

# Space VCXO

Space VCXO - Voltage Controlled Crystal Oscillator Flat Pack, General Specification (rev1)

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December 5th, 2007

## ▣ Features

- Low consumption
- Frequency Range : 5 MHz to 150 MHz
- Supply Voltage : +5V or +12V
- Warm up Consumption : 20 mA
- Overall Frequency including frequency setting at 25 °C, frequency stability vs. Temperature Range, load and supply changes and aging: from +/-50ppm to +/-100ppm
- Absolute pulling range : +/-70ppm to +/-140ppm
- Output Wave Form : sine 50 Ohms
- Output Level : from 0 to 8 dBm
- Case types(s) : 20 x 20 mm or 25 x 25 mm depending on spec
- Manufacturing in accordance with MIL-PRF-55310 (Class 1, type 4, level S)
- Based on SMD Discrete components technology

## ▣ Application

XO space is recommended for space clock applications and signal generation

## ▣ Environmental conditions

Parameters	Unit	Minimum	Typical	Maximum
Operating temperature range	°C	- 40		+ 85
Storage temperature range	°C	- 55		+ 125
Shocks (half sine)		900g, 0.3ms		
Sine vibration		20g as per MIL-STD-202, Method 204, Condition D		
Random vibration		50 Grms as per MIL-STD-202, Method 214, Condition I-F		
Radiation		Up to 100 kRad total dose		

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## Mechanical characteristics

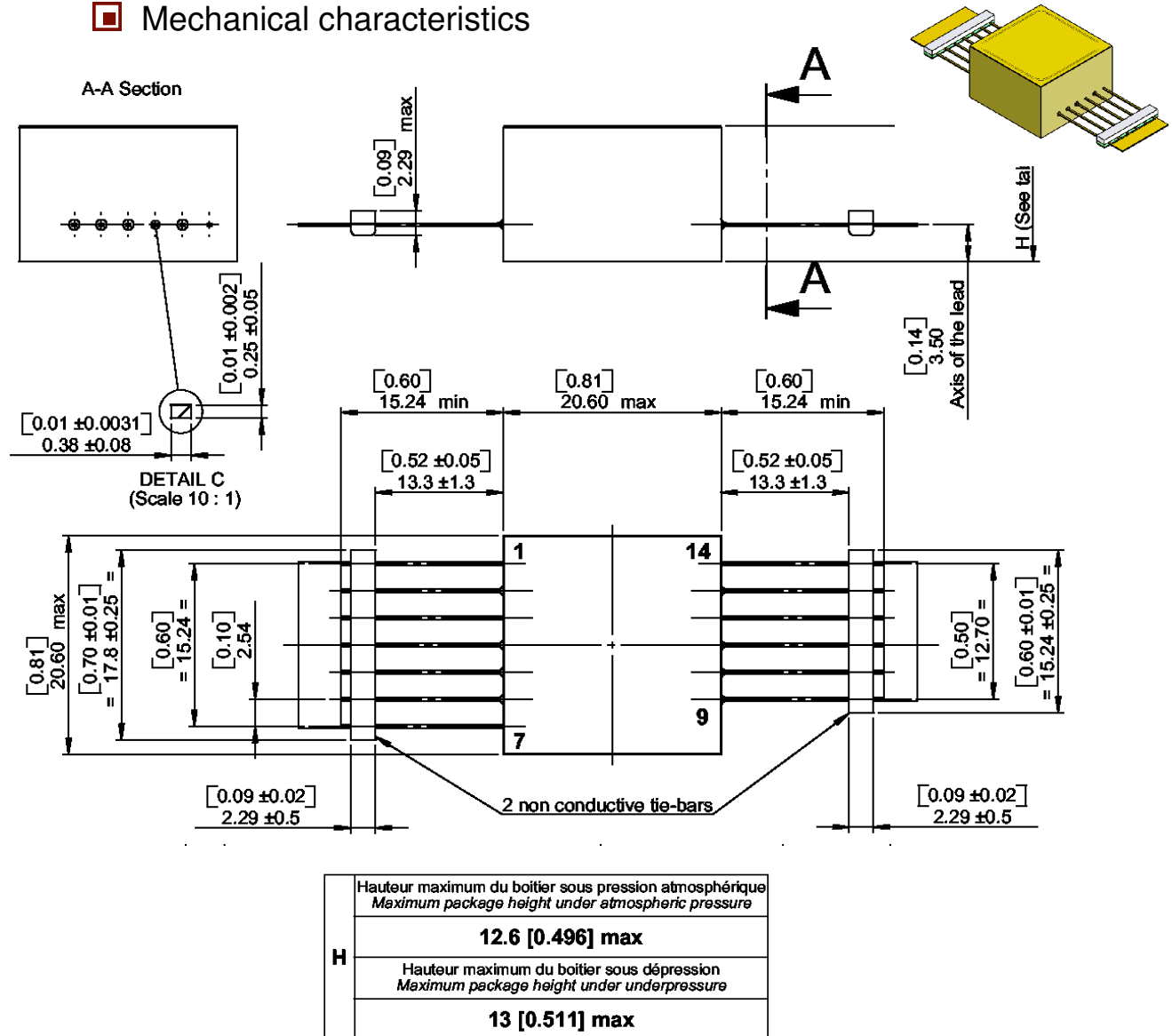


Figure 1 : Oscillator outline 1

Pin number	Name	Function
1-3-7-12-14	GND	Electrical & Mechanical Ground
2	Vcc	Supply Voltage
4 - 5 - 8 - 9 - 10 - 11	NC	
6	Vc	Voltage control for electric tuning
13	Fout	Frequency Output

