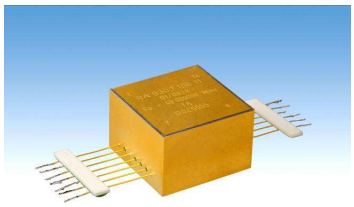
For this product, full detailed specifications can be delivered on request.
Specific request can be addressed to RAKON info@rakon.fr

Product Description



OCXO Space Flat Pack is designed for space clocks, signal generation applications, transponders, GPS receivers, digital cards, board calculators, down and up converters, and synthesizers. This frequency source is a good trade off between overall frequency stability and power consumption of 0,5W.
OCXOs Space Flat Pack (25x25x17mm) are manufactured in accordance with MIL-PRF-55310 (Class 1, type 4, level S).

Features

- Frequency Range : 35 MHz to 130 MHz
- Low consumption
- Supply Voltage : +9V or +12V
- Warm up Consumption : 2 Watt
- Maximum Steady state Consumption under vacuum : 0.65 Watt
- Overall Frequency Stability vs. Operating Temperature Range +/– 0.5ppm under vacuum
- Ageing :+/– 0.8 ppm over 15 years typical
- Output Wave Form : sine 50 Ohms
- Output Level : from 4 to 7 dBm
- Compatible with Flat pack TCXO pin-out
- Component selected as per ECSS-Q-ST-60C
- Materials selected as per ECSS-Q-70
- Manufacturing in accordance with:
  - MIL-PRF-55310 (Class 1, type 4, level S,B)
  - ECSS-Q-ST-70-08C and ECSS-Q-ST-70-38C

Applications

- Transponders
- GPS receivers
- Digital cards
- Converters
- Board calculators
- Synthesizers
- FGU

Specifications

1.0 Environmental conditions

Line	Parameters	Conditions/remarks	Min	Nom	Max	Unit
1.1	Operating Temperature	Temperature option A	0	25	70	°C
		Temperature option B	-20	25	70	°C
		Temperature option C	-40	25	70	°C
1.2	Switch-on Temperature	TSo	-40		85	°C
1.3	Non-Operating Temperature	TNOp	- 55		130	°C
1.4	Random Vibration	Level as per MIL-STD-202), Method 214, Condition I-K (46,30 Grms)				
1.5	Sine Vibration	Level as per MIL-STD-202), Method 204, Condition D (20G)				
1.6	Shocks	Mechanical shock as per MIL-STD-202, Method 213, Condition E (half sine with a peak acceleration of 1500g for duration of 0.5 msec)				
1.7	Radiation	TID : 100 kRad, low dose rate No SEL up to LET=60 MeV/mg/cm²				

2.0 Electrical interface

Line	Parameters		Conditions/remarks	Min	Nom	Max	Unit
2.1	Power supply		Supply option 1	8.5	9.0	9.5	V
			Supply option 2	11.4	12.0	12.6	V
2.2	Load Impedance			45	50	55	Ω
2.3	Reference voltage			5.4	6.0	6.6	V
2.4	Ref voltage current					1	mA
2.5	Control voltage	Vc	Calibration option 2	0		6	V
2.6	Input impedance			10			kΩ

