



# Dynamic Engineers Inc.

2550 Gray Falls Dr., Suite#128, Houston, TX, 77077 USA  
 TEL: 1-281-870-8822 EMAIL:Sales@DynamicEng.com

**C7 LC ' % 5 K**

**Ultra Low Power High Frequency High Stability  
 Miniature OCXO**

## Features and Benefits

- Very low power consumption - to 0.18W at +25°C
- Shock resistant, 500G 1ms
- 14 DIP compatible sizes and pins-out
- Extended to 300 MHz frequency range (multiplication is used)
- Up to 1x10<sup>-8</sup> temperature stability in (-40--+85)°C at 100 MHz
- Very low aging – to 50 ppb/year at 100 MHz
- Low Allan variance, 1s 1x10<sup>-11</sup>
- Fast warming up to 30 s

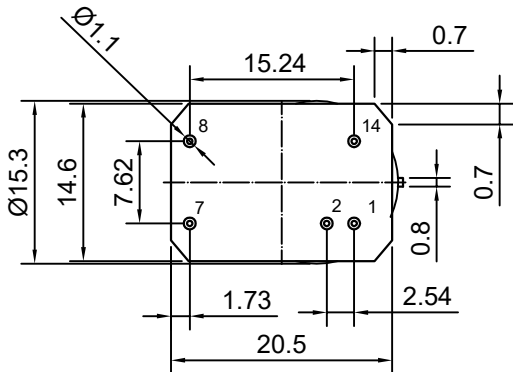
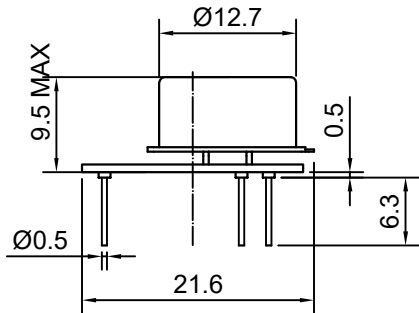
## Typical Applications

- Portable and Low Power
- Synthesizer Reference
- Microwave Communications
- Instrumentation
- Radar Reference

## Description

The OCXO3319AW operate in wide frequency range from 30 to 300 MHz with usage of internal frequency multiplication by 3 or 5. Besides, the internal multiplication of frequency enables to the oscillators improvement, the module concept of the OCXOs design allowed realization of same performance in a variety of small packages on customer choice under various models.

