

Specification
Ultra Low Power High Durable Miniature OCXO

Parameter	Sym.	Conditions	Value			Unit	Note
			Min.	Typ.	Max.		
Frequency range	f_0		8		100	MHz	
RF output							
HCMOS	Load		10		15	kOhm pF	10 MHz op. freq.
	H-level voltage	V_H	$V_{cc}=5\text{ V}$ $V_{cc}=3.3\text{ V}$	3.8 2.4		V	
	L-level voltage	V_L			0.4	V	
	Duty cycle			45		55	%
	Rise/Fall time					10	ns
Sine-wave	Level	L_S			+8	dBm	
	Harmonics	L_H			-25	dBc	
	Load	R_L	45	50	55	Ohm	
	Sub-harmonics	L_{SH}			none	dBc	
Power supply							
Voltage	V_{cc}		4.75	5.0	5.25	V	3.3V available
Power consumption		Warm-up state Steady state, +25°C		1.0 0.23		W	
Warm-up time	t_{up}	to $\Delta f/f=1e-7$, at +25°C, $V_{cc}=5\text{ V}$ to $\Delta f/f=1e-7$, at +25°C, $V_{cc}=3.3\text{ V}$	30 40	60 70		s	ref. to frequency after 15 min for 10 MHz
Frequency control							
Control voltage range	V_c	$V_{cc}=5\text{ V}$ $V_{cc}=3.3\text{ V}$	0 0		4.2 2.8	V	Tuning slope - positive
Tuning range			± 0.5	± 1		ppm	
Reference voltage	V_{ref}	$V_{cc}=5\text{ V}$ $V_{cc}=3.3\text{ V}$	4.1 2.7	4.2 2.8	4.5 2.9	V	
Frequency stability							
vs. temperature		-30°C to +70°C, ref 25°C		± 50		ppb	See chart below
vs. supply voltage		ref V_{cc} typ.		± 2		ppb	
vs. acceleration		Worst direction	0.5		± 1	ppb/G	
SSB Phase noise		1 Hz	-97/-	-95/-		dBc/Hz	For 10MHz/100 MHz operational frequency.
		10 Hz	-130/-95	-125/-90			
		100 Hz	-152/-125	-145/-120			
		1 kHz	-162/-155	-155/-150			
		10 kHz	-165/-165	-162/-162			
Aging	per day	after 30 days of operation		± 0.5		ppb	See chart below
	first year			± 0.05		ppm	
Environmental, mechanical conditions.							
Operating temperature range	See chart below.						
Storage temperature range	-60°C to +90°C						
Humidity	Non-condensing 95%						
Mechanical shock	Per MIL-STD-202, 500G half sine pulse, 1 ms						
Vibration	Per MIL-STD-202, 30G swept sine 10 to 2000 Hz						

Ordering code

MXO37	/14D-	C	58	C	5	S	-	10 MHz
1	2	3	4	5	6			

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..85°C
G	-55°C..85°C

2	Stability over temperature			
Code	Specification	Temperature range code available		
		10MHz	100MHz	
XZ	$\pm Xe-Z$			
59	$\pm 5e-9$	A...B	-	
18	$\pm 1e-8$	A...G	-	
28	$\pm 2e-8$	A...G	A	
38	$\pm 3e-8$	A...G	A...B	
58	$\pm 5e-8$	A...G	A...G	
17	$\pm 1e-7$	A...G	A...G	

3	Aging: per day/per year, $10^{-9}/10^{-6}$	
Code	per day	per year
Z	0.3/0.03	$\leq 10\text{ MHz}$
C	0.5/0.05	$\leq 20\text{ MHz}$
D	1/0.1	$\leq 40\text{ MHz}$
E	1.5/0.15	$\leq 50\text{ MHz}$
F	2/0.2	$\leq 100\text{ MHz}$
G	3/0.3	
H	5/0.5	

4	Supply voltage	
Code	Specification	
3	3.3V $\pm 5\%$	
5	5V $\pm 5\%$	

5	Output	
Code	Specification	
T	HCMOS/TTL	
S	Sine-wave	

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