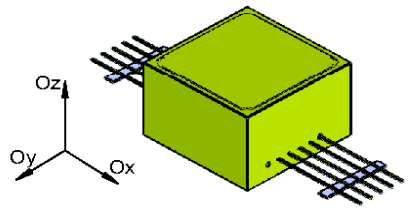
3.0 Performances

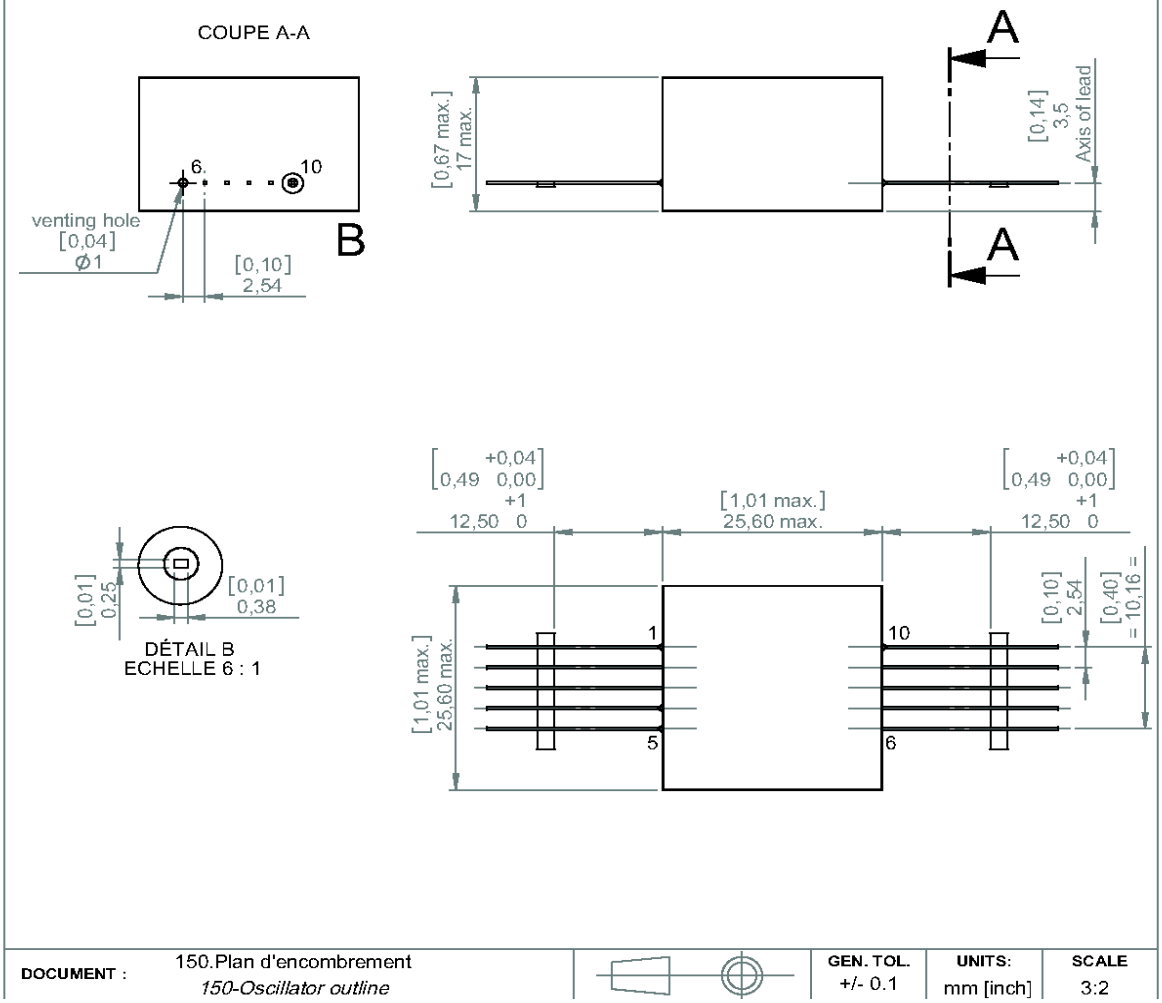
Line	Parameters	Conditions/Remarks	Min	Typ	Max	Unit
3.1	Nominal Frequency		35		130	MHz
3.2	Steady state input current power	Vacuum @ -20°C			0.65	W
3.3	Warm up supply power				2	W
3.4	Initial frequency accuracy	Calibration option 1			± 0.4	ppm
3.5		Calibration option 2			± 0.1	ppm
3.6	Frequency adjustment	Positive slope	± 1.2			ppm
3.7	Frequency stability vs temperature Under vacuum	Temperature option A			± 0.05	ppm
3.8		Temperature option B			± 0.1	
3.9		Temperature option C			± 0.25	
3.10	Frequency variation vs. supply voltage	Over Operating Temperature			± 0.01	ppm
3.11	Frequency variation vs. load	Over Operating Temperature			± 0.01	ppm
3.12	Frequency variation vs pressure	Atm to vacuum			± 0.2	ppm
3.13	Frequency ageing	Over 1 years			± 0.3	ppm
3.14		Over 15 years			± 0.8	ppm
3.15	Allan variance	1s			0.05	ppb
3.16	Output waveform			Sine		
3.17	Output level	EOL	4		7.5	dBm
3.18	Harmonics level				-30	dBc
3.19	Non harmonics level				- 100	dBc
3.20	Phase noise (40MHz)	1 Hz			-65	dBc/Hz
3.21		10 Hz			-95	dBc/Hz
3.22		100 Hz			-125	dBc/Hz
3.23		1kHz			-145	dBc/Hz
3.24		10 kHz and above		- 155	- 150	dBc/Hz

4.0 Mechanical features

Weight 25 grams

Number of lead : 10	Leads on 2 sides
I.D bead : Pins # : 1, 4, 5, 10	Grounds pins : Pins # : 2, 3, 6, 7, 8, 9





DOCUMENT :	150.Plan d'encombrement *150-Oscillator outline*	GEN. TOL.	UNITS:	SCALE
		+/- 0.1	mm [inch]	3:2

5.0 Pin description

Line	Pin number	Name	Function
5.1	1	Vcc	Supply Voltage input
5.2	2,3,6,7,8,9	Ground	Electrical & Mechanical Ground
5.3	4	Vref	Reference voltage output
5.4	5	NC	Voltage control for electric tuning — Calibration option 1
5.5		Vc	Calibration option 2
5.6	10	Fout	Frequency Output

6.0 Model philosophy

Representativeness	Engineering Model (option A)	Engineering Qualification Model (options B, C)	Qualification Model (option D)	Flight Model (options E, F, G, H)	Flight Model + Lot Acceptance test (option I)
Component	Passive commercial parts Active parts from the same manufacturer of HiRel parts	Mil Grade parts procured from the same manufacturer of HiRel parts	HiRel Parts	HiRel Parts	HiRel Parts
Crystal material	Swept quartz Stabilized	Swept quartz Stabilized	Swept quartz ESCC3501 Stabilized	Swept quartz ESCC3501 Stabilized	Swept quartz ESCC3501 Stabilized
Mechanical interface	Flight representative in form-fit-function	Flight representative in form-fit-function	Flight design	Flight design	Flight design
Electrical interface	Flight design	Flight design	Flight design	Flight design	Flight design
Tests	Acceptance testing	Qualification testing	Qualification testing (including screening)	Acceptance testing (including screening)	Acceptance testing (including screening)+ LAT
Workmanship	IPC610	ECSS-Q-ST-70-08 & 70-38	ECSS-Q-ST-70-08 & 70-38	ECSS-Q-ST-70-08 & 70-38	ECSS-Q-ST-70-08 & 70-38

7.0 Flight Model Screening according to MIL-PRF-55310

- Full Level S (option E)
- Level S with combined burn in aging of 480 hours (option F)
- Full Level B (option G)
- Level B with combined burn in aging of 480 hours (option H)

Lot Acceptance test could be performed on all screening options

8.0 Options for Engineering Qualification Model

- Production manufacturing, qualification flow including qualification mechanical tests (option B)
- Production manufacturing, electrical tests only (option C)

9.0 Deliverable documentation

- Test data
- Full specification
- Certificate of Conformity (CoC)

10.0 Ordering part number definition

The part number breakdown is defined as follows: