

# Ultra Low Phase Noise XO / VCXO

**ABLNO**



**ESD Sensitive**



**RoHS Compliant**



9.2 x 14.8 x 5.5 mm SMT

## FEATURES:

- High "Q", 3rd Overtone Crystal Technology
- Ultra Low Phase Noise -162 dBc/Hz Typ. @ 10kHz offset, 100MHz carrier
- Standard LVCMOS RF Output
- Wide Operating Temperature (-40°C to +85°C) standard
- ±28 ppm Max. All inclusive Stability (including Aging) over 10-years
- Available Frequency range from 50MHz to 156.25MHz
- 9.2 x 14.8mm RoHS Compliant SMT package

## APPLICATIONS:

- Satellite Modem Communication Systems
- COTS - Military communications
- Avionics
- Low Phase Noise Signal Sources
- High Definition TV
- Test & Measurement
- Ultra Low Jitter RF Communication Circuitry

## STANDARD SPECIFICATIONS

Parameters		Minimum	Typical	Maximum	Units	Notes
RF Output Frequency Range		50.00		156.250	MHz	
Standard Available Frequencies		50.00MHz, 80.00MHz, 81.92MHz, 92.16MHz, 96.00MHz, 98.304MHz, 100MHz, 104.00MHz, 106.25MHz, 120.00MHz, 122.88MHz, 125.00MHz, 150.00MHz, 155.52MHz & 156.250MHz				Custom frequencies available upon request
Supply Voltage (Vdd)		3.135	3.300	3.465	Volts	
Current Drain	50MHz ~ 99.999MHz			25.00	mA	
	100MHz ~ 149.999MHz			35.00		
	≥ 150.00MHz			40.00		
Waveform		LVCMOS				
Output Load				15	pF	
V <sub>OH</sub>		0.9*Vdd			Volts	
V <sub>OL</sub>				0.1*Vdd	Ω	
Symmetry		45	50	55	%	
Rise & Fall Times				3.0	ns	
Operating Temperature Range		-40		+85	°C	
Frequency Stability						
Over (-40° C to +85°C)			±12.00	±18.00	ppm	Relative to measured frequency @ 25°C
ALL effects, including Aging				±28.00	ppm	
Storage Temperature Range		-40		+90	°C	
Aging	First Year			±2.00	ppm	
	5-Years			±5.00	ppm	
	10-Years			±7.00	ppm	
<b>Phase Noise (50MHz Carrier)</b>						Vdd=3.3V
@ 10	Hz offset		-90	-82	dBc/Hz	<i>Note #1 &amp; #2</i>
@ 100	Hz offset		-120	-115	dBc/Hz	
@ 1,000	Hz offset		-145	-140	dBc/Hz	
@ 10,000	Hz offset		-165	-160	dBc/Hz	
@ 100,000	Hz offset		-166	-165	dBc/Hz	
@ 1,000,000	Hz offset		-166	-165	dBc/Hz	
rms Jitter (12kHz ~ 20MHz BW)			< 100	125	<i>Femto Seconds</i>	0.125 ps Max.



# Ultra Low Phase Noise XO / VCXO

**ABLNO**



**ESD Sensitive**



**RoHS Compliant**



9.2 x 14.8 x 5.5 mm SMT

Parameters	Minimum	Typical	Maximum	Units	Notes
<b>Phase Noise (100MHz Carrier)</b>					Vdd=3.3V
@ 10 Hz offset		-88	-82	dBc/Hz	<i>Note #1 &amp; #2</i>
@ 100 Hz offset		-118	-115	dBc/Hz	
@ 1,000 Hz offset		-141	-138	dBc/Hz	
@ 10,000 Hz offset		-160	-155	dBc/Hz	
@ 100,000 Hz offset		-161	-160	dBc/Hz	
@ 1,000,000 Hz offset		-165	-160	dBc/Hz	
rms Jitter (12kHz ~ 20MHz BW)		< 50	100	<i>Femto Seconds</i>	0.10 ps Max.
<b>Phase Noise (156.25MHz Carrier)</b>					Vdd=3.3V
@ 10 Hz offset		-75	-70	dBc/Hz	<i>Note #1 &amp; #2</i>
@ 100 Hz offset		-110	-105	dBc/Hz	
@ 1,000 Hz offset		-140	-135	dBc/Hz	
@ 10,000 Hz offset		-155	-150	dBc/Hz	
@ 100,000 Hz offset		-161	-160	dBc/Hz	
@ 1,000,000 Hz offset		-165	-160	dBc/Hz	
rms Jitter (12kHz ~ 20MHz BW)		< 50	100	<i>Femto Seconds</i>	0.10 ps Max.
Electrical Frequency Adjustment					
Control Voltage Range (Vc)	0.0	1.65	3.30	Volts	
Frequency Pull Range	±28.00		±55.00	ppm	Referenced to the carrier
Frequency Pull Slope		Positive			
Control Voltage Port Impedance	10			kΩ	
Control Port Linearity			±10	%	

**Note #1:** Maximum Phase Noise is verified on 100% of the parts at 25°C ± 3°C.

**Note #2:** The above specified Phase Noise & Jitter is with the oscillator device configured as a VCXO. In XO configuration, the Phase Noise will be slightly better at each offset between 10Hz and 10 kHz, by approximately -3dB to -5dB.



