

EWOS10HP

**LOW AGING & LOW POWER SC-CUT OCXO
FOR MIL/AERO/GENERAL INDUSTRY**

PRODUCT OVERVIEW

EWOS10HP is the ideal precision OCXO combining a record low aging and very low power consumption. It targets embedded or battery powered systems requiring a state-of-the-art precision timing core. Built around a high-Q factor SC-cut resonator, it shows a low aging drift (typ. 0,3 ppb/day) and is specified within an operating temperature up to 70°C or 85°C. It consumes less than 400mW (at 25°C), thus 5 to 10 times lower than other similar SC-cut OCXO available on the market. Its high robustness to mechanical shocks and vibration are a great benefit for airborne navigation or synchronization systems.



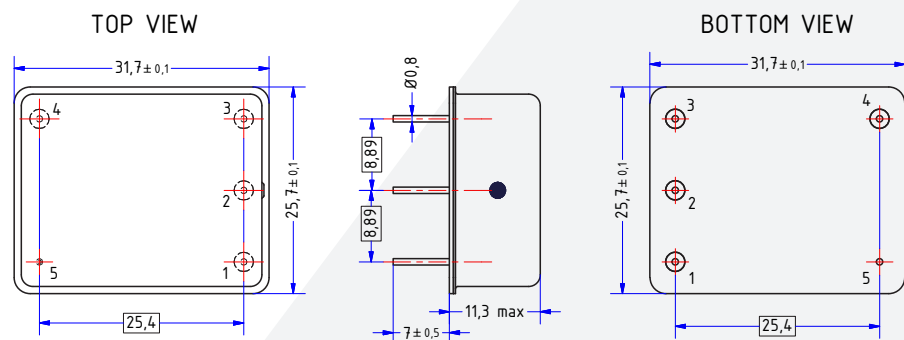
KEY FEATURES

- 10 MHz HCMOS or Sine 50 Ohm output
- ±10 ppb (typ.) thermal sensitivity
- 400 mW @ 25°C (typ., ordering Code B)
- ±0.3 ppb/day after 30 days

i ORDERING INFORMATION IS AVAILABLE ON THE LAST PAGE

DIMENSIONS & PIN-OUT

PIN	FUNCTION
1	Frequency control
2	Reference voltage
3	Power supply
4	RF Out
5	Ground



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ELECTRICAL CHARACTERISTICS

PARAMETERS	UNIT	MIN	TYP.	MAX	NOTE	COMMENTS
Output Frequency	MHz		10		1	Standard frequencies: 20, 40
Temperature Range						
Operating	°C	-30		+70		Ordering code B
	°C	-40		+85		Ordering code C
Storage	°C	-55		+95		
Supply Voltage	V		5			± 5%
Supply Current						
Warm up	mA		400	700	3	During 20s max @25°C
Steady state / -30°C	mA		160	180	1	Ordering code B
Steady state / +25°C	mA		80	100	1	Ordering code B
Steady state / +70°C	mA		15	30	1	Ordering code B
Steady state / -40°C	mA		175	205	1	Ordering code C
Steady state / +25°C	mA		90	115	1	Ordering code C
Steady state / +85°C	mA		20	30	1	Ordering Code C
Frequency Stability						
Initial frequency accuracy	ppb		100	200	1	+25°C referred to nominal frequency. Control voltage 1.8V
Vs operating temperature range	ppb		±10	±15	1	Ordering code B
	ppb		±15	±25	1	Ordering code C
Vs supply voltage variation	ppb			±2	2	5V±5%
Vs load	ppb			±5	2	50 KΩ ±10%
Short-term ($\tau=1s$)	10 ⁻¹¹		0.5	1	2	Allan deviation @16.384 MHz
	($\tau=0.1s$)		0.8	5	2	
Aging						
	Per day	ppb	±0.3	±0.7	2	After 30 days
	First year	ppb		±50	2	
	After 10 years	ppb		±300	2	
Acceleration sensitivity	ppb/G			±1	3	Worst direction
Warm-Up Time	sec		60	120	3	To ±0.5 ppm of final frequency at 25°C (1 hour)
	min		10	15	3	To ±100 ppb of final frequency at 25°C (1 hour)
Retrace	ppb			±10	2	24h work after 24 off
Phase Noise @10 MHz						
1 Hz	dBc/Hz		-95		2	
10 Hz	dBc/Hz		-125		2	
100 Hz	dBc/Hz		-140		2	
1 kHz	dBc/Hz		-148		2	
100 kHz	dBc/Hz		-155		2	
Sinave output parameters						
Load	Ω		50		3	
Output Power (Standard)	dBm	0	+3		3	
Harmonics	dBc			-35	3	

