

Ultra Low Phase Noise XO / VCXO

ABLNO



ESD Sensitive



RoHS Compliant



14.3 x 8.7 x 5.5mm

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 24.576MHz to 160.000MHz
- 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		24.576		160.000	MHz	
Standard Available Frequencies		24.576, 49.152, 50.00, 80.00, 81.92, 92.16, 96.00, 98.304, 100.00, 104.00, 106.25, 120.00, 122.88, 125.00, 150.00, 155.520, 156.250, & 160.000				Custom frequencies available upon request
Supply Voltage (Vdd)		3.135	3.300	3.465	Volts	
Current Drain	24.576MHz ~ 99.999MHz			25.00	mA	
	100MHz ~ 149.999MHz			35.00		
	≥ 150.00MHz			40.00		
Waveform		LVCMOS				
Output Load				15	pF	
V _{OH}		0.9*Vdd			Volts	
V _{OL}				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	
Phase Noise (50MHz Carrier)						Vdd=3.3V
@ 10	Hz offset		-90	-82	dBc/Hz	<i>Note #1 & #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



14.3 x 8.7 x 5.5mm

Parameters	Minimum	Typical	Maximum	Units	Notes
Phase Noise (100MHz Carrier)					Vdd=3.3V
@ 10 Hz offset		-88	-82	dBc/Hz	<i>Note #1 & #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.
Phase Noise (156.25MHz Carrier)					Vdd=3.3V
@ 10 Hz offset		-75	-70	dBc/Hz	<i>Note #1 & #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

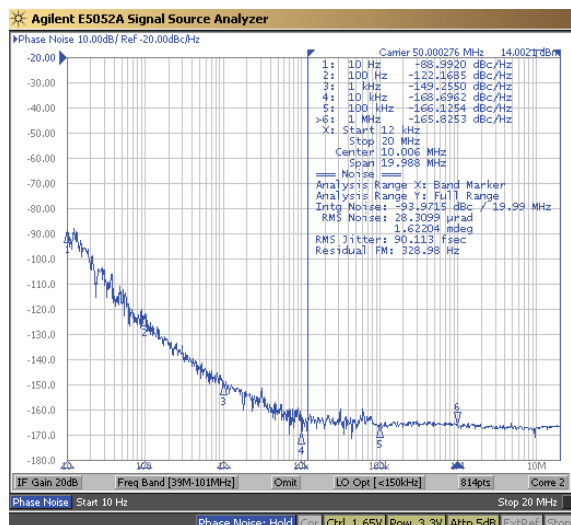


RoHS Compliant

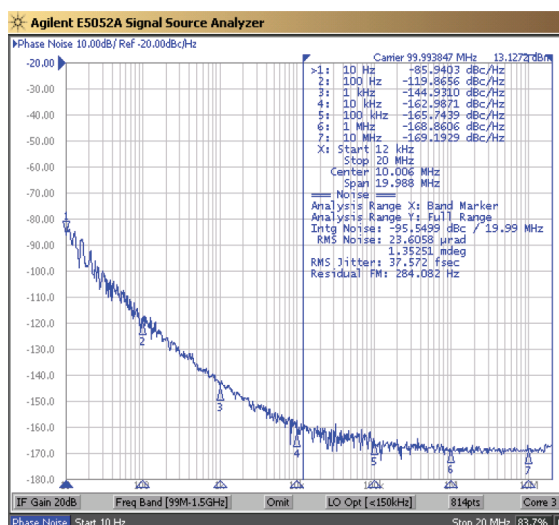


14.3 x 8.7 x 5.5mm

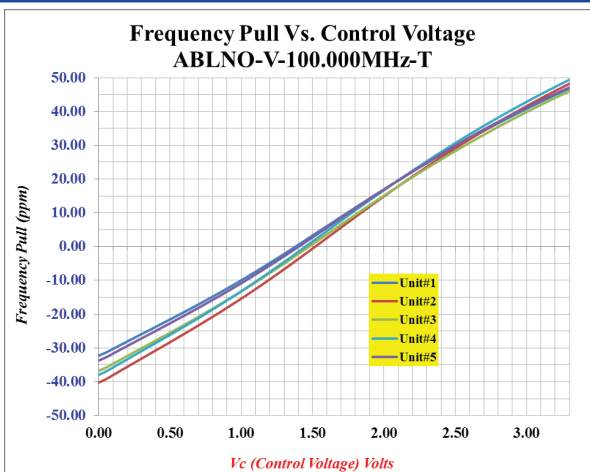
TYPICAL PHASE NOISE PERFORMANCE @ 50.00 MHz CARRIER



