Dynamic Engineers Inc.
2550 Gray Falls Dr., Suite#128, Houston, TX, 77077
TEL: 281-870-8822EMAIL:Sales@DynamicEngineers.com

OCXO2020C_Rev2
Low phase-noise high stability OCXO

Features and Benefits

Very low phase noise up to -175 dBc/Hz, floor
High temperature stability up to ±1 ppb at -40°C to +85°C
Low aging up to ±0.2 ppb/day, 20 ppb/year
Compact packaging
Frequency range from 5 MHz to 150 MHz

Typical Applications

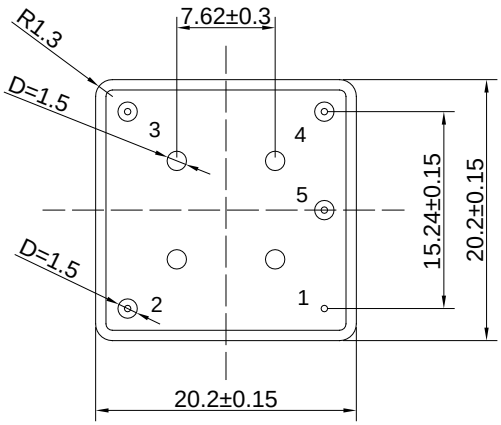
Stratum 3E clock systems
Cellular Base Station
Microwave Applications
Radar Reference
Instrumentation

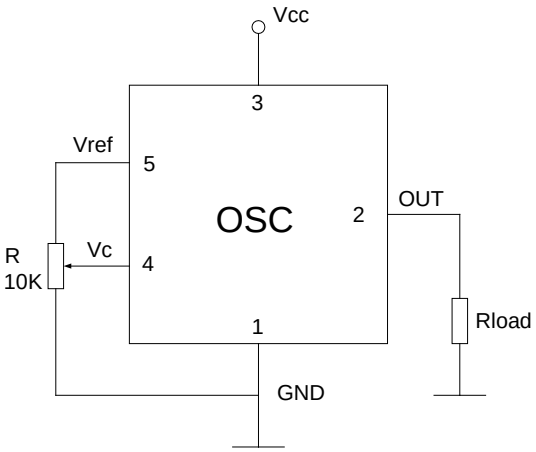
Description

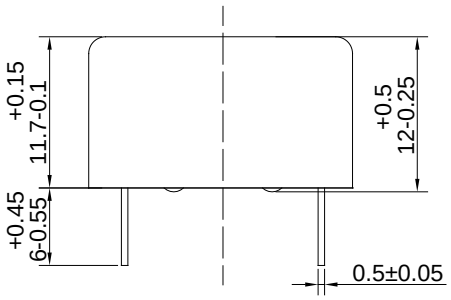
A new series of low phase-noise OCXO with high temperature stability for optimal performance.

Mechanical Drawing & Pin Connections

Drawing No:MD140069-5







Pin Connections

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

Unit : mm
1mm=0.0394inch

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Specifications

Parameter		Sym	Condition	Value Min.	Value Typ.	Value Max	Unit	Note
General Specifications								
Frequency Range		F_0		5		150	MHz	Fundamental operation
RF Output								
HCMOS (TTL) option	**Load**			10		15	kOhm pF	For 10 MHz operational frequency
	H-level voltage	V_H	V_{cc}=5V or 12V V_{cc}=3.3V	3.8 2.4			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					-30	dBc	
Spurious level						-100	dBc	
Frequency Control*								
Control Voltage Range		V_c	V_{cc}=5V or 12V V_{cc}=3.3V	0 0		4.2 2.8	V	Positive tuning slope – (standard option)
Tuning Range				±0.5	±1		ppm	
Reference voltage		V_{ref}	V_{cc}=5V or 12V V_{cc}=3.3V	4.1 2.7	4.2 2.8	4.3 2.9	V	
Frequency Stability								
Vs. temperature			-40°C to+85°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, 12V optional
Power Consumption			Warm-up state Steady state, +25°C		3.2 1	3.5 1.2	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	-106/-	-100/-		dBc/Hz	For 10MHz/100MHz operational frequency
			10 Hz	-135/-95	-125/-90			
			100 Hz	-155/-130	-145/-120			
			1 kHz	-163/-155	-155/-150			
			10 kHz	-170/-170	-165/-165			
			100 kHz	-172/-175	-168/-168			
Allan variance			1s	5	10		e-12	
Aging	Per day		After 30 days of operation	0.2	0.5		ppb	For 10 MHz See chart below
	First year			20	50		ppb	
	For 20 years			0.3	0.5		ppm	

Environmental, mechanical conditions.	
Operating temperature range	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, 10G swept sine 10 to 500Hz (pins 0.5mm), 10G swept sine 0-2000Hz (pins 0.8mm)
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

* No frequency control option – on customer requirement

Ordering Code

OCXO2020C_Rev2	-	2	6	4	2	1	-	10 MHz
Group		1	2	3	4	5		

For example, OCXO2020C-26421-10MHz denotes the OCXO has the following specifications:

Temperature Range	-10°C to +60°C
Stability Over Temperature	±10ppb
Aging per day / year	1.0ppb / 0.10 ppm
Supply Voltage	3.3V ±10%
Output	HCMOS/TTL
Frequency	10MHz

1	**Temperature Range**
Code	Specification
1	0°C..+50°C
2	-10°C..+60°C
3	0°C..+70°C
4	-20°C..+70°C
5	-30°C..+70°C
6	-40°C..+85°C
7	-55°C..+85°C
8	-40°C..+125°C

2	**Stability Over Temperature**		
Code	Specification	Available temperature range code	
		For 10 MHz	For 100 MHz
1	±0.5 ppb	1, 2	-
2	±1.0 ppb	1, 2, 3, 4, 5, 6	-
3	±2.0 ppb	1, 2, 3, 4, 5, 6	-
4	±3.0 ppb	1, 2, 3, 4, 5, 6, 7	-
5	±5.0 ppb	1, 2, 3, 4, 5, 6, 7	1, 2, 3, 4, 5, 6
6	±10.0 ppb	1, 2, 3, 4, 5, 6, 7	1, 2, 3, 4, 5, 6, 7
7	±20.0 ppb	1, 2, 3, 4, 5, 6, 7, 8	1, 2, 3, 4, 5, 6, 7
8	±50.0 ppb	1, 2, 3, 4, 5, 6, 7, 8	1, 2, 3, 4, 5, 6, 7
9	±100.0 ppb	1, 2, 3, 4, 5, 6, 7, 8	1, 2, 3, 4, 5, 6, 7

3	**Aging per day/year, ppb/ppm**	
Code	Specification	
1	0.2/0.02	≤10MHz
2	0.3/0.03	
3	0.5/0.05	≤20MHz
4	1.0/0.10	≤40MHz
5	1.5/0.15	≤50MHz
6	2.0/0.20	≤120MHz
7	3.0/0.30	
8	5.0/0.50	≤150MHz

4	**Supply voltage**
Code	Specification
1	5V ±5%
2	3.3V ±5%
3	12V ±10%

5	**Output**
Code	Specification
1	HCMOS/TTL
2	Sine wave

Disclaimer: Not all option choices available across entire frequency range
Please contact Dynamic Engineers Inc. for further details.