

EWOS100HP

ULTRA LOW PHASE NOISE, 100 MHz OCXO

PRODUCT OVERVIEW

EWOS100HP is a 100 MHz OCXO providing high spectral purity required in all high-quality frequency synthesizers. It provides a record low phase noise at -130 dBc/Hz at 100 Hz offset making it one of the most performing OCXO in this power consumption range. Very compact (8 cm³), high shock & vibration resistant, it is well adapted for RF embedded subsystems, aeronautics, telecommunication and military applications. EWOS100HP consumes less than 400mW and is specified up to 85°C operating temperature.



KEY FEATURES

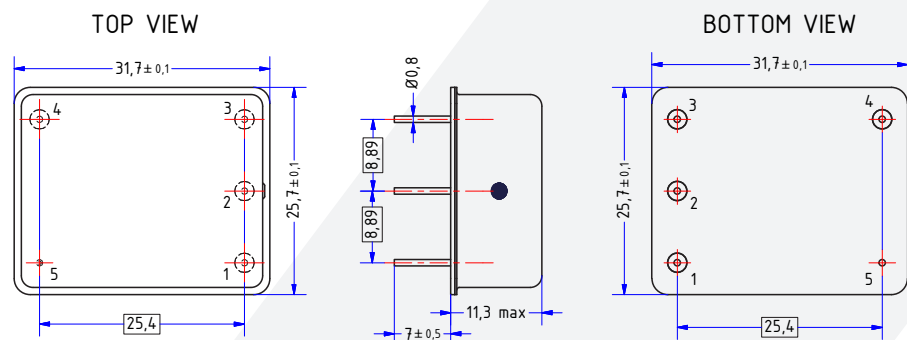
- 100 MHz HCMOS or Sine 50 Ohm output
- ±20 ppb (typ.) thermal sensitivity
- 400 mW @ 25°C (typ.)
- ±1 ppb/day after 30 days (typ.)



ORDERING INFORMATION IS AVAILABLE ON THE LAST PAGE

DIMENSIONS & PIN-OUT

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



ELECTRICAL CHARACTERISTICS

PARAMETERS	UNIT	MIN	TYP.	MAX	NOTE	COMMENTS
Output Frequency	MHz		100		1	
Temperature Range						
• Operating	°C	-30		+70	1	Ordering code B
	°C	-40		+85	1	Ordering code C
• Storage	°C	-55		+95	2	
Supply Voltage	V		5			± 5%
Supply Current						
• Warm up	mA		400	700	3	During 10s max
• Steady state / -40°C	mA		180	200	1	Ordering code C
• Steady state / +25°C	mA		80	100	1	Ordering code C
• Steady state / +85°C	mA		20	30	1	Ordering Code C
Frequency Stability						
• Initial frequency accuracy	ppm		±0.3	±0.5	1	+25°C referred to nominal frequency. Control voltage 1.5V
• Vs operating temperature range	ppb		±20	±50	1	-30°C to +70°C
	ppb		±30	±50	1	-40°C to +85°C
• Vs supply voltage variation	ppb			±0.2	2	5V±5%
• Vs load	ppb		±0.1	±0.2	2	50 KΩ ±10%
• Short-term ($\tau=100\text{ ms}$)	10 ⁻¹¹		1	2	1	Allan deviation
($\tau=1\text{ s}$)	10 ⁻¹¹		1	10	1	
• Aging						
Per day	ppb		±1	±1.5	2	After 30 days
First year	ppb			±500	2	
After 10 years	ppb			±800	2	
• Acceleration 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 @100 MHz						
• 1 Hz	dBc/Hz			-70	2	
• 10 Hz	dBc/Hz			-100	2	
• 100 Hz	dBc/Hz			-130	2	
• 1 kHz	dBc/Hz			-157	2	
• 10 kHz	dBc/Hz			-168	2	
• > 100 kHz	dBc/Hz			-172	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	
Sinave output parameters						
• Load	Ω		50		3	
• Output Power (Standard)	dBm	0	+3		3	
• Output Power (option)	dBm	+4	+7		3	
• Harmonics	dBc			-35	3	

NOTES

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

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PARAMETERS	UNIT	MIN	TYP.	MAX	NOTE	COMMENTS
Frequency Tuning						*Fixed Frequency is possible
Reference Voltage	V	4.0		4.1	3	
Tuning Voltage	V	0		4.2	3	
Tuning Range	ppm	±1	±1.5	±2	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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