O-C20AA Series

NEL FREQUENCY CONTROLS
Powered By ABRACON

Precision Ultra Low Phase Noise OCXO in 20x20 mm Package

ESD Sensitive

20.2 x 20.2 x 11 mm
Datasheet #456831

Features

- **Compact 20 x 20 mm package**
- **SC-Cut crystal**
- **High Stability: ±50 ppb over Operating Temperature Range**
- **Low Aging: 0.2 ppm 1st year**
- **Ultra Low Phase Noise floor (-175dBc/Hz max at 100 kHz)**
- **Sine wave output**

Applications

- **Cellular Infrastructure; Base stations**
- **Test and measurement equipment**
- **Timing and frequency references**
- **Battery Powered Equipment**
- **Tele/Data Communications**
- **Precision GPS**

Absolute Maximum Ratings

Parameters	Symbol	Condition	Min	Typ	Max	Unit	Notes
Input Break Down Voltage	Vcc	5 V supply	-0.5		5.5	V	
Storage temperature	Ts		-55		+105	°C	
Control Voltage	Vc		-1		5.5	V	

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Electrical (1)

Parameters	Symbol	Condition	Min	Typ	Max	Unit	Notes	
Frequency	F			100.00		MHz		All parameters for 100 MHz
Frequency Tolerance	ΔF	Initial Tolerance	-0.2		+0.2	ppm	@25°C	
Operating Temperature Range	OTR		-40		+85	°C		
Frequency Stability	ΔF/F	vs. Temp.	-50		+50	ppb		
		vs. Supply	-10		+10	ppb/5%Vcc		
		vs. Load	-10		+10	ppb/5% load		
		vs. G-sensitivity	-1.0		+1.0	ppb/g		
Aging		per day per year, first year	-2E-9 -2E-7		+2E-9 +2E-7		after 30 days of continuous operation	
Short Term Stability (Allan Deviation)		1s			1E-11			
SSB Phase Noise (achieved after 10 minutes warm-up)	Sφ	10 Hz 100 Hz 1 KHz 10 KHz 100 KHz 1 MHz		-105 -138 -162 -175 -180 -180	-100 -133 -157 -170 -175 -175	dBc/Hz		
Input Voltage	Vcc		4.75	5.0	5.25	V		
Stead State Current	Idd	steady state, 25°C			250	mA		
Warm Up Current					700	mA		
Warm Up Time					15	Minutes	@25°C, within ±50 ppb of final frequency after powered on for 1 hour	

Notes:
1* All measurements guaranteed at nominal VDD, nominal load, and at +25°C unless otherwise specified.

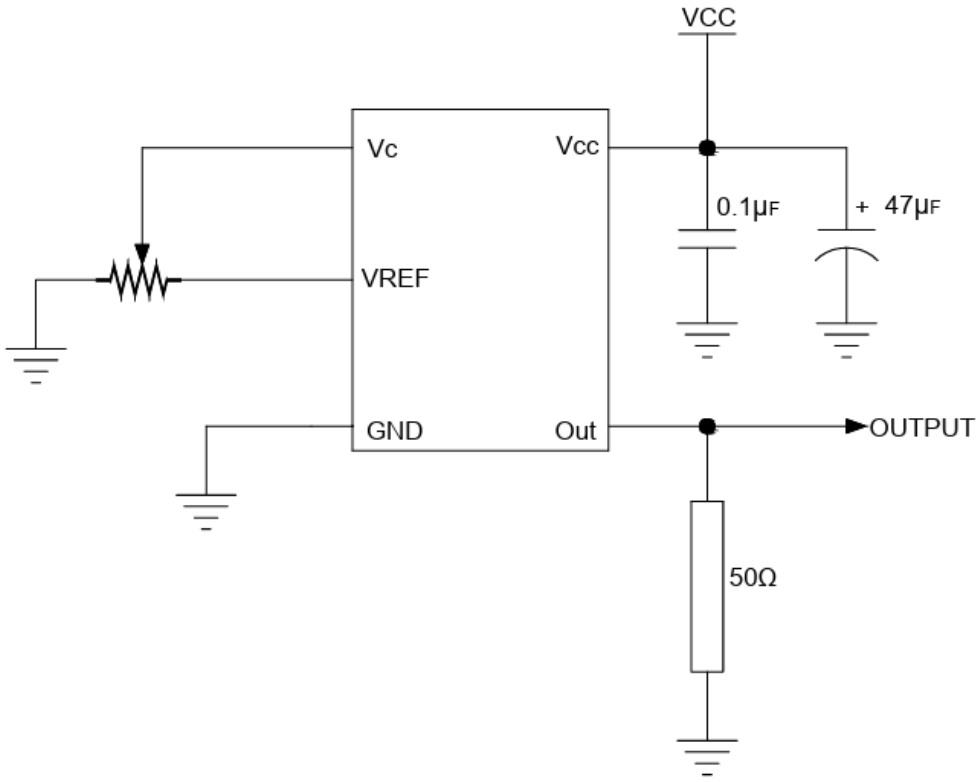
Electrical (cont.)

