



# Dynamic Engineers Inc.

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DEI P/N: OCXO3316CÁ

Nominal Freq.: \_\_\_\_\_

GSL P/N: \_\_\_\_\_

Revision: 01

Date: 2016.06.20

Approved / Date	Checked / Date	Prepared / Date
Greg/2016.06	David/2016.06.20	Catherine/2016.06.20

Customer: \_\_\_\_\_

Customer P/N: N/A



REVISION HISTORY (OCXO3316C)

Revision #	Revised Page(s)	Revision Content	Date	Ref Number	Revision Requested by	Reviser
1		Initial Release	06/20/16	N/A	Greg	Catherine



### Features and Benefits

- Very small sizes
- Ultra low power consumption: 0.23W at +25°C
- Very high mechanical strength: to up 500G, 1 ms shocks
- Vibration 30G to 2000Hz sine
- High frequency stability: to ± 20 ppb over -40°C to 85°C at 100MHz
- Fast warming up: to 60s -0.1ppm accuracy
- Operational frequency range: 30 – 300 MHz

### Description

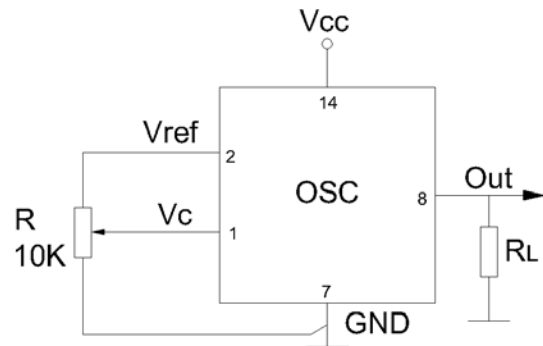
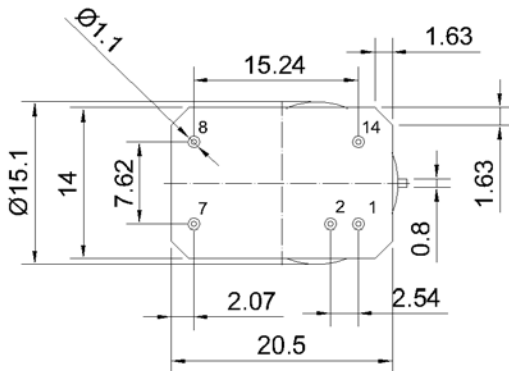
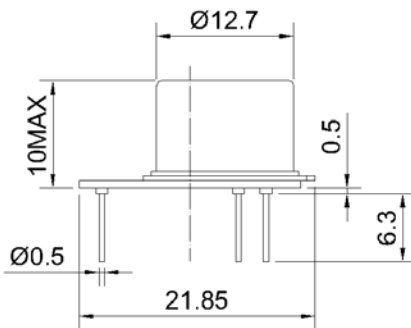
The OCXO3316C series uses the internal heating resonator (IHR) technology with arrangement of the whole oven system together with the crystal plate inside the TO-8 vacuum holder. Such approach results in radical reduction of the OCXO sizes, power consumption and its warm-up time providing at that excellent temperature stability, low phase-noise and 0.1ppb/day aging.

### Typical Applications

- Portable and battery fed wireless
- Mobile test equipment
- Beacons & Rescue systems
- Equipment working at severe mechanical factors

