

EWOS16-UW

Ultra Low Power OCXO for Underwater Systems

PRODUCT OVERVIEW

EWOS16-UW is a dedicated OCXO for underwater systems with a world lowest power consumption of 50 mW to optimize the mission time and downsize the battery. Powered with 5V, it delivers an ultra-stable frequency of 16.384 MHz with a record low thermal sensitivity typically (± 30 ppb between -10°C and $+50^{\circ}\text{C}$). EWOS16-UW can be disciplined thanks to its tuning pin and is highly resistant to shocks and vibrations.

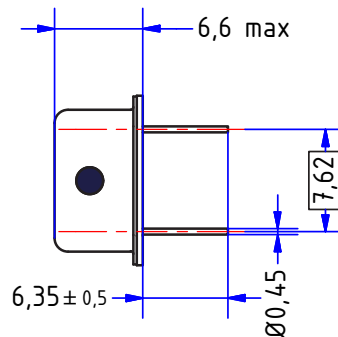
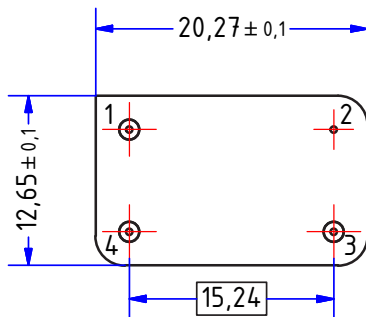


KEY FEATURES

- 16,384 MHz clipped sine output
- ± 30 ppb (typ.) thermal sensitivity
- 50 mW @ 25°C (typ.)
- ± 2 ppb/day after 30 days (typ.)

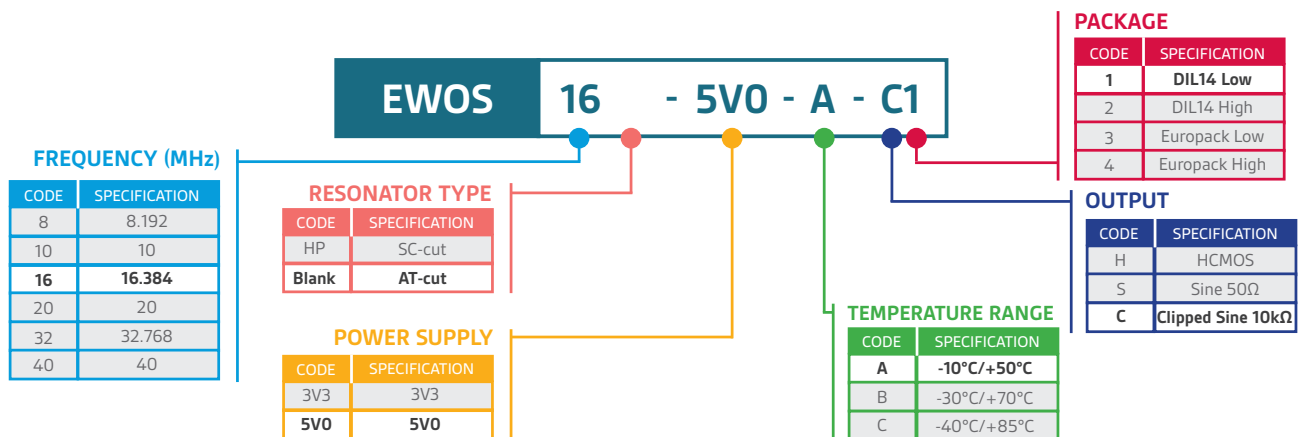
DIMENSIONS & PIN-OUT

BOTTOM VIEW



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

ORDERING INFORMATION



ELECTRICAL CHARACTERISTICS

PARAMETERS	Unit	Min	Typ.	Max	Note	Comments
Output Frequency	MHz		16.384		1	
Temperature Range						
• Operating	°C	-10		+45		Ordering Code A / Stay functional at + 50°C but stability may not be met
• Storage	°C	-55		+95		
Supply Voltage	V		5			±5%
Supply Current						
• Warm-up	mA			220	3	During 10s max @25°C / 20s max @5°C
• Steady state / -10°C	mA		20	25	1	
• Steady state / +5°C	mA		15	18	1	
• Steady state / +25°C	mA		10	13	1	
• Steady state / +50°C	mA		4	6	1	
Frequency Stability						
• Initial frequency accuracy	ppm		±1	±2	1	+25°C referred to nominal frequency. Control Voltage 1.8V
• Vs operating temperature range	ppb		±30	±50	1	
• Vs supply voltage variation	ppm		±0.1	±0.2	2	5V ± 5%
• Vs load	ppm		±0.1	±0.2	2	(10 KΩ//10 pF) ± 10%
• Short-term	(τ=0.1s)		2	10	2	Allan deviation @ 16.384 MHz
	(τ=1s)		3	10	2	
• Aging						
	Per day	ppb	±2	±5	2	After 30 days
	First year	ppm		±1	2	
	After 20 years	ppm		±5	2	
• Acceleration sensitivity	ppb/G		±1		3	Worst direction
• Warm-Up Time	sec			10	3	To ±1 ppm of final frequency (1 hour)
	sec			60	3	To ±100 ppb of final frequency (1 hour)
• Retrace	-			-	-	-
Phase Noise @ 16.384 MHz						
• 1 Hz	dBc/Hz			-85	2	
• 10 Hz	dBc/Hz			-105	2	
• 100 Hz	dBc/Hz			-135	2	
• 1 KHz	dBc/Hz			-145	2	
• 10 KHz	dBc/Hz			-150	2	
Clipped sinewave output parameters						
• Output Level	Vpp	0.8	1.2	1.5	3	Clipped sinewave - DC cut - Load 10kΩ//10 pF
• Output Impedance	kΩ		1		3	
	pF		5		3	
Frequency Tuning *Fixed Frequency is possible						
• Reference Voltage	V	4.0	4.1	4.2	3	
• Tuning Voltage	V	0		4.1	3	
• Tuning Range	ppm	±4	±5	±7	2	
• Tuning Slope	dBc/Hz		Positive		3	
• Tuning Input Impedance	kΩ		10		3	
	pF		100		3	
Weight	grams		4			

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%

EWOS16-UW V1.0 | Updated on 29th November 2019 | This document is the property of Syrlinks. Information contained is not contractual & is susceptible to modifications without advance notice.