Dynamic Engineers Inc.

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Features and Benefits

Temperature stability to 10 ppb at -40°C to +125°C
Low aging up to ±0.3ppb/day, 30 ppb/year
Low noise level up to -170dBc/Hz@100kHz
Frequency range from 8 to 30 MHz
Allan Variance up to $\pm5\times10^{-12}$/s

Typical Applications

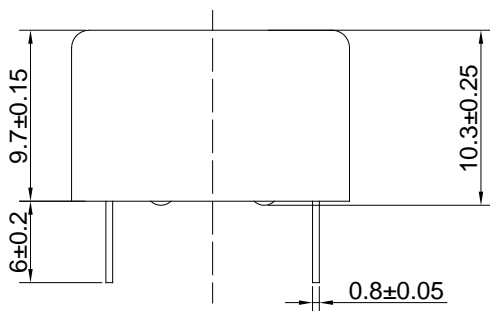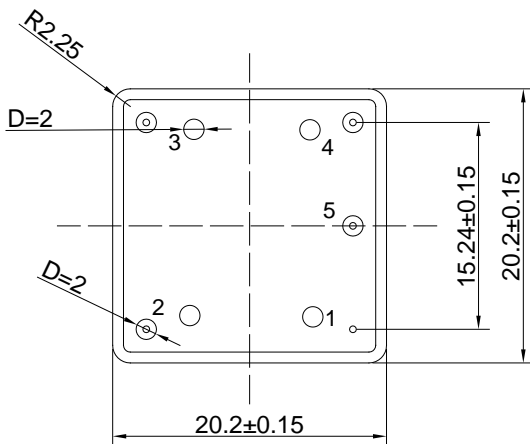Stratum 3 Clock Systems
Microwave Communications
Cellular Base Stations
Radar reference
Instrumentation

Description
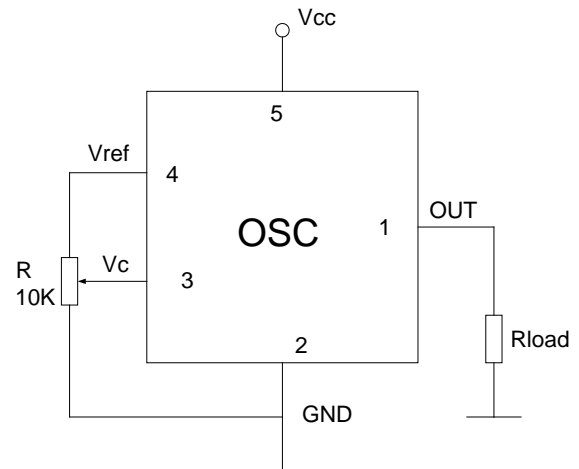
A new series of high-temperature high stability OCXO with low phase noise for rigorous environment.

Mechanical Drawing & Pin Connections

Drawing No:MD140069-7

Packaging available: 20x20x10.3(12.0, 12.9)mm

Pin Connections

Pin	Signal
1	RF Out
2	GND
3	Electrical tuning
4	Reference voltage
5	Vcc

Unit : mm
1mm=0.0394inch

Specifications

General Specifications							
Parameter	Sym	Condition	Value			Unit	Note
			Min.	Typ.	Max		
Frequency Range	F_0		8	̸̸̸̸̸̸̸̸̸̸s€̸̸̸̸̸̸ Hz ̸̸̸̸̸̸̸̸			̸̸̸̸̸̸undamental
RF Output							
HCMOS (TTL) option	**Load**		10		15	kOhm pF	
	H-level voltage	V_H	3.8			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			None				
Frequency Control*							
Control Voltage Range	V_c	V_{cc}=5V V_{cc}=3.3V	0 0		4.2 2.8	V	Positive tuning slope (standard option)
Tuning Range			±0.35	±1.00		ppm	
Reference voltage	V_{ref}	V_{cc}=5V V_{cc}=3.3V	4.1 2.7	4.2 2.8	4.3 2.9	V	
Frequency Stability							
Vs. temperature		-40°C to +125°C, ref 25°C	±10			ppb	See chart below
Vs. supply voltage		Ref V_{cc} typ.		±1		ppb	
Vs. acceleration		Worst direction	±0.5		±1	ppb/G	
Power Supply							
Voltage	V_{CC}		4.75	5.0	5.25	V	3.3V supply available
Power Consumption		Warm-up state Steady state, +25°C		3.2 1.3	3.5 1.5	W W	
Warm-up time	t_{up}	to Δf/f = 1e-7 at +25°C			180	sec	Ref to frequency after 30 min
SSB Phase Noise		1 Hz	-110	-100		dBc/Hz	For 10 MHz operational frequency
		10 Hz	-135	-125			
		100 Hz	-155	-145			
		1 kHz	-163	-155			
		10 kHz	-170	-168			
		100 kHz	-170	-170			
Allan variance		1s	5			10^{-12}	
Aging	Per day	After 30 days of operation	0.3	0.5		ppb	See chart below
	First year		30	50		ppb	
	For 20 years			0.5		ppm	

Environmental, mechanical conditions.	
Operating temperature range	See chart below
Storage temperature range	-60°C to +125°C
Humidity	Hermetically sealed
Mechanical Shock	Per MIL-STD-202, 30G half sine pulse, 11ms (500G 1ms – optional)
Vibration	Per MIL-STD-202, 10G swept sine 10 to 500Hz
Soldering Conditions	Hand solder only – not reflow compatible 260°C 10s (on pins)

* No frequency control option – on customer requirement

Ordering Code

ETOCXO2020C	-	1	3	4	2	1	-	10 MHz
		1	2	3	4	5		

For example, ETOCXO2020C-13421-10MHz denotes the OCXO has the following specifications:

Temperature Range	-40°C to +125°C
Stability Over Temperature	±30ppb
Aging per day / year	1.5ppb / 0.15ppm
Supply Voltage	3.3V ±10%
Output	HCMOS
Frequency	10MHz

1	Temperature Range
Code	Specification
1	-40°C..+125°C

2	Stability Over Temperature	
Code	Specification	Available temperature range code for 10MHz
1	±10ppb	1
2	±20ppb	1
3	±30ppb	1
4	±50ppb	1
5	±100ppb	1

3	Aging per day/year, ppb/ppm
Code	Specification
1	0.3/0.03
2	0.5/0.05
3	1.0/0.10
4	1.5/0.15
5	2.0/0.20
6	3.0/0.30
7	5.0/0.50

4	Supply voltage
Code	Specification
1	+5V ±5%
2	+3.3V ±5%

5	Output
Code	Specification
1	HCMOS
2	Sine wave

*for 10 MHz operational frequency

Deviations of the parameters may be possible on Customer's requirements
Please contact Dynamic Engineers Inc. for further details.