

<b>Specification</b>	<b>AXE55310-26</b>	Rev.: 2	Date: 2015-02-10
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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
<b>Frequency range</b>	4		65	MHz	
<b>Frequency stability</b>				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 <sub>DD</sub> ±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)
<b>RF output</b>					
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)
<b>Start-up time</b>			15	ms	
<b>Supply voltage V<sub>DD</sub></b>	4.5	5.0	5.5	V	
<b>Current consumption (without load)</b>			10~70	mA	See table 1 (page 3)
<b>Storage temperature range</b>	-62		+125	°C	
<b>Enclosure (see drawing) (L x W x H)</b>	20.7x13.1x7.5max.			mm	IEC 60679-3 CO02
<b>Pin configuration</b>	A : 14 pin B : 4 pin				See table 1 (page 3)
<b>Weight</b>			14	g	
<b>Marking</b>	Part number Date Code & Serial number				Note 2
<b>Product Screening Level</b>	B, C or S				See table 2
<b>Technology</b>	Class 1 (discrete SMD)				MIL-PRF-55310
<b>Packing</b>	Palette or sticks				IEC 60286-3
<b>Handling and Testing</b>	In accordance with AXAN-011				www.axtal.com
<b>Processing</b>	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:**

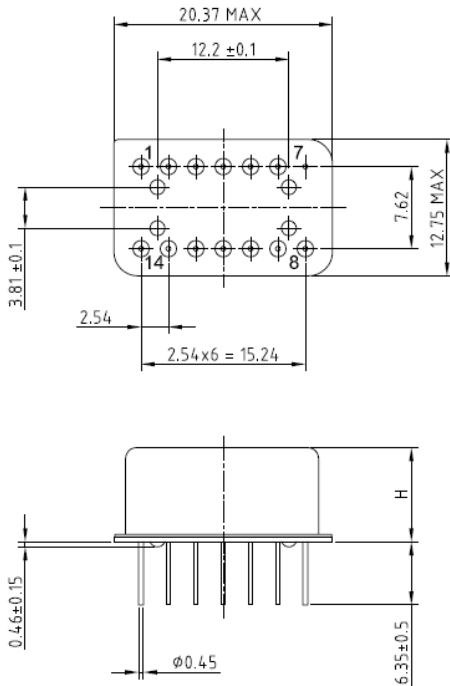
Model	Product Screening Level	Dash number*	Operating temperature range (A, B, or C)*	Frequency (M = MHz, k = kHz)
AXE55310-26	B	37	A	12M0000

\* see table 1

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

Enclosure drawings

Configuration A (14/14 pins)



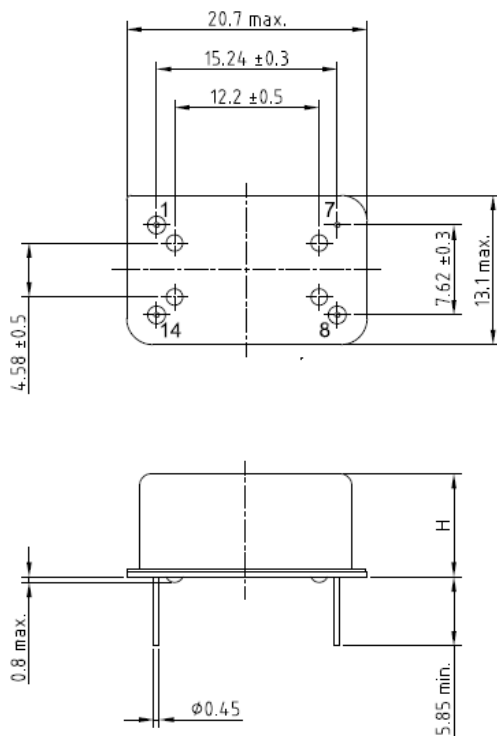
Pin connections

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 <sub>CC</sub>	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 to 6	N.C.	No Connection
7	GND	Ground
8	RF OUT	RF Output
9 to 13	N.C.	No Connection
14	V <sub>DD</sub>	Supply Voltage

**Table 1: Dash numbers and operating characteristics**

Dash number		Output frequency range	Input current (max) at 5.0 V $\pm 10\%$ <sup>3/</sup>	Pulse characteristics <sup>1/</sup>		Initial accuracy at 23°C $\pm 1^\circ\text{C}$ <sup>2/</sup>	Frequency aging per year (max) <sup>4/</sup>	Initial frequency <sup>2/</sup> / temperature accuracy		
Configuration				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	$\pm 15$	$\pm 5$	$\pm 65$	$\pm 55$	$\pm 40$
06	07	.01 MHz to 1.0 MHz	10 mA	10 ns	45 to 55	$\pm 25$	$\pm 10$	$\pm 100$	$\pm 75$	$\pm 50$
22	23	1 MHz to 4 MHz	15 mA	10 ns	45 to 55	$\pm 15$	$\pm 5$	$\pm 65$	$\pm 55$	$\pm 40$
26	27	1 MHz to 4 MHz	15 mA	10 ns	45 to 55	$\pm 25$	$\pm 10$	$\pm 100$	$\pm 75$	$\pm 50$
32	33	4 MHz to 20 MHz	20 mA	10 ns	40 to 60	$\pm 15$	$\pm 5$	$\pm 65$	$\pm 55$	$\pm 40$
36	37	4 MHz to 20 MHz	20 mA	10 ns	40 to 60	$\pm 25$	$\pm 10$	$\pm 100$	$\pm 75$	$\pm 50$
42	43	20 MHz to 35 MHz	35 mA	10 ns	40 to 60	$\pm 15$	$\pm 5$	$\pm 65$	$\pm 55$	$\pm 40$
46	47	20 MHz to 35 MHz	35 mA	10 ns	40 to 60	$\pm 25$	$\pm 10$	$\pm 100$	$\pm 75$	$\pm 50$
52	53	35 MHz to 50 MHz	40 mA	5 ns	40 to 60	$\pm 15$	$\pm 5$	$\pm 65$	$\pm 55$	$\pm 40$
56	57	35 MHz to 50 MHz	40 mA	5 ns	40 to 60	$\pm 25$	$\pm 10$	$\pm 100$	$\pm 75$	$\pm 50$
62	63	50 MHz to 65 MHz	70 mA	5 ns	40 to 60	$\pm 15$	$\pm 5$	$\pm 65$	$\pm 55$	$\pm 40$
66	67	50 MHz to 65 MHz	70 mA	5 ns	40 to 60	$\pm 25$	$\pm 10$	$\pm 100$	$\pm 75$	$\pm 50$

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