Syrlinks

Space | Defense | Safety | Time Frequency

EWOS8HP-5V0-A-C4

High performance OCXO for underwater systems

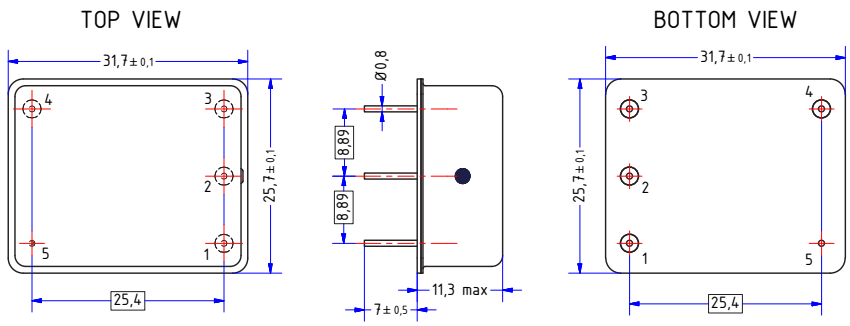
PRODUCT OVERVIEW

EWOS8HP-5V0-A-C4 is a very low aging and ultra low power consumption OCXO dedicated to underwater systems. Built around a SC-cut resonator, it combines a low aging drift and an extremely low power consumption at a record 122 mW at 25°C. It can be used in many underwater systems and provides an excellent holdover precision time for battery powered devices like Underwater Autonomous Vehicles. Supplied with 5V, it delivers an high stability 8.192 MHz frequency output and a very low thermal sensitivity at ±10ppb (typ.)

KEY FEATURES

- 8.192 MHz HCMOS output
- ±10 ppb (typ.) thermal sensitivity
- 122 mW (typ.) @ 25°C
- ±0,05 ppb/day after 30 days (typ.)

DIMENSIONS & PIN-OUT



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

ORDERING INFORMATION

EWOS 8HP - 5V0 - A - C4

FREQUENCY (MHz)

CODE	SPECIFICATION
8	**8.192**
10	10
16	16.384
20	20
32	32.768
40	40

RESONATOR TYPE

CODE	SPECIFICATION
HP	**SC-cut**
Blank	AT-cut

POWER SUPPLY

CODE	SPECIFICATION
3V3	**3V3**
5V0	**5V0**

TEMPERATURE RANGE

CODE	SPECIFICATION
A	**-10°C/+45°C**
B	-30°C/+70°C
C	-40°C/+85°C

PACKAGE

CODE	SPECIFICATION
1	DIL14 Low
2	DIL14 High
3	Europack Low
4	**Europack High**

OUTPUT

CODE	SPECIFICATION
H	HCMOS
S	Sine 50Ω
C	**Clipped Sine 10kΩ**

ELECTRICAL CHARACTERISTICS

PARAMETERS		Unit	Min	Typ.	Max	Note	Comments
Output Frequency		MHz		8.192		1	
Temperature Range							
• Operating		°C	-10		+45		Stay functional at +50°C but stability may not be met
• Storage		°C	-30		+95		
Supply Voltage		V		5.0			±5%
Supply Current							
• Warm-up		mA			220	3	During 20s max @25°C / 40s max @ 5°C
• Steady state / -10°C		mA		50	54	1	
• Steady state / +5°C		mA		39	44	1	
• Steady state / +25°C		mA		24	29	1	
• Steady state / +45°C		mA		11	14	1	
Frequency Stability							
• Initial frequency accuracy		ppm		±0.1	±0.2	1	+25°C referred to nominal frequency. Control Voltage 1.8V
• Vs operating temperature range		ppb		±10	±25	1	peak to peak drift
• Vs supply voltage variation		ppb			±2	3	5V ± 5%
• Vs load		ppb			±2	3	(10 kΩ//15 pF) Load ± 10%
• Short-term	(τ=0.1s)	10^{-11}		0.5	1	3	Allan deviation @ 8.192 MHz
	(τ=1s)	10^{-11}		1	5	3	
• Aging							
	Per day	ppb		±0.05	±0.3	3	After 30 days
	First year	ppb			±50	3	
	After 10 years	ppb			±300	3	
• Acceleration sensitivity		ppb/G		±1		3	Worst direction
• Warm-Up Time		sec			30	3	To ±1 ppm of final frequency obtained after 1 hour @ 25°C
		min			3	3	To ±100 ppb of final frequency obtained after 1 hour @ 25°C
• Retrace		ppb			±10	3	24h work after 24 off
Phase Noise @8.192 MHz							
• 1 Hz		dBc/Hz		-90		2	
• 10 Hz		dBc/Hz		-120		2	
• 100 Hz		dBc/Hz		-135		2	
• 1 KHz		dBc/Hz		-145		2	
• 10 KHz		dBc/Hz		-145		2	
Clipped sinewave output parameters							
• Output Level		Vpp	0.8	1	1.5	3	Clipped sinewave - DC cut - Load 10kΩ//10 pF
• Output Impedance		kΩ		1		3	
		pF		5		3	
Frequency Tuning							
• Reference Voltage		V		4.0		3	
• Tuning Voltage		V	0		4.1	3	
• Tuning Range		ppb	±200	±400		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%