



Dynamic Engineers Inc.

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

OCXO3315C Low power high-strength miniature OCXO

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 ± 10 ppb over -40°C to 85°C
- Fast warming up: to 60s –typical, 30s – optionally
- Operational frequency range: 8 – 100 MHz

Description

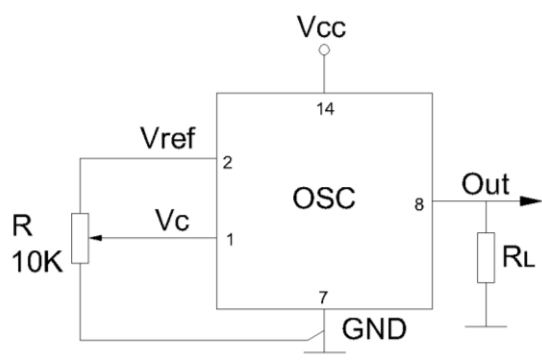
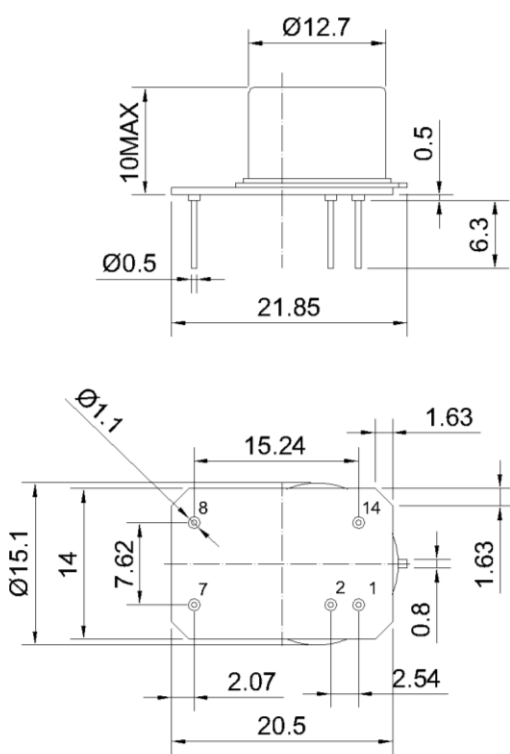
The OCXO3315C series uses the internal heating resonator (IHR) technology with arrangement of the whole oven system together with the crystal plate inside the TO-8 vacuum holder. Such approach results in radical reduction of the OCXO sizes, power consumption and its warm-up time providing at that excellent 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

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Specifications

OCXO Specification	Sym	Condition	Value			Unit	Note	
			Min.	Typ.	Max.			
Frequency Range	F ₀		8		100	MHz		
RF Output								
HCMOS (TTL) Option	Load		10		15	Kohm		
	H-Level Voltage	V _H	V _{cc} =5V	3.8			pF	
			V _{cc} =3.3V	2.4			V	
	L-Level Voltage	V _L			0.4		V	
	Duty Cycle			45		55	%	
Rise/Fall Time					10	ns	For 10MHz operational frequency	
Sine Wave Option	Level	L		+8		dBm		
	Load	RL	45	50	55	Ohm		
	Harmonics Level				-25	dBc		
Sub-harmonics Level				None				
Power Supply								
Voltage	V _{cc}		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		ToΔf/f=1e-7, at 25°C, V _{cc} =5V	30	60		s	Ref. frequency after 15 min. for 10MHz	
		ToΔf/f=1e-7, at 25°C, V _{cc} =3.3V	40	70		s		
Frequency Control								
Control Voltage	V _c	V _{cc} =5V	0		4.2	V	Tuning slop-positive	
		V _{cc} =3.3V	0		2.8	V		
Tuning Range			+/-0.5	+/-1		ppm		
Reference Voltage	V _{ref}	V _{cc} =5V	4.1	4.2	4.5	V		
		V _{cc} =3.3V	2.7	2.8	2.9	V		
Frequency Stability								
Vs. Operating Temperature Range		-30°C to +70°C		+/-50		ppb	See ordering section	
Vs. Supply Voltage Change		Ref. V _{cc} typ.		+/-2		ppb		
Vs. Acceleration		Worst direction	+/-0.5		+/-1	ppb/G		
Aging	Per Day	After 30 days of operation		+/-0.5		ppb	See ordering section	
	Per Year			+/-0.05		ppm		
Phase Noise								
Phase Noise		@1Hz	-97/-	-95		dBc/Hz	For 10MHz/100MHz operational frequency	
		@10Hz	-130/-95	-125/-90				
		@100Hz	-152/-125	-145/-120				
		@1KHz	-162/-155	-155/-150				
		@10KHz	-165/-165	-162/-162				
Environmental								
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	260°C 10s							

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Ordering Information

OCXO3315C	-	x	x	x	x	x	-	xx MHz
Group		1	2	3	4	5		

For example, OCXO3315C- -26421-10MHz 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 10MHz

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	
		10MHz	100MHz
1	±5.0 ppb	1 to 2	-
2	±10 ppb	1 to 7	-
3	±20 ppb	1 to 7	1
4	±30 ppb	1 to 7	1 to 2
5	±50 ppb	1 to 7	1 to 7
6	±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