



Revised in January 2007

MXOC Series - High Stability Low Phase-Noise OCXO

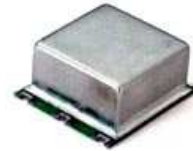
Features

High Stability (up to $\pm 4 \times 10^{-9}$ over -40°C to $+80^{\circ}\text{C}$)
 Low Phase Noise (-165 dBc/Hz , TYP, floor)
 Low Aging
 Wide Frequency Range: 5 to 200 MHz
 Small Surface Mount Package

Typical Applications

GPS Receivers
 Cellular Base Stations
 Instrumentation
 Stratum 3E clock systems
 VSAT, INMARSAT

Packaging type S: "Surface mount" 25x22x10.8 mm

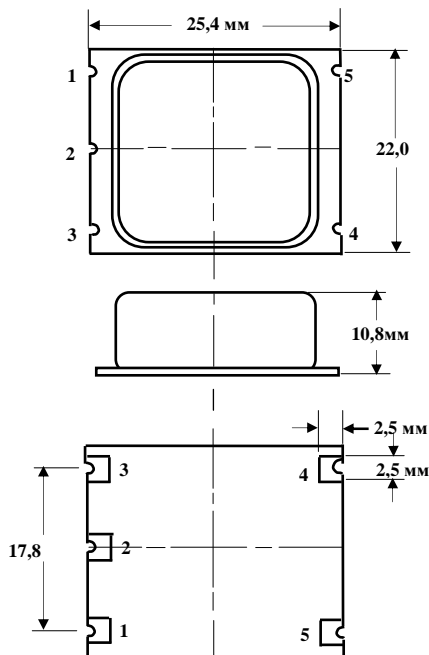


RoHS compliant

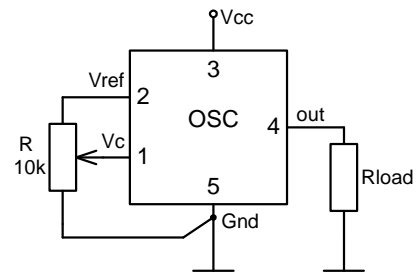
Description

The MXOC series oven-controlled crystal oscillators are intended for wide applications where high temperature stability, low aging, low phase-noise along and compact sizes are major requirements. The module approach to the OCXO design allowed providing the same performance in a variety of small packages (MXOCE, MXOCI, MXOCR, MXOCS models). The OCXOs of MXOC series are fabricated for 5-250 MHz range, for above 30 MHz - using internal multiplication circuitry.

Physical Dimensions



Pin Connections



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

Specification
MXOC Series High Stability Low Phase-Noise OCXO

Parameter	Sym.	Conditions	Value			Unit	Note
			Min.	Typ.	Max.		
Frequency range	f_0		5		250	MHz	
RF output							
HCMOS (TTL) option	Load		10		15	kOhm	
	H-level voltage	V_H	3.9			V	
	L-level voltage	V_L			0.4	V	
	Duty cycle		45		55	%	
	Rise/Fall time				10	ns	for 10 MHz operational frequency
Sine-wave option	Level	L	+6	+8	+10	dBm	
	Load	R_L			50	Ohm	
	Harmonics level				-25	dBc	
Sub-harmonics level		Operational frequency <30 MHz Operational frequency \geq 30 MHz		none	-40	dBc	Frequency multiplier used
Power supply							
Voltage	V_{cc}		4.75	5.0	5.25	V	3.3V, 12V optional
Power consumption		Warm-up state Steady state, +25°C		3.2 1	3.5 1.2	W	
Warm-up time	t_{up}	to $\Delta f/f=1e-7$, at +25°C			180	s	ref. to frequency after 30 min.
Frequency control*							
Control voltage range	V_c	$V_{cc}=5$ or 12 V $V_{cc}=3.3$ V	0 0		4.3 2.8	V	Positive tuning slope (standard option)
Tuning range			± 0.5	± 1		ppm	
Reference voltage	V_{ref}	$V_{cc}=5$ or 12 V $V_{cc}=3.3$ V	4.19 2.73	4.3 2.8	4.41 2.87	V	
Frequency stability							
vs. temperature		-30°C to +70°C, ref 25°C		± 10		ppb	See chart below
vs. supply voltage		ref Vcc typ.		± 1		ppb	
vs. acceleration		Worst direction			± 1	ppb/G	
SSB Phase noise		1 Hz		-95		dBc/Hz	for 10MHz operational frequency
		10 Hz		-125			
		100 Hz		-145			
		1 kHz		-155			
		10 kHz		-165			
Allan variance		1 s		10		e-12	
Aging	per day	after 30 days of operation			± 0.5	ppb	Standard option S (see chart below)
	first year				± 50	ppb	
	for 20 years				± 0.5	ppm	
Environmental, mechanical conditions.							
Operating temperature range		-30°C to +70°C Standard. Other options - see chart below.					
Storage temperature range		-60°C to +90°C					
Humidity		Non-condensing, 95%					
Mechanical shock		Per MIL-STD-202, 30G half sine pulse, 11ms					
Vibration		Per MIL-STD-202, 5G swept sine 10 to 500 Hz					
Impermeability		Not hermetical. Don't wash or immerse into liquid when cleaning!					
Soldering conditions		260°C, 10s					

* No frequency control option – on customer requirement

Ordering code

MXOCS	-	C	18	S	5	T	-	10 MHz
		1	2	3	4	5		

1 Temperature range	
Code	Specification
A	0°C..50°C
B	-10°C..60°C
C	0°C..70°C
D	-20°C..70°C
E	-30°C..70°C
F	-40°C..80°C

2 Stability over temperature		
Code	Specification	Temperature range code available
XZ	$\pm Xe-Y$	
59	$\pm 5e-9$	A...F
18	$\pm 1e-8$	A...F
28	$\pm 2e-8$	A...F
58	$\pm 5e-8$	A...F
17	$\pm 1e-7$	A...F

3 Aging			
Code	Requirements	Per day*	First year*
L	Relaxed	1 ppb	100 ppb
S	Standard	0.5 ppb	50 ppb
P	Improved	0.2 ppb	30 ppb

* for 10 MHz operational freq.

4 Supply voltage	
Code	Specification
3	3.3V \pm 5%
5	5V \pm 5%
2	12V \pm 10%

5 Output	
Code	Specification
T	HSMOS/TTL
S	Sinewave

Deviation of the parameters is possible on customers' requirements.