

Precision Ultra Low Phase Noise OCXO in 25x25 mm Package



ESD Sensitive

25.4 x 25.4 x 13 mm
Datasheet #456828

Features

- Compact 25 x 25 mm package
- SC-Cut crystal
- High Stability: ± 1 ppb over Operating Temperature Range
- Low Aging: 20 ppb 1st year
- Ultra Low Phase Noise floor (-162dBc/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	V _{cc}	12 V supply	-0.5		12.6	V	
Storage temperature	T _s		-55		+105	°C	
Control Voltage	V _c		-1		5.5	V	

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Electrical ⁽¹⁾

Parameters	Symbol	Condition	Min	Typ	Max	Unit	Notes
Frequency	F			10.00		MHz	
Frequency Tolerance	ΔF	Initial Tolerance	-50		+50	ppb	@25°C
Operating Temperature Range	OTR		-40		+70	°C	
Frequency Stability	$\Delta F/F$	vs. Temp.	-1		+1	ppb	
		vs. Supply	-0.5		+0.5	ppb/5%Vcc	
		vs. Load	-0.5		+0.5	ppb/5% load	
Aging		per day per year, first year	-1E-10 -2E-8		+1E-10 +2E-8		after 30 days of continuous operation
Short Term Stability (Allan Deviation)		1s			3.5E-13		
SSB Phase Noise (achieved after 10 minutes warm-up)	S _φ	1 Hz		-120	-115	dBc/Hz	
		10 Hz		-145	-140		
		100 Hz		-158	-153		
		1 KHz		-165	-160		
		10 KHz		-167	-162		
		100 KHz		-167	-162		
		1 MHz		-167	-162		
Input Voltage	Vcc		11.4	12.0	12.6	V	
Stead State Current	I _{dd}	steady state, 25°C			150	mA	
Warm Up Current					370	mA	
Warm Up Time					5	Minutes	@25°C, within ±10 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.

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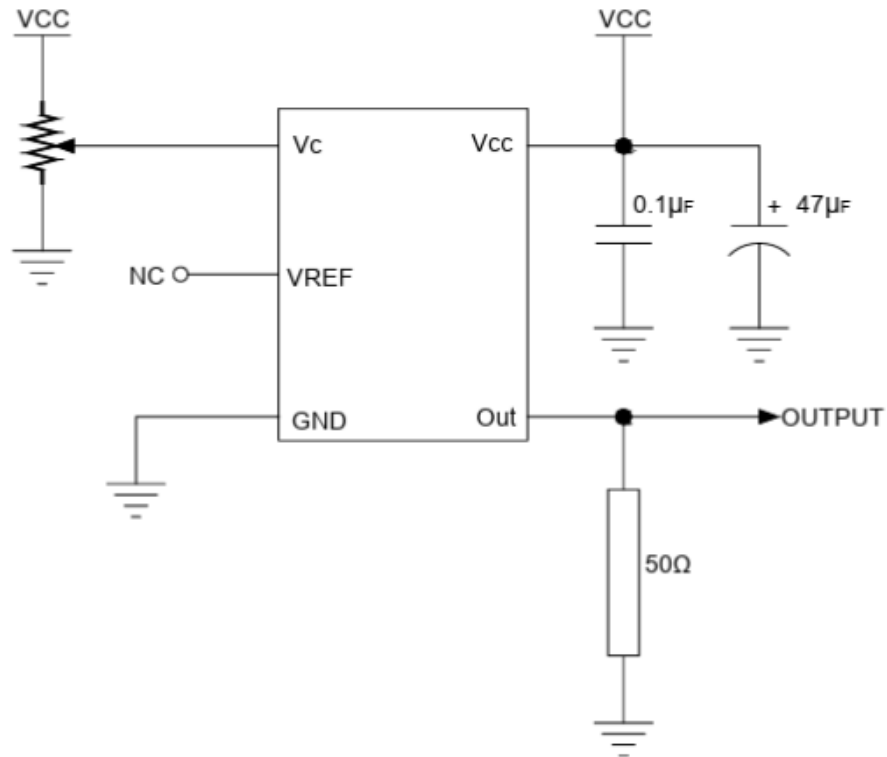
Electrical (cont.)

