



### 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: 60s to 0.1ppm accuracy
- Operational frequency range: 8 – 100 MHz

### Typical Applications

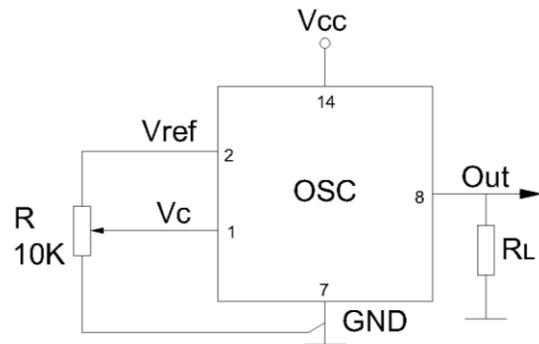
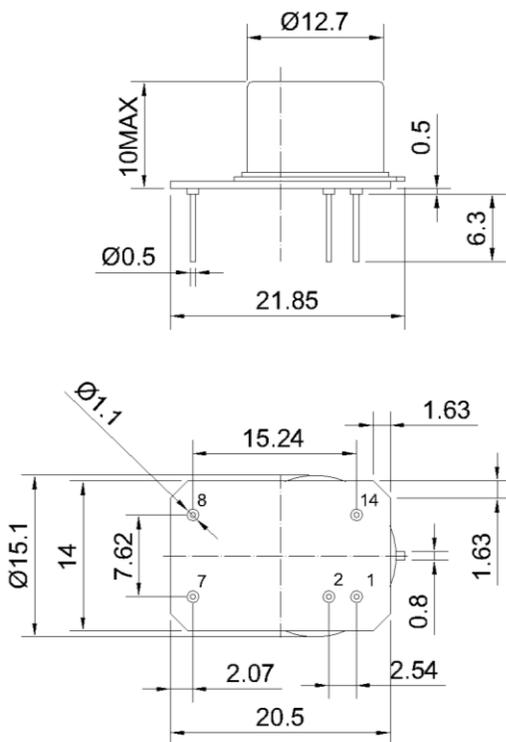
- Portable and battery fed wireless
- Mobile test equipment
- Beacons & Rescue systems
- Equipment working at severe mechanical factors

### Description

The OCXO3311C-100MHz-A-V-ET 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.

### 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>			100		MHz	
<b>RF Output</b>							
Sine wave	Load			50		Ohm	
	Output Level		5		8	dBm	
	Harmonic				-25	dBm	
	Spurious				-80	dBm	
<b>Power</b>							
Voltage	V <sub>cc</sub>		4.75	5.0	5.25	V	
Power Consumption	I <sub>Warm-up</sub>	Warm-up state Steady state, +25°C			220	mA	
					50	mA	
Warm-up Time	t <sub>up</sub>	Δf/f <sub>0</sub> = 1e-7 at 25°C, V <sub>cc</sub> =5V			75	s	
<b>Frequency Control</b>							
Control Voltage Range	V <sub>c</sub>	@ V <sub>cc</sub> = 5V	0		4.2	V	Tuning slope – positive (standard option)
Tuning Range			+/-0.5	+/-1		ppm	
Reference Voltage	V <sub>ref</sub>	@ V <sub>cc</sub> = 5V	4.1	4.2	4.3	V	
<b>Frequency Stability</b>							
Frequency Tolerance					+/-0.1	ppm	
vs. Temperature		-55°C to +85°C, ref. 25°C			+/-0.1	ppm	
vs. Supply Voltage		Ref. V <sub>cc</sub> typ.		+/-2		ppb	
vs. Acceleration		Worst direction			+/-1	ppb/G	
Aging	Per Day	After 30 days of operation			3	ppb	
	First Year				0.3	ppm	
<b>Phase Noise</b>							
Phase Noise		10Hz			-95	dBc/Hz	
		100Hz			-125		
		1kHz			-153		
		10kHz			-163		
		100kHz			-165		
<b>Environmental</b>							
Operating Temperature Range	-55°C to +85°C						
Storage Temperature Range	-60°C to +90°C						
Humidity	Non-condensing 95%						
Mechanical Shock	Per MIL-STD-202, 500G half sine pulse, 11ms (500G, 1ms-special option)						
Vibration	Per MIL-STD-202,30G swept sine 10 to 2000Hz						
Soldering Conditions	Hand solder only – not reflow compatible. 260°C 10s (on pins)						

## Environmental

### 1. Vibration request 1:

Frequency range: 15-2000Hz, X, Y, Z three directions, the vibration condition of the power spectral density of the following table:

Frequency (Hz)	power spectral density
15~197	0.02g <sup>2</sup> /Hz
197~300	4dB/Oct
300~1000	0.07g <sup>2</sup> /Hz
1000~2000	-6dB/Oct

Function vibration time: 1h/ axial;

The endurance of the vibration time of 1:7.5h/ axial; The endurance vibration test value is 1.6 times the function vibration test value.



2. Vibration request 2:

Frequency range: 15-2000Hz, X, Y, Z three directions, the vibration condition of the power spectral density of the following table:

Frequency (Hz)	power spectral density
20~30	0.02g <sup>2</sup> /Hz
30~300	4dB/Oct (has tolerance)
300~1000	0.1g <sup>2</sup> /Hz
1000~2000	-6dB/Oct

Function vibration time: 60min/axial;  
Durable vibration time 1:150min/ axial;

3. Shock request1:

Basic shock design: 20g 11ms, final peak sawtooth shock pulse,3time/every axial (18times)  
Maximum Shock <sup>1</sup>: 40g 11ms, final peak sawtooth shock pulse,2time/every axial (12times)

4. Shock request 2:

Basic shock design: 15g 11ms half sine pulse  
Maximum Shock: 30g 11ms half sine pulse