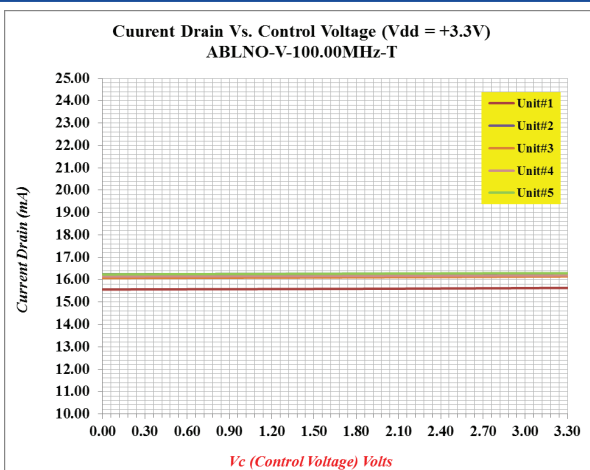
TYPICAL PHASE NOISE PERFORMANCE @ 100.00 MHz CARRIER



FREQUENCY PULL VERSUS CONTROL VOLTAGE (REFERENCED TO 100.000MHz)



CURRENT DRAIN VERSUS CONTROL VOLTAGE @ VDD = +3.3V



Ultra Low Phase Noise XO / VCXO

ABLNO



ESD Sensitive

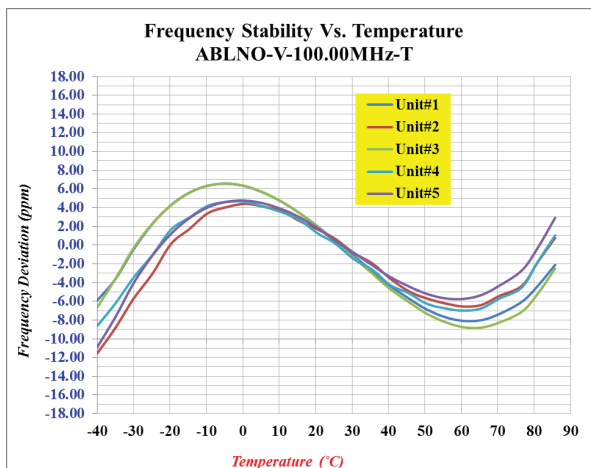


RoHS Compliant



14.3 x 8.7 x 5.5mm

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



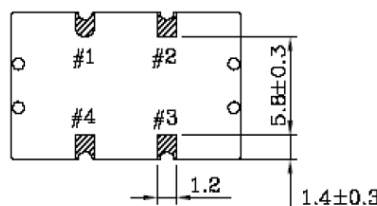
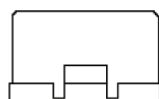
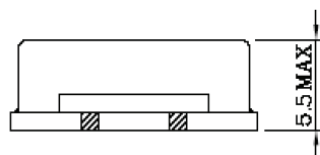
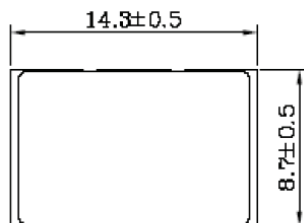
PART IDENTIFICATION:

ABLNO - Frequency (MHz) -

Fixed Clock Vs. VCXO Option	
Blank	Fixed Clock Oscillator
V	VCXO (± 28 ppm min. Pull)

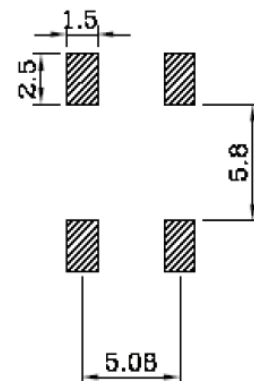
Tape & Reel Options	
Blank	< 250 units on cut tape
T2	250 units per reel
T	1,000 units per reel