Parameters	Symbol	Condition	Min	Typ	Max	Unit	Notes
Load		AC-coupled 50 Ohm (Sine wave)					
Output Waveform		Sine wave					
Output Power			+5.5	+6.2		dBm	
Harmonics Suppression					-50	dBc	
Spurious Suppression					-80	dBc	
Control Voltage	V _c		0		5.0	V	
Linearity					10	%	
Input impedance	Z _{in}	At V _c pin	100			kOhm	
Pull range		from nominal F	±0.3			ppm	

Environmental and Mechanical

Parameter	Description
Operating temperature range	-40°C to +70°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



Creating a Part Number

Q - C25AA - V - X X X X - 10.000 MHz - X

OCVCXO

Supply voltage	
Code	Specification
C	12V ± 5%

Output	
Code	Specification
S	Sine wave

Temperature Stability	
Code	Specification
D	±1x10 ⁻⁹

Packaging	
Blank	Bulk

Output Frequency	
Please specify the frequency in units of MHz out to 3-digit accuracy after the decimal. Example: 10.000MHZ	

Temperature Range	
Code	Specification
H	-40°C to 70°C

Not all combinations are available. Consult Factory.
Please see the table below for developed part numbers.

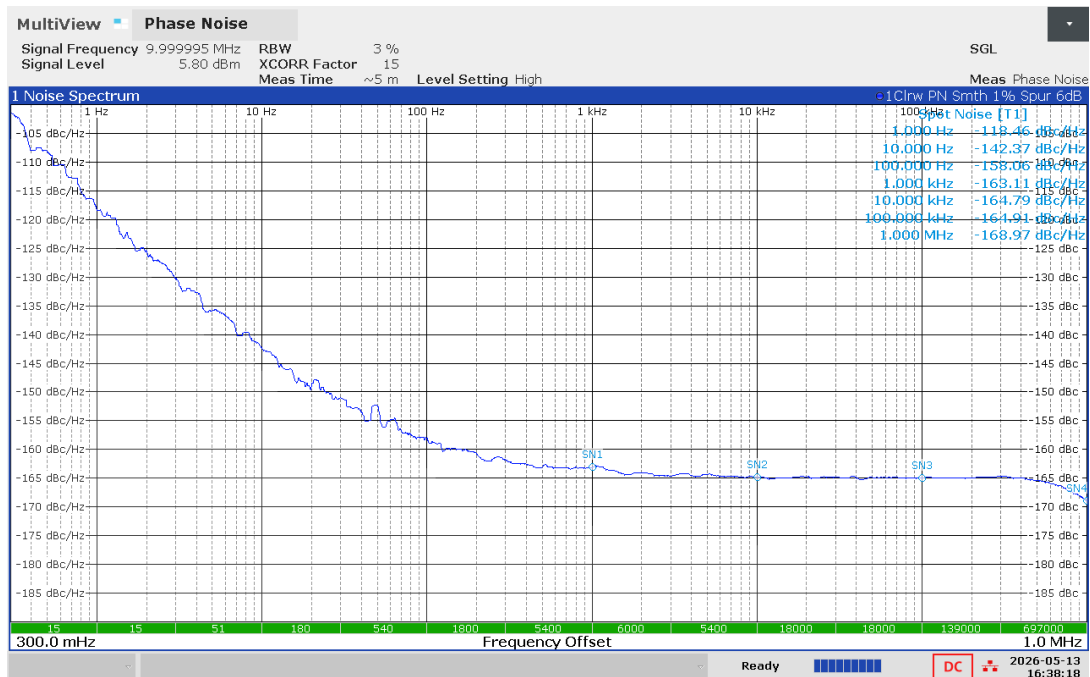
Developed Part Numbers		
O-C25AA-V-CSDH-10.000MHz		

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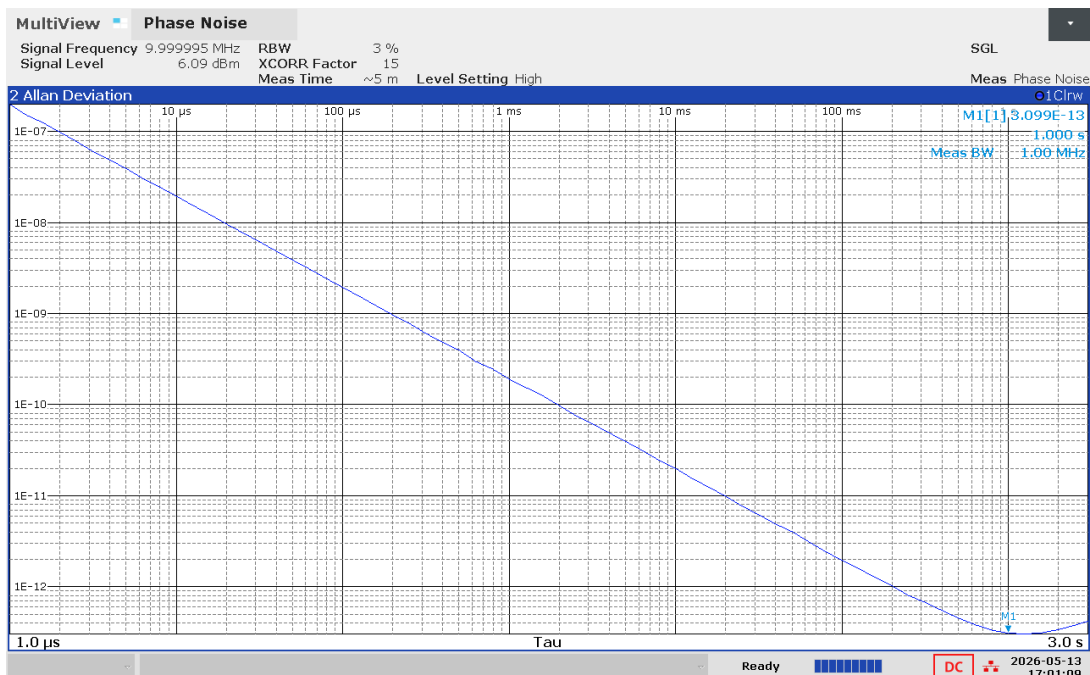