Parameters	Symbol	Condition	Min	Typ	Max	Unit	Notes
Load	AC-coupled 50 Ohm (Sine wave)						
Output Waveform		Sine wave					
Output Power			+7		+12	dBm	
Harmonics Suppression					-50	dBc	
Spurious Suppression					-80	dBc	
Control Voltage	Vc		0		4.5	V	
Linearity					10	%	
Input impedance	Zin	At Vc pin	100			kOhm	
Reference Voltage	Vref		4.3	4.5	4.7	V	
Output Impedance		At Vref pin	100			kOhm	
Pull range		from nominal F	±1			ppm	

Environmental and Mechanical

Parameter	Description
Operating temperature range	-40°C to +85°C standard
Vibration	Test Condition: 0.75mm ;acceleration:10g;10Hz～500Hz, one cycle per 30 min, test 2 hour. (3 times for each 3 directions X ,Y , Z), IEC 68-2-06 Test Fc.
Soldering conditions	260°C for 10s Max leads only
MSL	N/A
ESD Level	Human Body Model, class2: 2000V to 4000V; ANSI/ESDA/JEDEC JS-001-2010.
	Machine Model, class B: 200V to 400V; JEDEC JESD22-A115C.

Test Circuit



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Creating a Part Number

O - C20AA - U - X X X X - 100.000 MHz - X

OCVCXO (with Reference Voltage)

Supply voltage	
Code	Specification
B	5V ± 5%

Output	
Code	Specification
S	Sine wave

Temperature Stability	
Code	Specification
L	±5x10^{-8}

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Output Frequency
Please specify the frequency in units of MHz out to 3-digit accuracy after the decimal. Example: 100.000MHZ

Temperature Range	
Code	Specification
M	-40°C to 85°C

Not all combinations are available. Consult Factory.

Please see the table below for developed part numbers.

Developed Part Numbers		
O-C20A-U-BSLM-100.000MHz		

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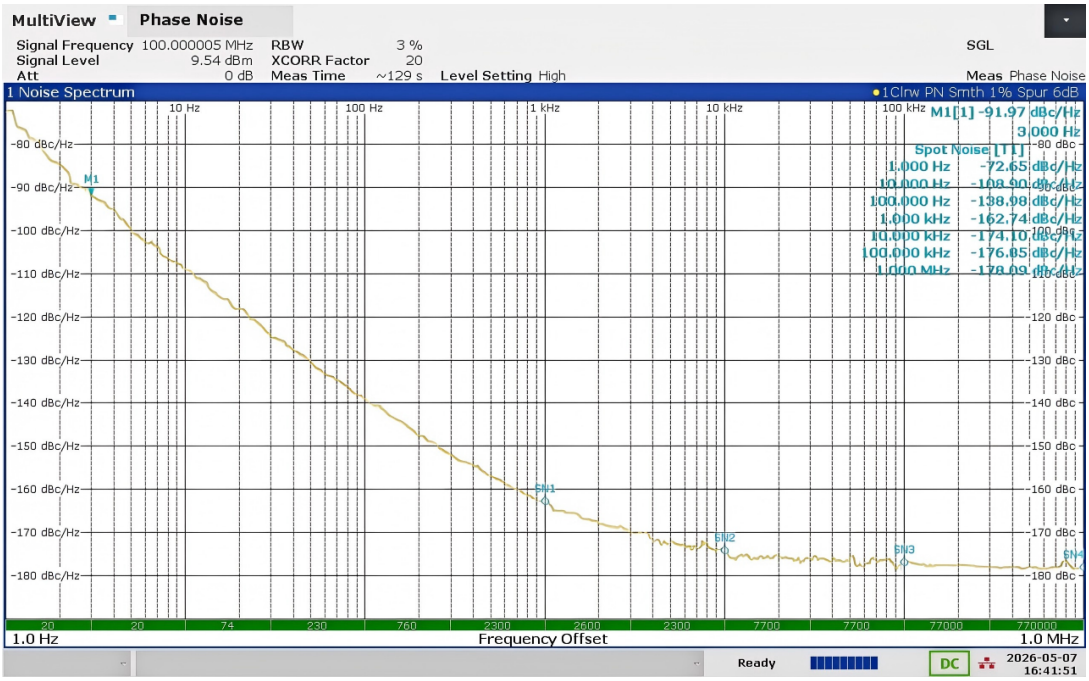
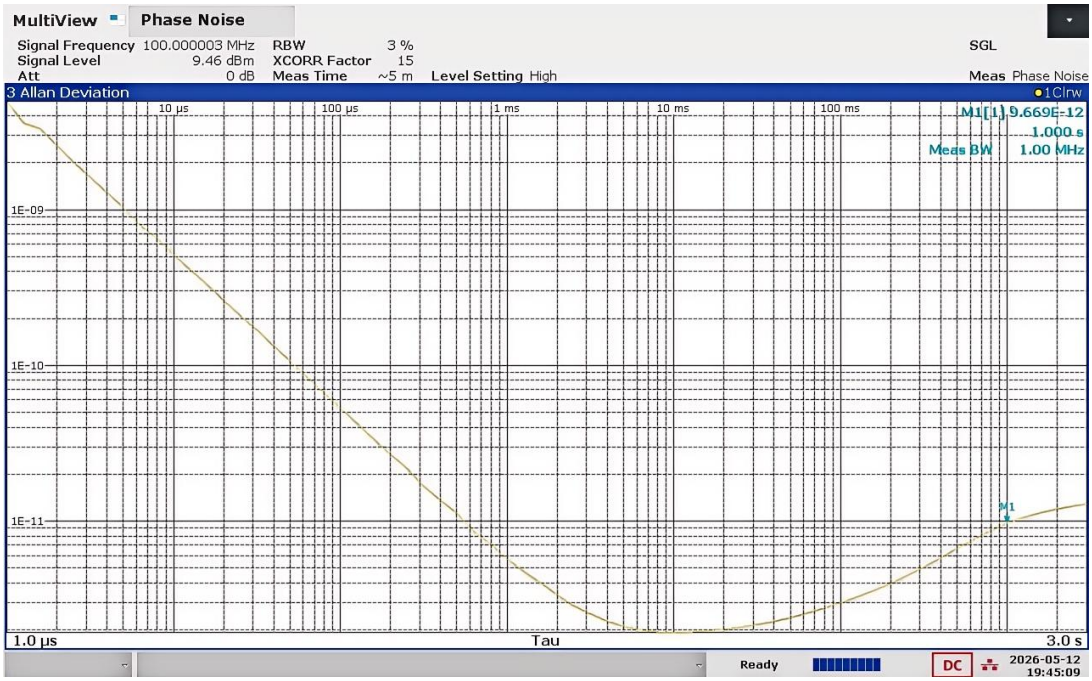
Typical Phase Noise