# Ultra Low Phase Noise XO / VCXO

**ABLNO**



**ESD Sensitive**



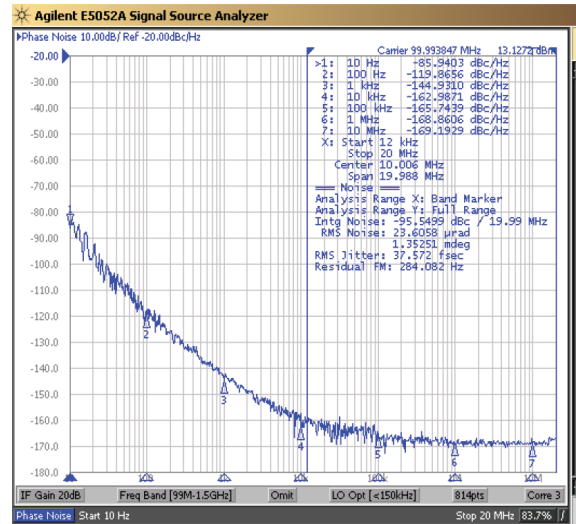
**RoHS Compliant**



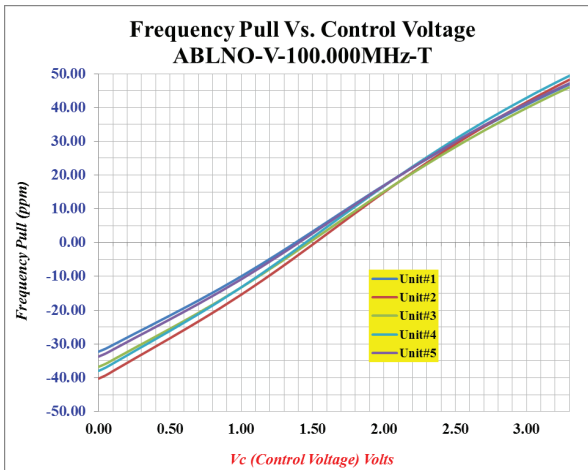
9.2 x 14.8 x 5.5 mm SMT

## TYPICAL PHASE NOISE PERFORMANCE @ 50.00 MHz CARRIER

## TYPICAL PHASE NOISE PERFORMANCE @ 100.00 MHz CARRIER



## FREQUENCY PULL VERSUS CONTROL VOLTAGE (REFERENCED TO 100.000MHz)



## CURRENT DRAIN VERSUS CONTROL VOLTAGE @ VDD = +3.3V



ABRACON IS  
ISO9001:2008  
CERTIFIED



Visit [www.abracon.com](http://www.abracon.com) for Terms & Conditions of Sale **Revised: 10.17.14**  
30332 Esperanza, Rancho Santa Margarita, California 92688  
tel 949-546-8000 | fax 949-546-8001 | [www.abracon.com](http://www.abracon.com)

# Ultra Low Phase Noise XO / VCXO

**ABLNO**



**ESD Sensitive**



**RoHS Compliant**



9.2 x 14.8 x 5.5 mm SMT

## FREQUENCY STABILITY VS. TEMPERATURE @ VDD = +3.3V (REFERENCED TO MEASURED FREQUENCY @ 25°C)



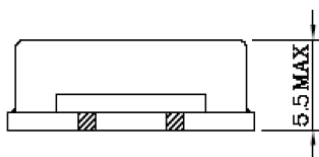
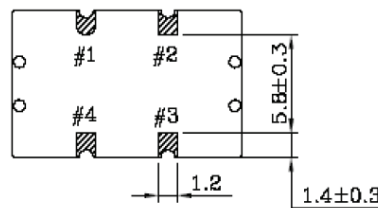
## PART IDENTIFICATION:

ABLNO -   Frequency (MHz) -    

Fixed Clock Vs. VCXO Option	
<b>Blank</b>	Fixed Clock Oscillator
<b>V</b>	VCXO ( $\pm 28$ ppm min. Pull)

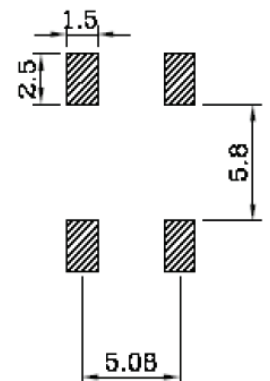
Tape & Reel Options	
Blank	< 250 units on cut tape
T2	250 units per reel
T	1,000 units per reel

## OUTLINE DIMENSIONS:



Pin #	Functionality
1	Voltage Control (Vc) for VCXO No Connect (N/C) for XO
2	Ground
3	RF Output
4	Vdd

## Recommended Land Pattern



Dimensions: mm

# Ultra Low Phase Noise XO / VCXO

**ABLNO**



**ESD Sensitive**



**RoHS Compliant**



9.2 x 14.8 x 5.5 mm SMT

## REFLOW PROFILE:



## TAPE & REEL:

(1,000) units per reel standard, (250) units per reel available (option # T2)



**ATTENTION:** Abracon Corporation's products are COTS – Commercial-Off-The-Shelf products; suitable for Commercial, Industrial and, where designated, Automotive Applications. Abracon's products are not specifically designed for Military, Aviation, Aerospace, Life-dependant Medical applications or any application requiring high reliability where component failure could result in loss of life and/or property. For applications requiring high reliability and/or presenting an extreme operating environment, written consent and authorization from Abracon Corporation is required. Please contact Abracon Corporation for more information.

ABRACON IS  
ISO9001:2008  
CERTIFIED



**ABRACON**  
CORPORATION

Visit [www.abracon.com](http://www.abracon.com) for Terms & Conditions of Sale **Revised: 10.17.14**

30332 Esperanza, Rancho Santa Margarita, California 92688

tel 949-546-8000 | fax 949-546-8001 | [www.abracon.com](http://www.abracon.com)



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.