25.4 x 25.4 x 13 mm
Datasheet #456828

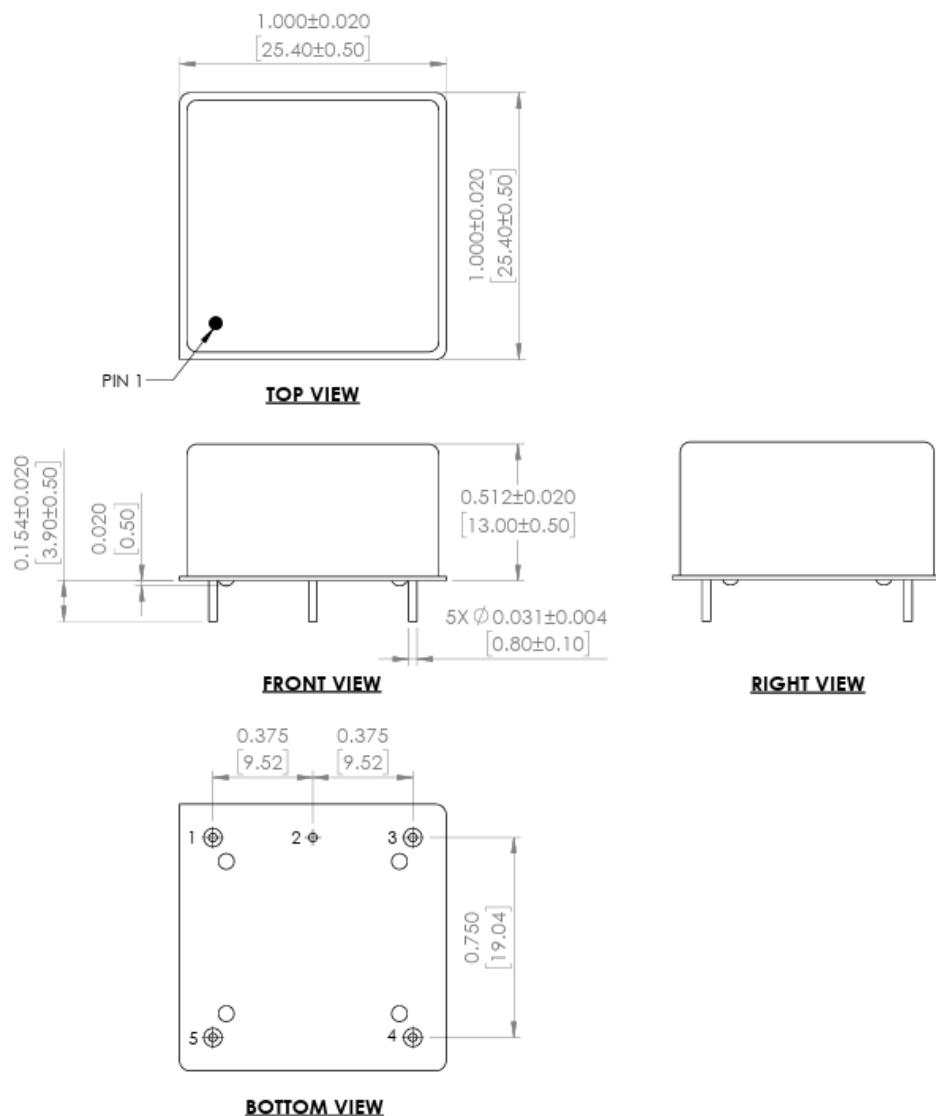
Typical Phase Noise



Typical Allan Deviation



Mechanical Dimensions



Dimensions: inches [mm]

Pin #	Function
1	Output
2	GND
3	Control Voltage
4	No Connect
5	Vcc

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Packaging

Bulk Tray