Syrlinks

Space Defense Safety Time Frequency

EWOS10HP/20HP/40HP

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

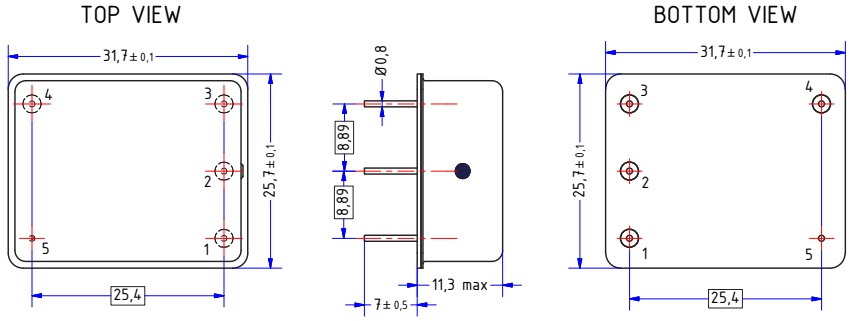
PRODUCT OVERVIEW

EWOS10HP/20HP/40HP 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, 20 or 40 MHz HCMOS or Sine 50 Ohm output
- ±10 ppb (typ.) thermal sensitivity
- 400 mW @ 25°C (typ.)
- ±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

EWOS xxHP - 5V0 - x - H4

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

For further information, please contact us: time-frequency@syrlinks.com - www.syrlinks.com - Tel: +33 (0)2 99 00 94 52

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	
• Steady state / +25°C		mA		80	100	1	
• Steady state / +70°C		mA		15	30	1	
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 variance @ 16.384 MHz
	(τ=1 s)	10^{-11}		1	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	
• Accelaration sensitivity		ppb/G			±1	3	Worst direction
• Warm-Up Time		sec		60	120	3	To ±0.5 ppm of final frequency (1 hour)
		min		10	15	3	To ±100 ppb of final frequency (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		-143		2	
• 1 kHz		dBc/Hz		-155		2	
• 10 kHz		dBc/Hz		-155		2	
HCMOS output parameters							
• Load		pF		15		3	
• 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	
Sinewave output parameters							
• Load		Ω		50		3	
• Output Power (Standard)		dBm	0	+3		3	
• Output Power (Option)		dBm	+4	+7		3	
• Harmonics		dBc			-35	3	
Frequency Tunning							***Fixed Frequency is possible**
• Reference Voltage		V	4.0	4.1	4.2	3	
• Tuning Voltage		V	0		4.2	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%