### Mechanical Drawing & Pin Connections

Drawing No: MD140029-1



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

Unit : mm



Specifications

OCXO Specification		Sym	Condition	Value			Unit	Note
				Min.	Typ.	Max.		
Frequency Range		F <sub>0</sub>		30		300	MHz	
<b>RF Output</b>								
HCMOS (TTL) Option	Load			10			Kohm	
						5	pF	
	H-Level Voltage	V <sub>H</sub>	V <sub>cc</sub> =5V	3.8			V	
	L-Level Voltage	V <sub>L</sub>	V <sub>cc</sub> =3.3V	2.4			V	
	Duty Cycle			45		55	%	
	Rise/Fall Time					2.5	ns	For 10MHz operational frequency
Sine Wave Option	Level	L			+8		dBm	
	Load	RL			50		Ohm	
	Harmonics Level					-25	dBc	
Sub-harmonics Level						-40	dBc	
<b>Power Supply</b>								
Voltage		V <sub>cc</sub>		4.75	5.0	5.25	V	3.3V available
Power Consumption			Steady-state @ +25°C		0.23		W	
			Warm-up		1.0		W	
Warm-up Time			To Δf/f = 1e-7, at 25°C, V <sub>cc</sub> =5V		60		s	Ref. frequency after 10min. for 10MHz
			To Δf/f = 1e-7, at 25°C, V <sub>cc</sub> =3.3V		70		s	
<b>Frequency Control</b>								
Control Voltage		V <sub>c</sub>	V <sub>cc</sub> =5V	0		4.2	V	Tuning slop-postive
			V <sub>cc</sub> =3.3V	0		2.8	V	
Tuning Range				+/-0.5			ppm	
Reference Voltage		V <sub>ref</sub>	V <sub>cc</sub> =5V	4.1	4.2	4.3	V	
			V <sub>cc</sub> =3.3V	2.7	2.8	2.9	V	
<b>Frequency Stability</b>								
Vs. Operating Temperature Range			-40°C to +85°C	+/-20	+/-50		ppb	See ordering section
Vs. Supply Voltage Change			Ref. V <sub>cc</sub> typ.		+/-5		ppb	
Vs. Acceleration			Worst direction	+/-0.5		+/-1	ppb/G	
Allan Variance			1s		20		e-12	
Aging	Per Day		After 30 days of operation		+/-1.0		ppb	See ordering section
	Per Year				+/-0.1		ppm	
<b>Phase Noise</b>								
Phase Noise			@10Hz	-100			dBc/Hz	For 100MHz operational frequency
			@100Hz	-125				
			@1KHz	-145				
			@10KHz	-155				
			@100KHz	-160				
<b>Environmental</b>								
Operating Temperature Range		See ordering section						
Storage Temperature Range		-60°C to +90°C						
Humidity		Non-condensing 95%						
Mechanical Shock		Per MIL-STD-202, 500G half sine pulse, 1ms						
Vibration		Per MIL-STD-202, 30G swept sine 10 to 2000Hz						
Soldering Conditions		Hand solder only – not reflow compatible. 260°C 10s (on pins)						
Washing conditions		Washing with water or alcohol based detergent allowed only with final enough drying stage						



Ordering Information

OCXO3316C	-	x	x	x	x	x	-	xx MHz
Group		1	2	3	4	5		

For example, OCXO3316C- -25421-100MHz denotes the OCXO has the following specifications:

- Temperature Range -10°C to +60°C
- Stability Over Temperature ±100ppb
- Aging per day / year 1.5ppb / 0.15ppm
- Supply Voltage 3.3V ±10%
- Output HCMOS
- Frequency 100MHz

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

2	Stability Over Temperature		
Code	Specification	Available temperature range code	
		100MHz	300MHz
1	±5.0 ppb	1	-
2	±10 ppb	1 to 6	1
3	±20 ppb	1 to 7	1-5
4	±50 ppb	1 to 7	1 to 7
5	±100 ppb	1 to 7	1 to 7

3	Aging per day/year, ppb/ppm
Code	Specification
1	0.3/0.03
2	0.5/0.05
3	1/0.1
4	1.5/0.15
5	2/0.2
6	3/0.3
7	5/0.5

4	Supply voltage
Code	Specification
1	+5V ±5%
2	+3.3V ±5%

5	Output
Code	Specification
1	HCMOS
2	Sine wave +8 dBm typ.

\*\*with same numbers and frequency upper limits for a give daily / yearly aging rate  
 \*Disclaimer: Not all option choices available across entire frequency range