



Features and Benefits

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

Typical Applications

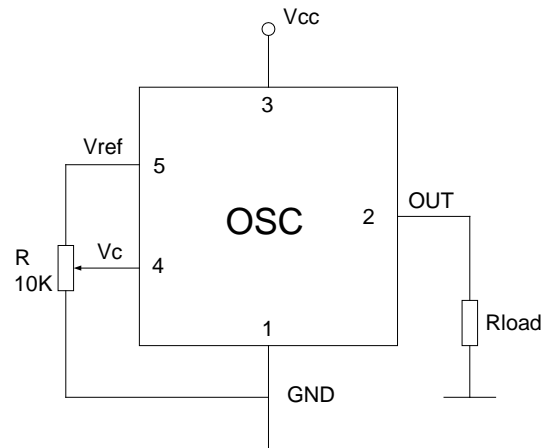
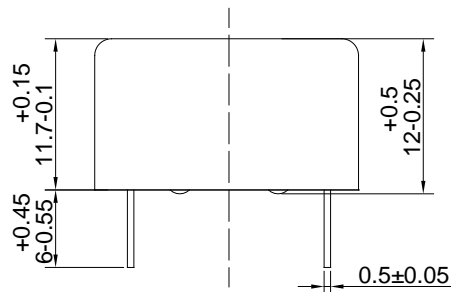
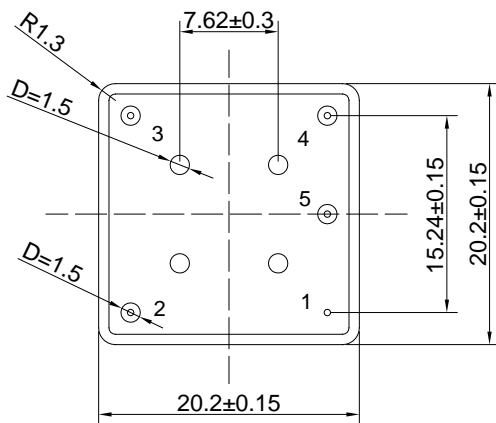
Stratum 3E clock systems
 Cellular Base Station
 Microwave Applications
 Radar Reference
 Instrumentation

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



Specifications

General Specifications							
Parameter	Sym	Condition	Value			Unit	Note
			Min.	Typ.	Max		
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
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
	First year		20	50		ppb	
	For 20 years		0.3	0.5		ppm	See chart below



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	

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.