

Features and Benefits

- 20 MHz low noise precision crystal
- Very Low Power (0.25W Max. at steady-state)
- Very Fast Warm-up time (60 to 90 seconds)
- Ultra-low phase noise (Less than -165 dBc/Hz @ 10 KHz offset)

Description

The OCXO3309C is an Ultra-low power OCXO technology with outstanding phase noise up to 150 MHz operating frequency

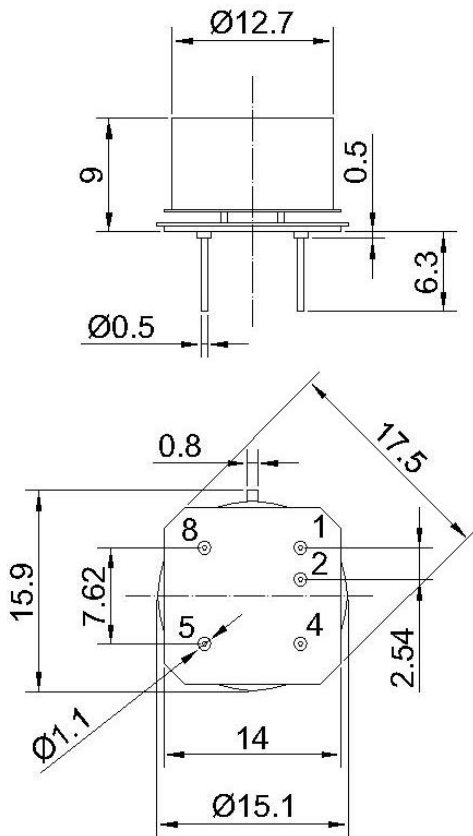
Typical Applications

- Portable Wireless Communications
- Mobile Test equipment
- Beacons & Rescue systems
- Battery Powered Applications

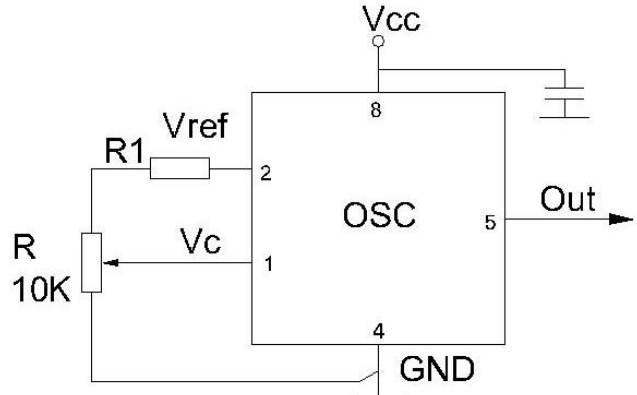
Mechanical Drawing & Pin Connections

Drawing No: MD140077-3

Physical dimensions



Schematic connections



Pin	Signal
1	Electrical tuning
2	Reference voltage
4	GND
5	RF Out
8	+V Supply

Unit : mm

Specifications

OCXO Specification	Sym	Condition	Value			Unit	Note	
			Min.	Typ.	Max.			
Frequency Range	f_0			20.000000		MHz		
RF Output								
HCMOS	High Voltage		3.8			V		
	Low Voltage				0.4	V		
	Load	R_L		10			Kohm	
		C_L				10	pF	
Duty Cycle			45	50	55	%		
Power supply								
Voltage	V_{CC}		4.75	5.0	5.25	V		
Power Consumption	$I_{Warm-up}$	Warm-up state Steady state, +25°C	120		220	mA	$V_{CC}=5V$	
				35	50	mA		
Warm-up Time	t_{up}	$\Delta f/f = 1e-7$ at 25°C		60	90	s		
Frequency control								
Control Voltage Range	V_c		0		4.2	V	Tuning slope – positive (standard option)	
Preset Control Voltage	V_{CO}	Disconnect V_c pin	1.9	2.1	2.3	V		
Tuning Range	$(f_L-f)/f$	$V_c = 0V$		-1	-0.5	ppm	+	
	$(f-f)/f$	$V_c = V_{CO}$		0		ppm		
	$(f_H-f)/f$	$V_c = V_{ref}$	0.5	1		ppm	+	
Reference Voltage	V_{ref}		4.1	4.2	4.3	V		
Output Resistance of V_{ref}				91		Ohm		
Input Impedance				11		Kohm		
				5		pF		
Input BW		-3dB		160		Hz		
Frequency Stability								
vs. Temperature		-40°C to +85°C, ref. 25°C			+/-20	ppb		
vs. Supply Voltage		Ref. V_{CC} typ.		+/-3	+/-5	ppb		
vs. Load Change		5% Change			+/-5	ppb		
Allan Variance		0.1s. 100KHz BW			20	e-12		
Aging	Per day	After 30 days of operation			+/-1	ppb		
	First year				+/-0.1	ppm		
Phase noise								
Phase Noise		1 Hz		-90	-85	dBc/Hz		
		10 Hz		-120	-115			
		100 Hz		-145	-143			
		1 KHz		-158	-155			
		10 KHz		-165	-163			
		100 KHz		-168	-165			
Environmental								
Operating Temperature Range		-40°C to +85°C						
Storage Temperature Range		-60°C to +90°C						
Humidity		Non-condensing 95%						
Mechanical Shock		Per MIL-STD-202, 30G, 11ms						
Vibration		Per MIL-STD-202, 10G 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						