



Features and Benefits

- Very small sizes
- Very low power consumption (to 0.23W at +25 °C)
- Very high mechanical strength: to up 1000G, 0.5ms shocks
- Vibration 30G to 2000Hz sine
- High frequency stability (to +/-10ppb over -40°C to 85°C)
- Fast warming-up: 60s to 0.1ppm accuracy
- Operational frequency range: 8 to 100MHz

Description

The OCXO3311C series ovenized oscillator employs a directly heated crystal process which delivers very fast warm-up, excellent phase noise and frequency long term stability in a very small industry-standard package.

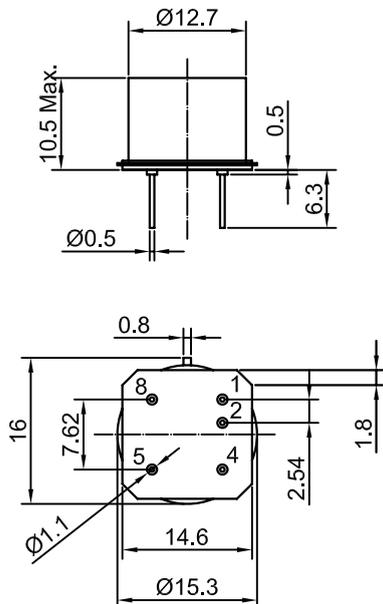
Typical Applications

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

Mechanical Drawing & Pin Connections

Drawing No: MD140038-5

Physical dimensions



Pin	Signal
1	Electrical tuning
2	Reference voltage
4	GND
5	RF Out
8	+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		(f-f ₀)/f ₀	+25°C, V _{cc} =0.5V _{ref}		+/- 0.1		ppm	
RF Output								
HCMOS	Load			10			kOhm	
						15/5	pF	
	H-level Voltage	V _H	V _{cc} =5V V _{cc} =3.3V	3.7 2.4			V	
	L-level Voltage	V _L				0.4	V	
	Duty Cycle			45		55	%	
	Rise/Fall Time					10/3	ns	10/100MHz
Sine-wave option	Level	L	V _{cc} =5V V _{cc} =3.3V	+7 +4			dBm	
	Load	R _L			50		Ohm	
	Harmonics level					-25	dBc	
Sub-harmonics level				none				
Power Supply								
Voltage		V _{cc}		4.75 3.15	5.0 3.3	5.25 3.45	V	
Power Consumption			Warm-up time Steady state, +25°C			1.2	W	10MHz, -40°C to +85°C
Warm-up Time		t _{up}	at 25°C to Δf/f ₀ = 1e-7		60		s	ref. to frequency after 15 min of operation
			at 25°C to Δf/f ₀ = 1e-8 at 25°C		120		s	
Frequency Control								
Control Voltage Range		V _c	@ V _{cc} = 5V @ V _{cc} = 3.3V	0 0		4.2 2.8	V V	
Tuning Range			Compliance with 10 years of aging	+/-0.3	+/-1		ppm	positive slope
Reference Voltage		V _{ref}	@ V _{cc} = 5V @ V _{cc} = 3.3V	4.1 2.7	4.2 2.8	4.3 2.9	V V	
Frequency Stability								
vs. Temperature			ref. 25°C, air flow 0.5 m/s max.	+/-10			ppb	See ordering code
vs. Supply Voltage			Ref. V _{cc} typ.		+/-2		ppb	
G-sensitivity			Worst direction, 0 – 1kHz vibration	+/-0.2	+/-1		ppb/G	
Retrace			24h work after 24h off			+/-10	ppb	10MHz
Aging	Per Day		After 30 days of operation	+/-0.1			ppb	10MHz see ordering code
	First Year			+/-0.015			ppm	
Phase Noise								
Phase Noise				1Hz	-100/---	-85/---	dBc/H z	10/100MHz VCC=5V
				10Hz	-130/-95	-115/-85		
				100Hz	-148/-125	-143/-115		
				1kHz	-155/-150	-150/-145		
				10kHz	-163/-163	-160/-158		
				100kHz	-165/-163	-160/-160		
Allan deviation			1 s	5		30	e-12	10MHz



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OCXO3311C

Very Low Power High Stability Low Phase Noise
Miniature OCXO

Environmental	
Airflow velocity	0.5 m/s maximum
Operating Temperature Range	-40°C to 85°C
Storage Temperature Range	-60°C to +85°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

OCXO3311C	-	xxMHz	-	01	02	03	04	05	06
Group				Code					

For example, OCXO3311C- -100MHz-2-4-7-1-1-1 denotes the OCXO has the following specifications:

Frequency 100MHz
 Temperature Range -10°C to +60°C
 Stability Over Temperature ±30ppb
 Aging per day / year 2ppb / 0.2ppm
 Supply Voltage 3.3V ±10%
 Output HCMOS

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 2	-
2	±10 ppb	1 to 6	-
3	±20 ppb	1 to 7	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	0.5/0.05	≤20MHz
5	1/0.1	≤40MHz
6	1.5/0.15	≤50MHz
7	2/0.2	≤120MHz
8	3/0.3	≤120MHz
9	5/0.5	≤150MHz

*Only for temperature 1 to 5

04	Supply Voltage
Code	Specification
1	3.3V±5%
2	5.0V±5%

05	RF Output
Code	Specification
1	HCMOS
2	Sine-wave