Typical Allan Deviation



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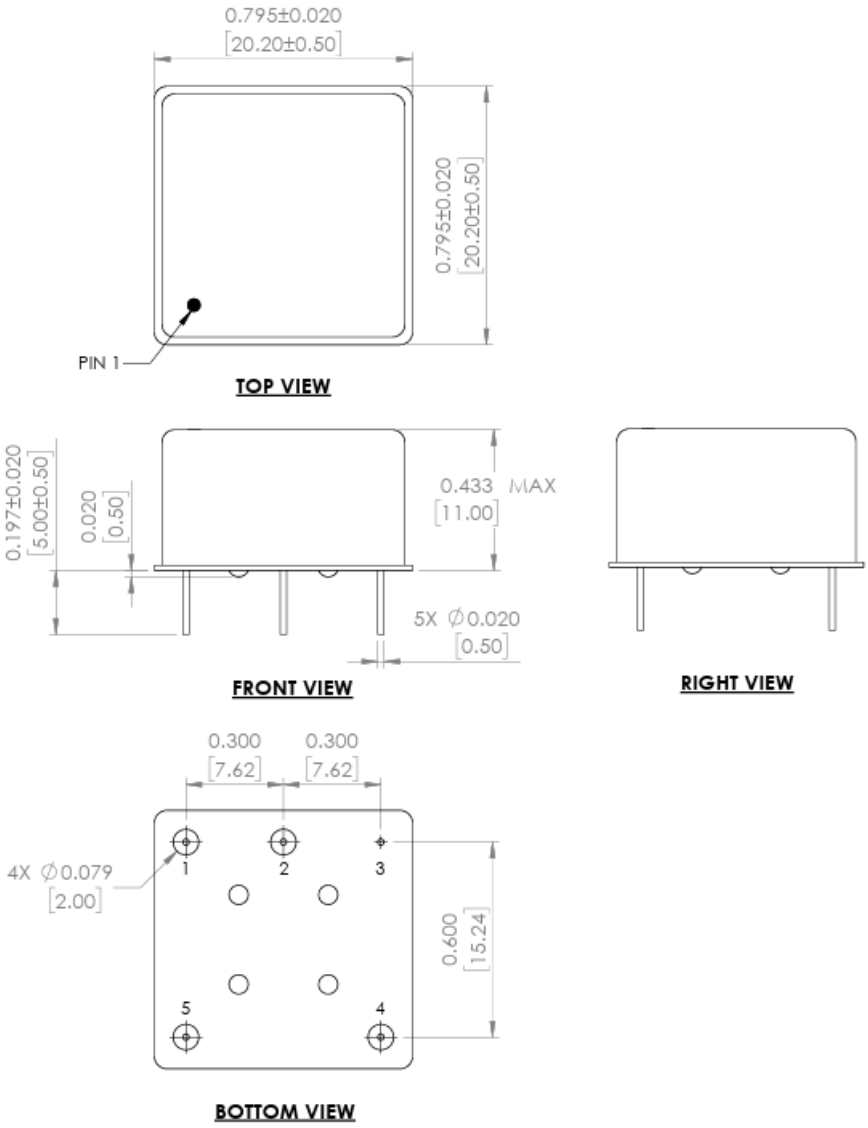
Mechanical Dimensions



Dimensions: inches [mm]

Pin #	Function
1	GND
2	Output
3	Vcc
4	Vc
5	Reference Voltage

Packaging

Bulk Tray