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



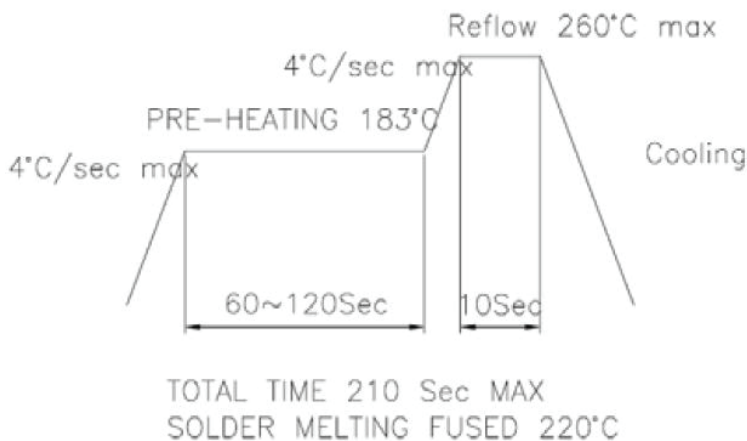
ESD Sensitive

Pb | RoHS Compliant



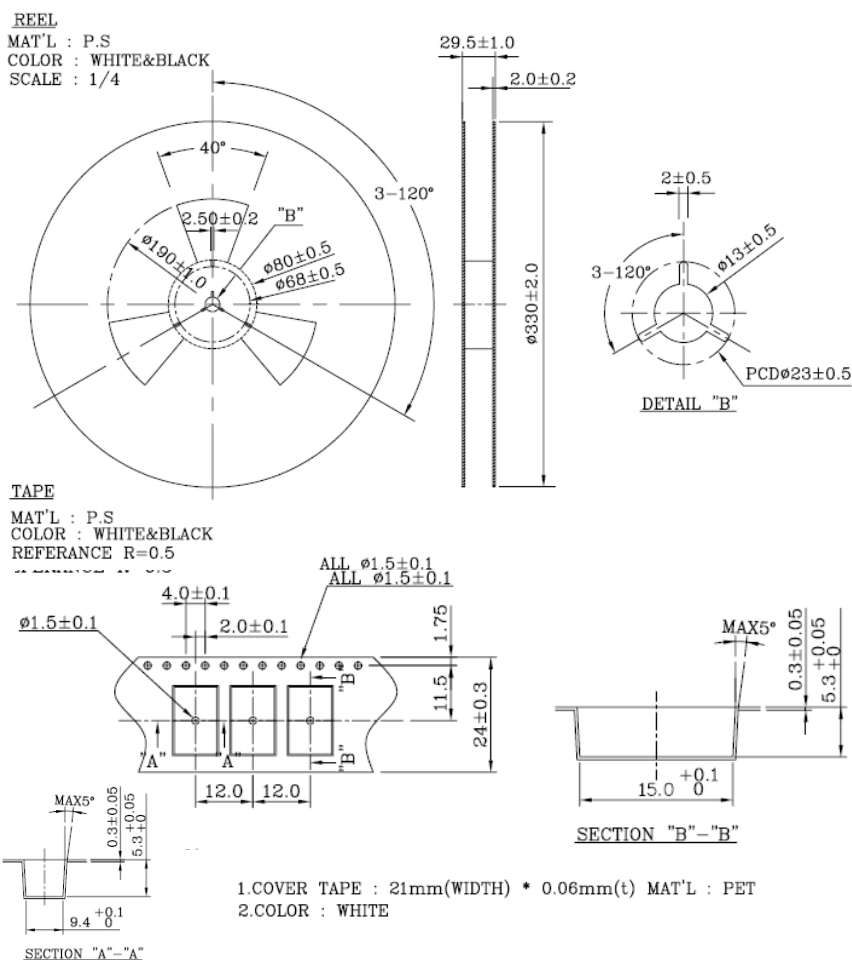
14.3 x 8.7 x 5.5mm

REFLOW PROFILE:



TAPE & REEL:

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



ATTENTION: Abracon LLC'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 LLC is required. Please contact Abracon LLC for more information.



5101 Hidden Creek Ln Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:

REVISED: 11.01.2018

ABRACON IS
ISO9001-2015
CERTIFIED