



Features and Benefits

- Very small sizes
- Ultra low power consumption: 0.23W at +25°C
- Very high mechanical strength: to up 1000G, 0.5 ms shocks
- Vibration 30G to 2000Hz sine
- High frequency stability: to ± 10 ppb over -40°C to 85°C
- Fast warming up: to 60s
- 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.

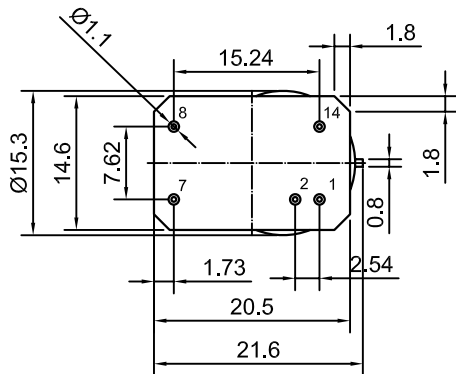
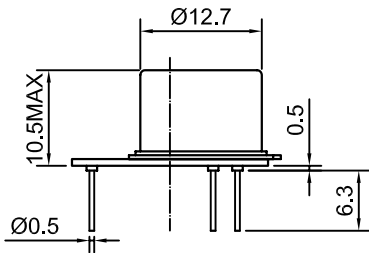
Typical Applications

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

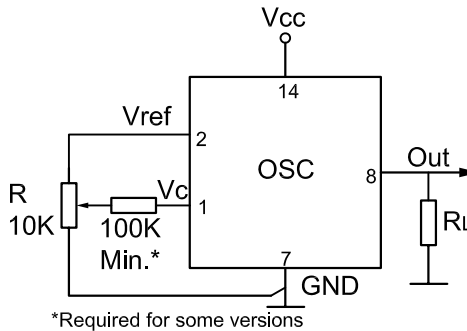
Mechanical Drawing & Pin Connections

Drawing No: MD140029-1

Physical dimensions



Schematic connections



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

Unit in mm
1mm = 0.0394 inches



Specifications

OCXO Specification	Sym	Condition	Value			Unit	Note	
			Min.	Typ.	Max.			
Frequency Range	F ₀		8		100	MHz		
Initial Tolerance		+25°C, (F-F ₀)/ F ₀ Vc=0.5*Vref		±0.1		ppm		
RF Output								
HCMOS (TTL) Option	Load		10			Kohm		
	H-Level Voltage	VH	Vcc=5V	3.7		15/5	pF	10/100MHz
			Vcc=3.3V	2.4			V	
	L-Level Voltage	VL				0.4	V	
	Duty Cycle			45		55	%	
Rise/Fall Time					10/3	ns	10/100MHz	
Sine Wave Option	Level	L	Vcc=5V Vcc=3.3V	+7 +4			dBm	
	Load	RL			50		Ohm	
	Harmonics Level					-25	dBc	
Sub-harmonics Level				None				
Power Supply								
Voltage	Vcc		4.75 3.15	5.0 3.3	5.25 3.45	V		
		Warm-up			1.2	W		
Power Consumption		Steady-state@+25°C		0.23		W	10MHz, -40°C to +85°C	
Warm-up Time		ToΔf/f=1e-7, at 25°C		60		s	Ref. to frequency after 15 min. of operation	
		ToΔf/f=1e8, at 25°C		120		s		
Frequency Control								
Control Voltage	Vc	Vcc=5V	0		4.2	V	Tuning slop- positive	
		Vcc=3.3V	0		2.8	V		
Tuning Range		Compliance with 10years of aging	±0.3	±1.0		ppm		
Reference Voltage	Vref	Vcc=5V	4.1	4.2	4.5	V		
		Vcc=3.3V	2.7	2.8	2.9	V		
Frequency Stability								
Vs. Operating Temperature Range		-40°C to +85°C Ref. 25°C, air flow 0.5m/s max.	±5.0			ppb	See ordering section	
Vs. Supply Voltage Change		Ref. Vcc typ.		±2.0		ppb		
Vs. Acceleration		Worst direction, 0-1KHz vibration BW	±0.2	±1.0		ppb/G	For 0-2KHz BW pls consult us	
Retrace		24h work after 24h off			±10	ppb	For 10MHz	
Allan Variance		1s	5		30	e-12		
Aging	Per Day	After 30 days of operation		±0.1		ppb	See ordering section	
	Per Year			±0.015		ppm		
Phase Noise								
Phase Noise		@1Hz	-105/--		-85/--	dBc/Hz	Only For 10MHz/100MHz @Vcc=5V. See Note1	
		@10Hz	-135/-100		-115/-85			
		@100Hz	-155/-130		-143/-115			
		@1KHz	-165/-155		-150/-148			
		@10KHz	-170/-170		-165/-165			



	@100KHz	-172/-172	-165/-165
Environmental			
Operating Temperature Range	-40°C to +85°C (See ordering section)		
Storage Temperature Range	-60°C to +85°C		
Power voltage	-0.5V to VCC+20%		
Control voltage	-0.5V to 6V		
Humidity	Non-condensing 95%		
Mechanical Shock	Per MIL-STD-202, 500G half sine pulse, 1ms		
Vibration	Per MIL-STD-202, 30G swept sine 0 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		

Note1: *Disclaimer: Not all phase noise values available across entire frequency range. For other frequency phase noise value, pls contact us.

Ordering Information

OCXO3315C	-	xx MHz	-	01	02	03	04	05
Group				Code				

For example, OCXO3315C-10MHz-26421 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

01	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
8	-60°C..+85°C

02	Stability Over Temperature		
Code	Specification	Available temperature range code	
		10MHz (5V)	100MHz (5V)
1	±5.0 ppb	1 to 3	-
2	±10 ppb	1 to 8	-
3	±20 ppb	1 to 8	1
4	±30 ppb	1 to 8	1 to 2
5	±50 ppb	1 to 8	1 to 5
6	±100 ppb	1 to 8	1 to 8

03	Aging per day/year, ppb/ppm	
Code	Specification	
1	0.1/0.015*	≤10MHz
2	0.2/0.02	
3	0.3/0.03	
4	0.50.05	≤20MHz
5	1/0.1	≤40MHz
6	1.5/0.15	≤50MHz
7	2/0.2	≤100MHz
8	3/0.3	
9	5/0.5	

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

05	Output
Code	Specification
1	HCMOS
2	Sine wave

*Available for temperature range 1 to 7.

Disclaimer: Not all option choices available across entire frequency range