

EWOS10HP

Low aging & Low Power SC-cut OCXO for Mil/Aero/General Industry

PRODUCT OVERVIEW

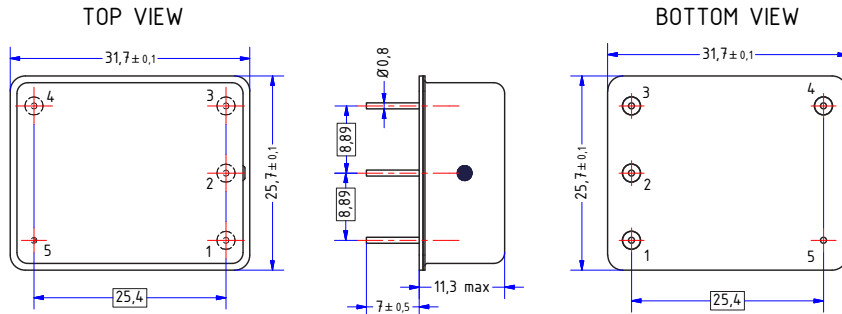
EWOS10HP is the ideal precision OCXO combining a record low aging and very low power consumption. It targets embedded or battery powered systems requiring a state-of-the-art precision timing core. Built around a high-Q factor SC-cut resonator, it shows a low aging drift (typ. 0,3 ppb/day) and is specified 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

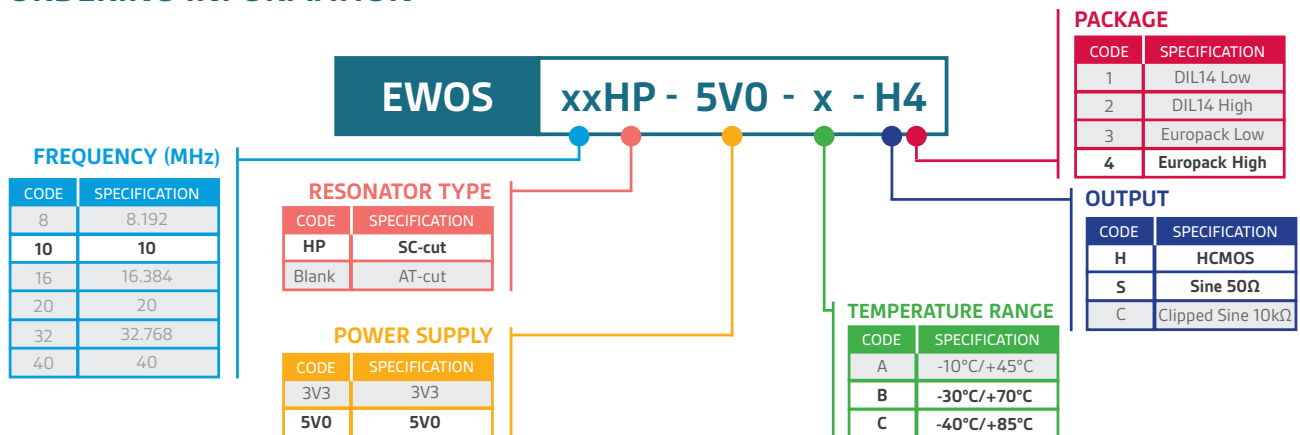
- 10 MHz HCMOS or Sine 50 Ohm output
- ±10 ppb (typ.) thermal sensitivity
- 400 mW @ 25°C (typ., ordering Code B)
- ±0.3 ppb/day after 30 days

DIMENSIONS & PIN-OUT



PIN NUMBER	FUNCTION
1	Frequency control
2	Reference Voltage
3	Power Supply
4	RF Out
5	Ground

ORDERING INFORMATION



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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 / Power consumption						
• 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		185	215	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	±20	1	Ordering Code C
• Vs supply voltage variation	ppb			±2	2	5V ±5%
• Vs load	ppb			±5	2	50Ω ± 10%
• Short-term (τ=0.1 s)	10 ⁻¹¹		0.5	1	2	Allan deviation @ 16.384 MHz
	10 ⁻¹¹		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	
Sinewave output parameters						
• Load	Ω		50		3	
• Output Power (Standard)	dBm	0	+3		3	
• Harmonics	dBc			-35	3	
HCMOS output parameters						
• Load	pF		15		3	Option Only
• Signal Level - Vh	V	2.4			3	
• Signal Level - Vl	V			0.4	3	
• Rise \ Fall Time	ns			8	3	10% - 80%
• Duty Cycle	%	45		55	3	
Frequency Tuning						
• Reference Voltage	V	3.9	4.0	4.1	3	*Fixed Frequency is possible
• Tuning Voltage	V	0		4.1	3	
• Tuning Range	ppm	±0.5	±0.7	±1	2	
• Tuning Slope			Positive		3	
• Tuning Input Impedance	kΩ		100		3	
	pF		100		3	
Weight	grams		15			

Notes

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

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%