function
1 to 6	N.C.	No Connection
7	GND	Ground
8	RF OUT	RF Output
9 to 13	N.C.	No Connection
14	V _{CC}	Supply Voltage

Note:

All pins with N.C. function may be connected internally and are not to be used as external connections

Configuration B (4/14 pins)



Pin connections

Pin #	Symbol	Function
1	N.C.	No Connection
7	GND	Ground
8	RF OUT	RF Output
14	V _{DD}	Supply Voltage

Table 1: Dash numbers and operating characteristics

Dash number		Output frequency range	Input current (max) at 5.0 V $\pm 10\%$ ^{3/}	Pulse characteristics ^{1/}		Initial accuracy at 23°C $\pm 1^\circ\text{C}$ ^{2/}	Frequency aging per year (max) ^{4/}	Initial frequency ^{2/} temperature accuracy		
Config-uration				Rise/fall time (max)	Duty cycle min-max			-55°C to +125°C	-55°C to +105°C	-20°C to +70°C
A	B				percent	ppm	ppm	ppm	ppm	ppm
02	03	.01 MHz to 1.0 MHz	10 mA	10 ns	45 to 55	± 15	± 5	± 65	± 55	± 40
06	07	.01 MHz to 1.0 MHz	10 mA	10 ns	45 to 55	± 25	± 10	± 100	± 75	± 50
22	23	1 MHz to 4 MHz	15 mA	10 ns	45 to 55	± 15	± 5	± 65	± 55	± 40
26	27	1 MHz to 4 MHz	15 mA	10 ns	45 to 55	± 25	± 10	± 100	± 75	± 50
32	33	4 MHz to 20 MHz	20 mA	10 ns	40 to 60	± 15	± 5	± 65	± 55	± 40
36	37	4 MHz to 20 MHz	20 mA	10 ns	40 to 60	± 25	± 10	± 100	± 75	± 50
42	43	20 MHz to 35 MHz	35 mA	10 ns	40 to 60	± 15	± 5	± 65	± 55	± 40
46	47	20 MHz to 35 MHz	35 mA	10 ns	40 to 60	± 25	± 10	± 100	± 75	± 50
52	53	35 MHz to 50 MHz	40 mA	5 ns	40 to 60	± 15	± 5	± 65	± 55	± 40
56	57	35 MHz to 50 MHz	40 mA	5 ns	40 to 60	± 25	± 10	± 100	± 75	± 50
62	63	50 MHz to 65 MHz	70 mA	5 ns	40 to 60	± 15	± 5	± 65	± 55	± 40
66	67	50 MHz to 65 MHz	70 mA	5 ns	40 to 60	± 25	± 10	± 100	± 75	± 50

1/ Referred to 10% and 90 % of V_{DD}

2/ Up to 30 days following shipment

3/ No load condition

4/ After 30 days following shipment

Table 2: Screening (100 %) for product levels S, B and C (MIL-PRF-55310D)

Test inspection	Product Level S	Product Level B	Product Level C
Random vibration	MIL-STD-202, Meth.214, Cond. I-B, 5 minutes per axis	N/A	N/A
Thermal shock	MIL-STD-202, Meth.107, Cond. A-1	MIL-STD-202, Meth.107, Cond. A-1	N/A
Electrical test	MIL-PRF-55310 clause	N/A	N/A
Input current	4.8.5	N/A	N/A
Output waveform	4.8.20	N/A	N/A
Output voltage	4.8.21	N/A	N/A
As specified	AXX55310-26	AXX55310-26	AXX55310-26
Burn-in (load)	@ max. operating temperature, nominal supply voltage and burn-in load, 240 h min.	@ max. operating temperature, nominal supply voltage and burn-in load, 160 h min.	N/A
Electrical test	MIL-PRF-55310 clause	N/A	N/A
Input current	4.8.5	N/A	N/A
Output waveform	4.8.20	N/A	N/A
Output voltage	4.8.21	N/A	N/A
As specified	AXX55310-26	AXX55310-26	AXX55310-26
Seal test	MIL-STD-202, Meth. 112	MIL-STD-202, Meth. 112	N/A
Radiographic	MIL-STD-202, Meth. 209	N/A	N/A

Table 3: Mechanical and environmental conditions

Test	MIL-STD-202G Method	MIL-PRF-55310D Clause	Test conditions
Sealing tests	112E	3.6.1.2	Gross leak: Test Qc, Fine leak: Test Qk
Terminal strength	211		Test condition C
Resistance to soldering heat	210		Test condition E
Solderability	208H	3.6.52	(235 ± 5)°C Method 1
Shock	213B	3.6.40	Test cond. I, 3 x per axes 100g, 6 ms half-sine pulse, non-operating
Vibration, sinusoidal	204D	3.6.38.1	Test condition D, non-operating
Thermal shock	107		Test cond. B, non-operating
Ambient pressure	105		Test cond. C, operating
Moisture resistance	106		
Endurance tests (ageing)	108A	4.8.35	30 days @ 70°C

Revision History

Rev.	Drawing	Date [dd.mm.yyyy]	Remarks	Author	Checked
1	D0	05.09.2012	First issue	HH	BN
2	D0	26.08.2014	Screening Product Level "S" added, Screening table added	BN	BN
2	D1	10.02.2015	Package drawing updated/corrected	HH	HH
2	D2	18.09.2017	Pin connections (Configuration B) corrected	BN	BN