

EWOS16-UW

ULTRA LOW POWER MICRO-OCXO FOR UNDERWATER SYSTEMS

PRODUCT OVERVIEW

EWOS16-UW is a customized micro-OCXO for underwater systems with a record low power consumption at 50 mW at 25°C 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 ± 50 ppb (typ). EWOS16-UW can be disciplined thanks to its tuning pin and is highly resistant to shocks and vibrations.



KEY FEATURES

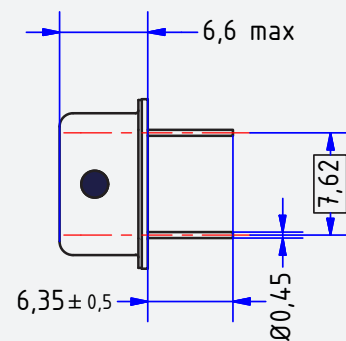
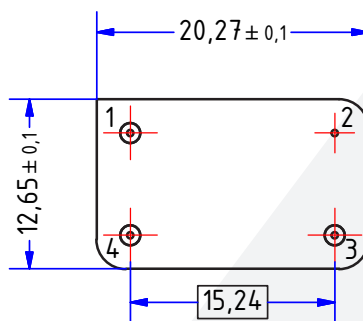
- 5V supply and 16.384 MHz clipped sine output
- ± 50 ppb (typ.) thermal sensitivity
- 50 mW @ 25°C (typ.)
- ± 2 ppb/day after 30 days (typ.)

i ORDERING INFORMATION IS AVAILABLE ON THE LAST PAGE

DIMENSIONS & PIN-OUT

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

BOTTOM VIEW



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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 20s 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 / +45°C	mA		4	6	1	
Frequency Stability						
Initial frequency accuracy	ppm		±1	±2	1	+25°C, Vctrl = 1.1V
Vs operating temperature range	ppb		±50	±90	1	
Vs supply voltage variation	ppm		±0.1	±0.2	3	5V ± 5%
Vs load	ppm		±0.1	±0.2	3	(10 kΩ//10 pF) ± 10%
Short-term (τ=0.1s)	10 ⁻¹⁰		1	3	3	Allan deviation @16.384 MHz
(τ=1s)	10 ⁻¹⁰		4	10	3	
Aging						
Per day	ppb		±2	±5	3	After 30 days
First year	ppm			±1.5	3	
After 20 years	ppm			±5	3	
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)
Phase Noise @16.384 MHz						
10 Hz	dBc/Hz		-105		2	
100 Hz	dBc/Hz		-135		2	
1 kHz	dBc/Hz		-145		2	
10 kHz	dBc/Hz		-148		2	
Clipped sinewave output parameters						
Output Level	Vpp	0.8	1.2	1.2	3	Clipped sinewave - Dc cut - Load 10kΩ//10 pF
Output Impedance	kΩ		1		3	
Frequency Tuning						
Tuning Voltage	V	0		3.0	3	Referred to nominal frequency measured at 25°C. Apply control voltage between 0V to 3V or use pull-down resistor between Vtune and ground. if Vtune not connected then OCXO frequency will be at max value. If R=0ohm is used, the OCXO frequency will be at minimum value.
Tuning Range	ppm	±4	±5		2	
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 & characterization

EWOS16-UW V1.1 | Updated on 2nd June 2022 | This document is the property of SLX Timing. Information contained is not contractual & is susceptible to modifications without advance notice.

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PARAMETERS	UNIT	MIN	TYP.	MAX	NOTE	COMMENTS
Frequency Tuning						
Reference Voltage	V		3.0		3	
Tuning Voltage	V	0		3.0	3	
Tuning Range	ppm	±0.3	±0.6		2	
Tuning Slope			Positive		3	
Tuning Input Impedance	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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ORDERING INFORMATION