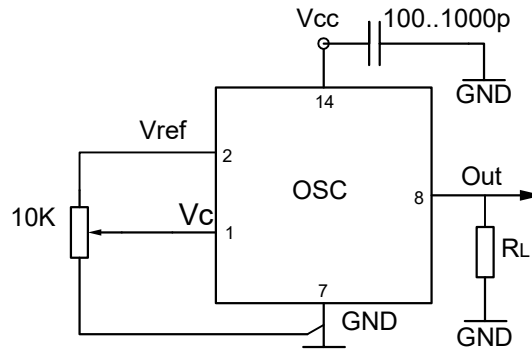
## Mechanical Drawing & Pin Connections



Unit in mm  
 1mm = 0.0394 inches

Drawing No: A8%\$\$+\*!\*

## Schematic connections



Pin	Signal
1	Electrical tuning
2	Reference voltage
7	GND
8	RF Out
14	+V Supply



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## Specifications

Oscillator Specification	Sym	Condition	Value			Unit	Note
			Min.	Typ.	Max.		
Frequency Range	$F_{nom}$		30		300	MHz	
<b>RF Output</b>							
Signal Waveform			HCMOS(TTL) option				
Load	$R_L$		10kohm/5pf				100MHz
H-Level Voltage	$V_H$	$V_{cc}=5V$	3.7			V	
		$V_{cc}=3.3V$	2.4			V	V
L- Level Voltage	$V_L$				0.4	V	
Duty Cycle			45		55	%	
Rise/Fall time					3	ns	100MHz
Signal Waveform			Sinewave option				
Level		$V_{cc}=5V$	+7			dBm	
		$V_{cc}=3.3V$	+4				
Load				50		ohm	
Harmonics					-25	dBc	
Sub-Harmonics					-40	dBc	
<b>Power Supply</b>							
Reference Voltage	$V_{ref}$	$V_{cc}=5V$	4.1	4.2	4.3	V	
		$V_{cc}=3.3V$	2.7	2.8	2.9	V	
Supply Voltage	$V_{cc}$		4.75	5.0	5.25	V	
			3.15	3.3	3.45		
Warm-up Time	$T_{up}$	at +25°C to $\Delta f/f=1e-7$	30	60		sec	ref. to freq. after 15 min. of operation
		at +25°C to $\Delta f/f=1e-8$		120			
Power Consumption		Steady state, +25°C		180		mW	100MHz,
		Warm-up			1200	mW	-40°C +85°C
<b>Frequency Adjustment Range</b>							
Electronic Frequency Control (EFC)		Compliance with 10 years of aging	±0.3	±1		ppm	
EFC voltage	$V_c$	$V_{cc}=5V$	0		4.2	V	
		$V_{cc}=3.3V$	0		2.8	V	
EFC Slope			positive				
<b>Frequency Stability</b>							
Versus Operating Temperature Range		ref. 25°C, air flow 0.5 m/s max.	±10			ppb	See ordering information
Initial Tolerance	$(f-f_0)/f_0$	+25°C, $V_c=0.5 \cdot V_{ref}$		±0.1		ppm	
Versus supply voltage	$V_s$	ref $V_{cc}$ typ		±2.0		ppb	
G – sensitivity		worst direction, 0 – 1kHz vibration BW (for 0 – 2kHz BW consult DEI)	±0.2	±1.0		ppb/G	
Retrace		24h work after 24h off			±10	ppb	100MHz
Aging Per Day		after 30 days of operation	±0.5			ppb	100MHz see ordering information
Aging 1 <sup>st</sup> Year			±0.05			ppm	
Allan Variance		1s	10		50	e-12	100MHz
SSB Phase noise		10Hz	-105		-90	dBc/Hz	100MHz multiplication by 3 $V_{cc}=5V$
		100Hz	-135		-115	dBc/Hz	
		1kHz	-150		-140	dBc/Hz	
		10kHz	-158		-150	dBc/Hz	
		100kHz	-158		-150	dBc/Hz	
<b>Environmental, Mechanical Conditions</b>							
Airflow velocity	0.5 m/s maximum						
Operating temperature range	See ordering information						
Storage temperature range	-60°C to 85°C						
Mechanical shock	Per MIL-STD-202, 30G half sine pulse, 11ms (500G half sine pulse, 1ms – option)						
Soldering conditions	Hand solder only – not reflow compatible. 260°C 10s (on pins)						
Humidity	Non-condensing 95%						
Power Voltage	-0.5V to $V_{cc}+20\%$						
Control Voltage	-0.5V to 6V						
Vibration	Per MIL-STD-202, 10G swept sine 0 to 2000Hz						
Washing Conditions	Washing with water or alcohol based detergent allowed only with final enough drying stage						



**Ordering Information**

OCXO3319AW	-	100MHz	-	x	x	x	x	x
Group				01	02	03	04	05

For example, OCXO3319AW-100MHz-1-1-2-2-2 denotes the OCXO has the following specifications:

Temperature Range: 0°C to +50°C  
 Stability Over Temperature: ±5ppb  
 Aging per day / per year: 0.2ppb/0.02ppm  
 Supply Voltage: 5V  
 Output: Sinewave

01	Temperature Range
Code	Specification
1	0°C to +50°C
2	-10°C to +60°C
3	0°C to +70°C
4	-20°C to +70°C
5	-30°C to +70°C
6	-40°C to +85°C
7	-55°C to +85°C
8	-60°C to +85°C

02	Frequency Stability		
Code	Spec	Temperature range code available for 100MHz 5V	Temperature range code available for 300MHz 5V
1	±5ppb	1	--
2	±10ppb	1,2,3,4,5,6	1
3	±20ppb	1,2,3,4,5,6,7,8	1,2,3,4
4	±30ppb	1,2,3,4,5,6,7,8	1,2,3,4,5
5	±50ppb	1,2,3,4,5,6,7,8	1,2,3,4,5,6,7,8
6	±100ppb	1,2,3,4,5,6,7,8	1,2,3,4,5,6,7,8

03	Aging per day/per year,ppb/ppm	
Code	Specification	
1	0.1/0.015	For frequency range of 30-150 MHz
2	0.2/0.02	
3	0.3/0.03	
4	0.5/0.05	
5	1/0.1	
6	1.5/0.15	
7	2/0.2	For frequency range of 150-300 MHz
8	3/0.3	
9	5/0.5	

04	Supply Voltage
Code	Specification
1	3.3V±5%
2	5V±5%

05	Output
Code	Specification
1	HCMOS/TTL
2	Sinewave