NOTES

1. Parameter inspected at 100%
2. Parameter inspected by sampling
3. Parameter guaranteed by design & characterization

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PARAMETERS	UNIT	MIN	TYP.	MAX	NOTE	COMMENTS
HCMOS output parameters						
<ul style="list-style-type: none"> ■ Load ■ Signal Level - Vh ■ Signal Level - Vl ■ Rise \ Fall Time ■ Duty Cycle 	pF		15		3	Option Only
	V	2.4			3	
	V			0.4	3	
	ns			8	3	10% - 80%
	%	45		55	3	
Frequency Tuning						
<ul style="list-style-type: none"> ■ Reference Voltage ■ Tuning Voltage ■ Tuning Range ■ Tuning Slope ■ Tuning Input Impedance 	V	3.9	4.0	4.1	3	*Fixed Frequency is possible
	V	0		4.1	3	
	ppm	±0.5	±0.7	±1	2	
			Positive		3	
	kΩ		100		3	
	pF		100		3	
Weight	grams		15			

ENVIRONMENTAL CONDITIONS

Shocks	1500G peak / 0.5 ms / 3 axis ; MIL-STD-883 method 2002, Test Condition B
Vibrations	16.91 Grms / 10 to 2000 Hz Random / 3 min per axis, MIL STD 202-214 cond E
Soldering instructions	Hand soldering with recommended pins temperature: 235°C ±5°C, t=10s ±05s (260°C max for 5s max) Selective wave soldering with limitation of pre-heating to reach the max temperature of 85°C (body of component) and 3 s max at max temperature Use of no-clean solder paste When connecting a pad to a copper plane, thermal pads are recommended
Mounting instructions	Metallic case glued onto the PCB, without glue overflow into the metallized holes No spacer material between OCXO and PCB
PCB cleaning/washing	Washable with a temperature below 85°C

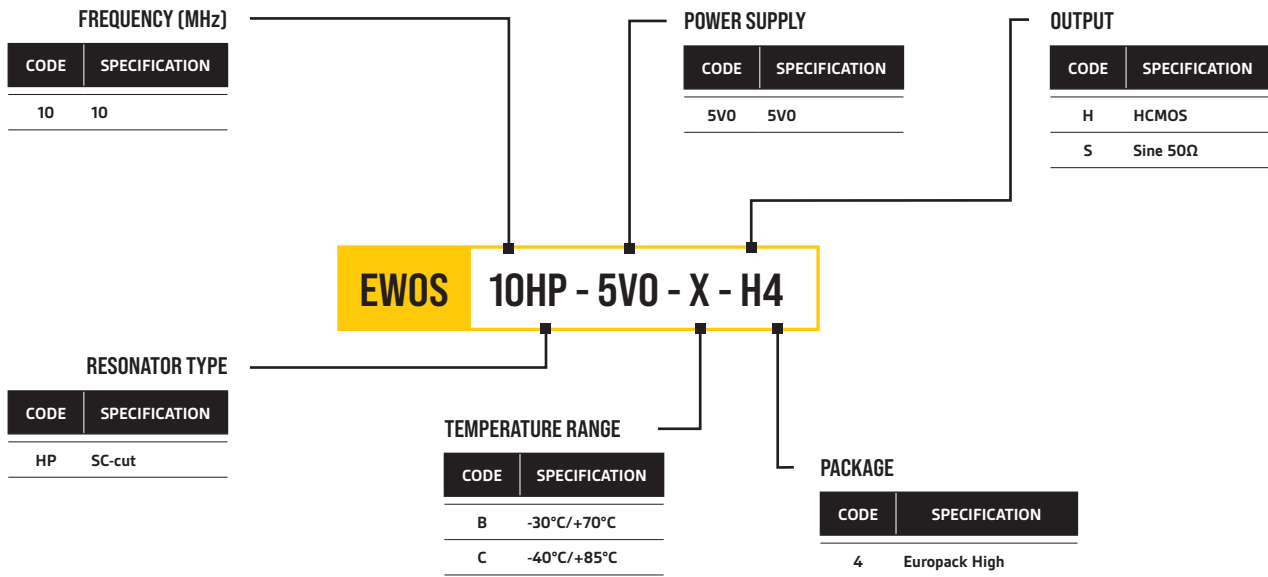
OCXO HERMETICITY

Metallic housing hermetically sealed	
Fine Leaks and Gross Leaks tests performed 100%	

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