Table 1 : Pin description 1

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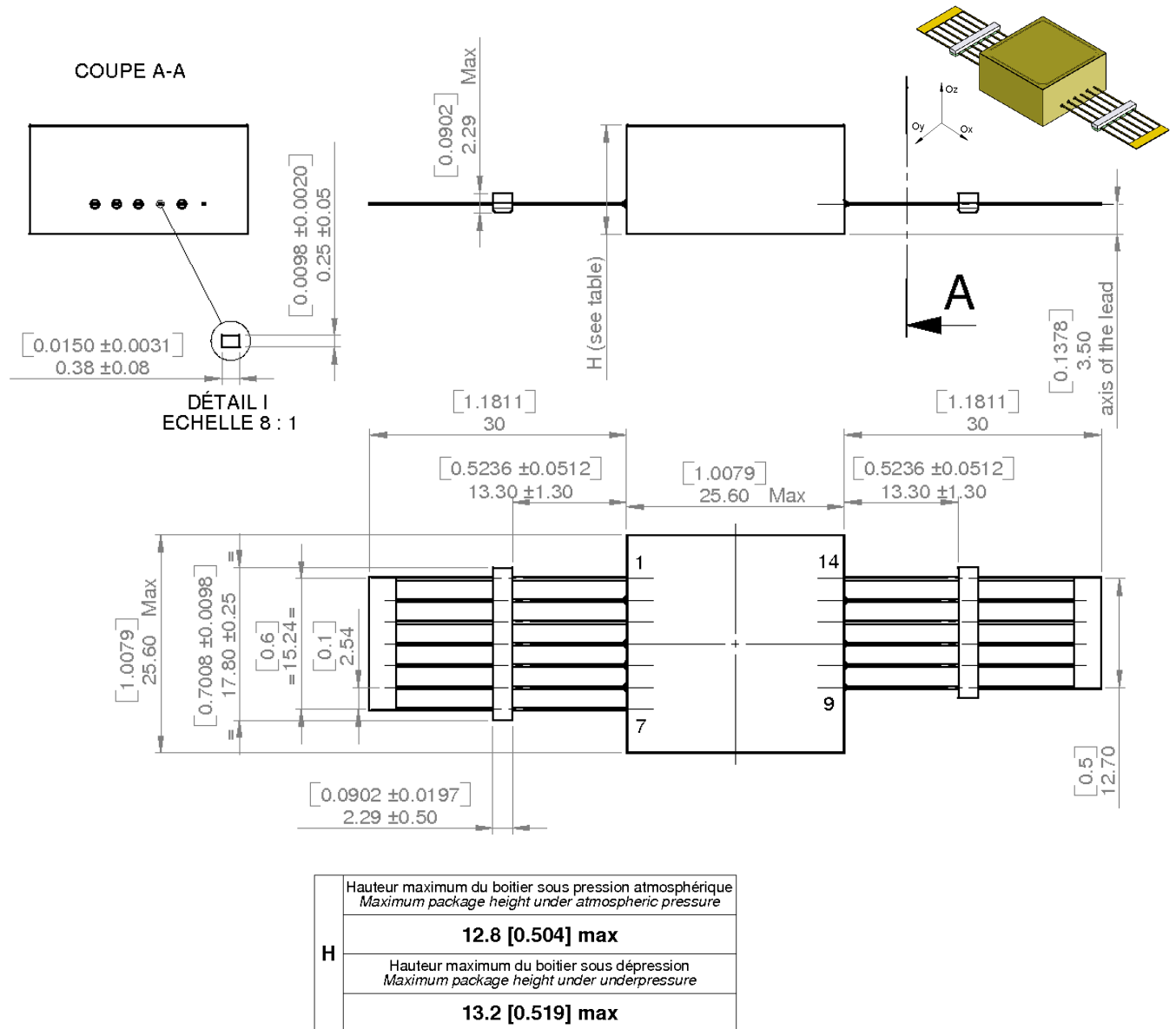


Figure 2 : Oscillator outline 2

Pin number	Name	Function
1-3	GND	Electrical & Mechanical Ground
2	Vcc	Supply Voltage
4 – 5 – 8 - 9 – 10 - 11	NC	
6	Vc	Voltage control for electric tuning
13	Fout	Frequency Output

Table 2 : Pin description 2

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## ▣ Performance Characteristics

Electrical Parameters	Unit	Minimum	Typical	Maximum
<b>Frequency output</b>				
Nominal frequency range	MHz	5	10	150
Output level (50 $\Omega$ load)	dBm	3		6
Harmonics level	dBc			- 25
Spurious (offset > 50 Hz)	dBc			- 80
<b>Phase noise in static conditions @ 40 MHz</b>				
@ 10 Hz offset	dBc/Hz			-75
@ 100 Hz offset	dBc/Hz			- 100
@ 1 kHz offset	dBc/Hz			- 130
@ 10 kHz offset or greater	dBc/Hz			- 150
<b>Free running mode (Vctrl pin NC)</b>				
Initial setting	ppm			10
Stability vs. temperature	ppm			15
Stability vs. 5 % supply voltage variation	ppm			0.5
Stability vs. 10 % load variation	ppm			0.5
Aging over first year	ppm			7
<b>Electrical tuning (Vctrl pin)</b>				
Relative pulling frequency range	ppm	$\pm 70$		
Input impedance	$\Omega$	10k		
Linearity	%			20
<b>Supply voltage (Vcc pin)</b>				
Voltage range	V <sub>DC</sub>	4.75	5	12.6
Supply power @ 25 °C under vacuum	W			0.1