



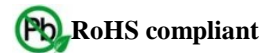
Features

Ultra High Stability - to $\pm 1 \times 10^{-10}$ over (-30 to +70)°C
 Low Aging - to $\pm 1 \times 10^{-10}$ /day, 1.5×10^{-8} /year
 Low Phase Noise level (-165 dBc/Hz, TYP, floor)
 Excellent Allan Variance - to 2×10^{-12} ($\tau = 1$ s)
 Miniature Packaging

Typical Applications

Rubidium Standard Replacement
 GPS Receivers
 Instrumentation
 Stratum 2 Clock Systems

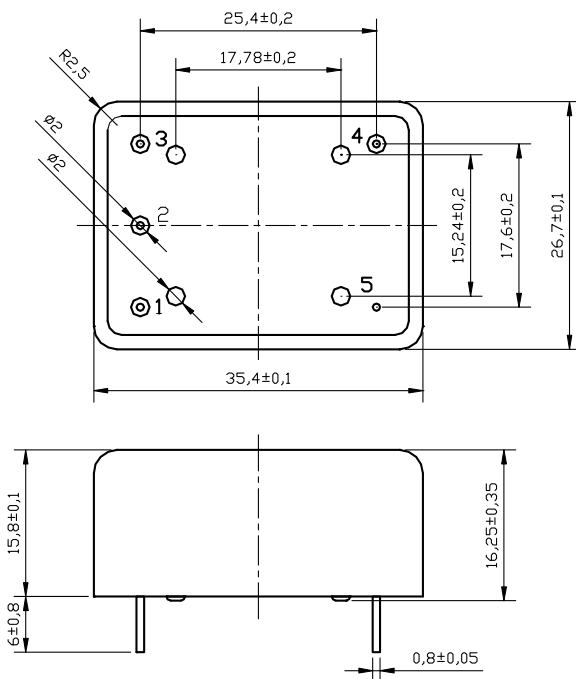
Packaging: "Europack" 36x27x15.8 mm



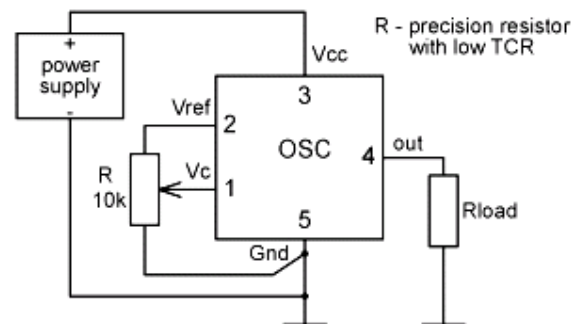
Description

The OCXOs of MXODE series use double-oven design providing very high frequency vs. temperature stability. Owing to effective double-oven design the OCXOs provide up to 1×10^{-10} temperature stability, 2×10^{-12} /1s Allan variance and aging to 1.5×10^{-8} /year at 15 cm³ volume and about 1.5 W power consumption. The MXODE series is excellent to use in Stratum II clock system, instrumentations, local reference as Rb-standard replacement and in other high-end applications. The double-oven parts are available in wide frequency range - from 8 to 100 MHz.

Physical Dimensions



Pin Connections



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

Specification

Parameter	Sym.	Conditions	Value			Unit	Note
			Min.	Typ.	Max.		
Frequency range	f_0		8		100	MHz	
RF output							
HCMOS (TTL) option	Load		10		15	kOhm pF	
	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	
Sine-wave option	Level	L	+6	+8	+10	dBm	for 10 MHz operational frequency
	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	12V optional
Power consumption		Warm-up state Steady state, +25°C		1.25	5 1.5	W W	
Warm-up time	t_{up}	to $\Delta f/f=1e-8$, at +25°C			5	min	ref. to frequency after 30 min.
Frequency control*							
Control voltage range	V_c		0		4.3	V	Tuning slope - positive
Tuning range			± 0.35	± 0.4		ppm	
Reference voltage	V_{ref}		4.19	4.3	4.41	V	
Frequency stability							
vs. temperature		0°C to +50°C, ref 25°C			± 0.1	ppb	See chart below
vs. supply voltage		ref V_{cc} typ.			± 0.02	ppb	
SSB Phase noise		1 Hz		-95		dBc/Hz	tor 10MHz operational frequency
		10 Hz		-128			
		100 Hz		-145			
		1 kHz		-155			
		10 kHz		-165			
Allan variance		1 s		5		e-12	
Aging	per day	after 30 days of operation			± 0.2	ppb	Standard option S (see chart below)
	first year				± 30	ppb	
	for 20 years				± 0.35	ppm	
Environmental, mechanical conditions.							
Operating temperature range		0°C to +50°C Standard. Other options - see chart below.					
Storage temperature range		-60°C to +90°C					
Humidity		Hermetically sealed					
Mechanical shock		Per MIL-STD-202, 30G half sine pulse, 11ms					
Vibration		Per MIL-STD-202, 5G swept sine 10 to 500 Hz					
Soldering conditions		260°C 10s					

* No frequency control option – on customer requirement

Ordering code

MXODE - B 20 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	$\pm Xe-Y$		
10	$\pm 1e-10$	A...E	
20	$\pm 2e-10$	A...E	
50	$\pm 5e-10$	A...F	
19	$\pm 1e-9$	A...F	
29	$\pm 2e-9$	A...F	

3	Aging		
Code	Specification	Per day*	First year*
L	Relaxed	0.5 ppb	50 ppb
S	Standard	0.2 ppb	30 ppb
P	Improved	0.1 ppb	15 ppb

* for 10 MHz operational freq.

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

5	Output	
Code	Specification	
T	HSMOS/TTL	
S	Sinewave	

Deviations of the parameters are possible on Customer`s requirements.