

Space TCXO

Space TCXO – Temperature Compensated Crystal Oscillator, General Specification (rev1)

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General Specification (rev1)

December 5th, 2007

▣ Features

- Low consumption
- Frequency Range : 10 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 : +/-1.5ppm
- Aging : from +/-5ppm to +/-15ppm over 15 years
- 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

▣ Applications

TCXO Space Flat Pack is recommended for Space Clock applications and Signal Generation, Transponders and Down and Up Converters.

▣ Environmental conditions

Parameters	Unit	Minimum	Typical	Maximum
Operating temperature range 1	°C	- 20		+ 70
Operating temperature range 2	°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

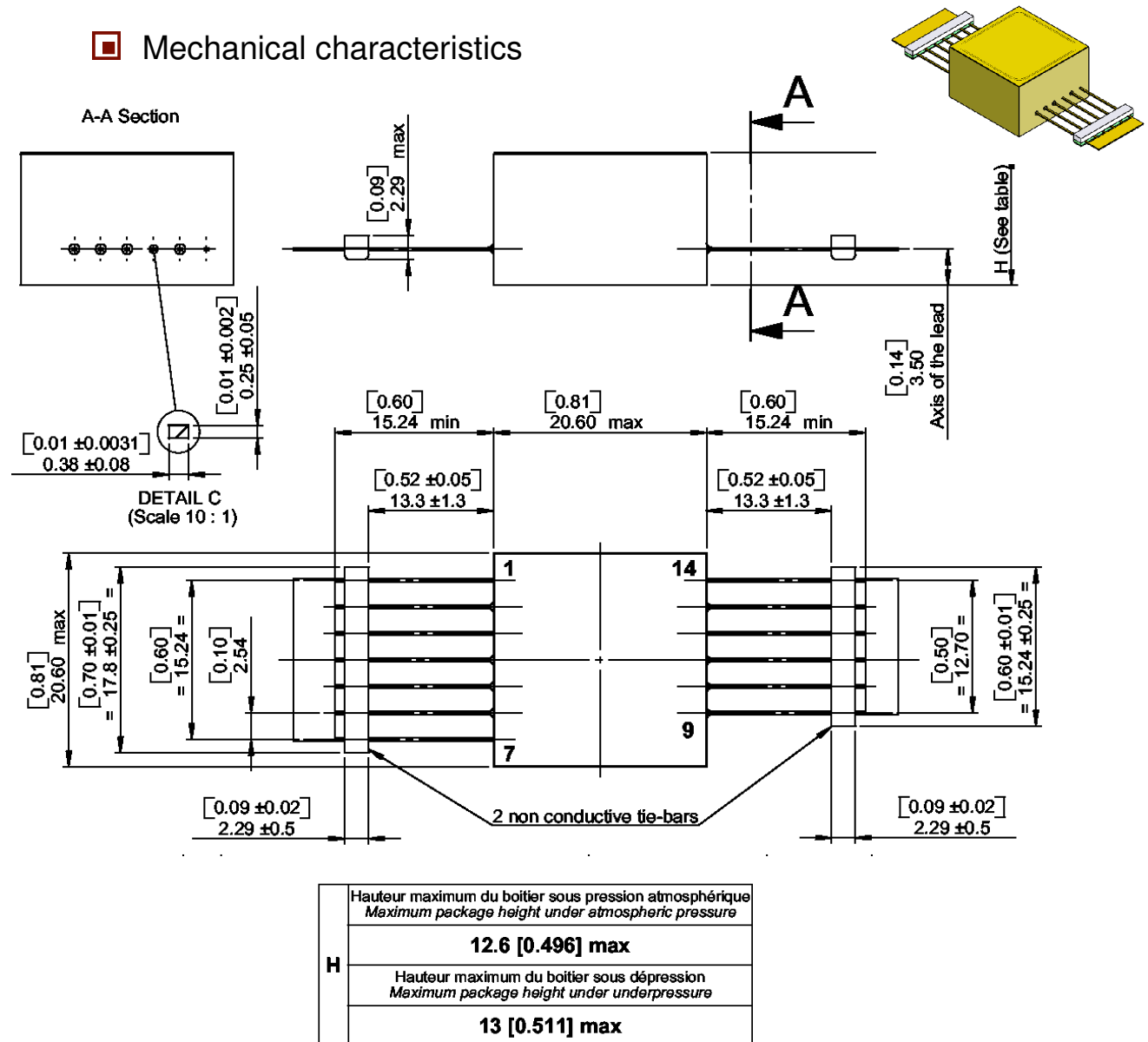


Figure 1 : Oscillator outline 1

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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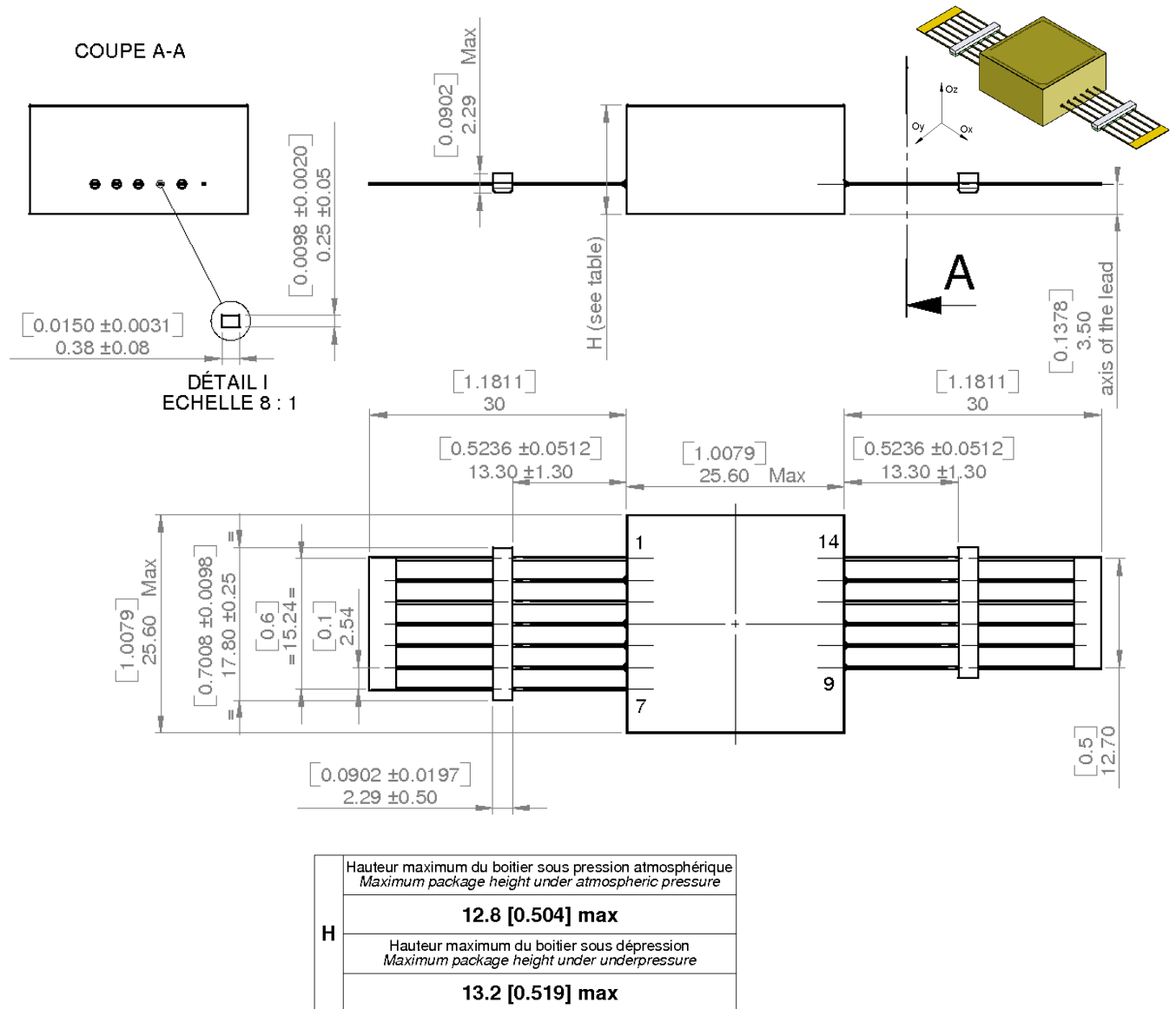


Figure 2 : Oscillator outline 2

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
Frequency output (SMA Connector)				
Nominal frequency range	MHz	10	40	150
Output level (50 Ω load)	dBm	0		5
Harmonics level	dBc			-35
Spurious (offset > 50 Hz)	dBc			-80
Phase noise in static conditions @ 100 MHz				
@ 1 Hz offset	dBc/Hz			-50
@ 10 Hz offset	dBc/Hz			-80
@ 100 Hz offset	dBc/Hz			-115
@ 1 kHz offset	dBc/Hz			-135
@ 10 kHz offset or greater	dBc/Hz			-150
Free running mode (Vctrl pin NC)				
Initial setting	ppm			0.5
Stability vs. temperature (range 1)	ppm	± 0.5		± 1.0
Stability vs. temperature (range 2)	ppm	± 1.0		± 2.0
Stability vs. 5 % supply voltage variation	ppm			± 0.05
Stability vs. 10 % load variation	ppm			± 0.2
Aging over first year	ppm			1
Aging over 15 years	ppm			7.5
Supply voltage (Vcc pin)				
Voltage range	V _{DC}	4.75	5	12.6
Supply power @ 25 °C under vacuum	W			0.25