



Features and Benefits

- 30-300MHz Frequency Range
- 3.3V,5V,12V Supply voltage
- HCMOS,TTL,Sinewave Output waveform
- Various Temperature Stability Available
- 20.2x20.2x12.6mm Size
- 135dBc/Hz @1KHz phase noise value

Typical Applications

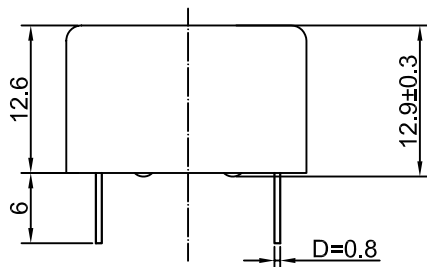
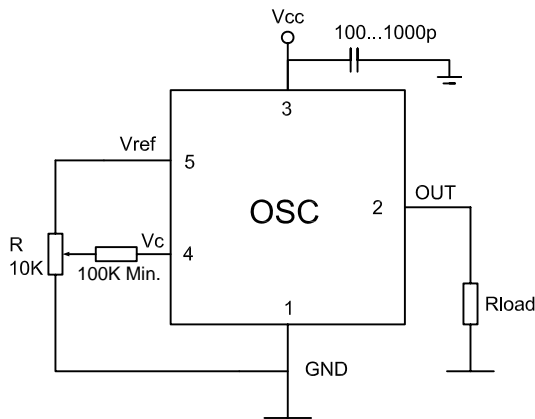
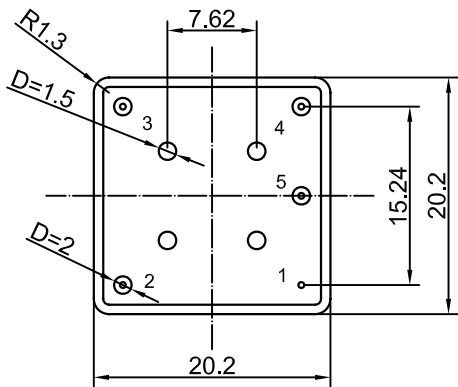
- Cellular Base Stations
- Instrumentation
- Microwave Applications
- Stratum 3E clock systems
- Radar reference

Description

The OCXO2021C_series operate in wide frequency range from 30 to 300 MHz with usage of internal frequency multiplication by 3 or 5. Besides, the internal multiplication of frequency enables to the oscillators improvement, The module concept of the OCXOs design allowed realization of same performance in a variety of small packages on customer choice under various models.

Mechanical Drawing & Pin Connections

Drawing No: MD160093-1



12mm, 10.3mm height available
 0.5mm Pins available

Pin Connections

Pin	Description
1	GND
2	Output
3	Vcc
4	Control Voltage
5	Vref

Unit in mm
 1mm = 0.0394 inches



Specifications

Oscillator Specification	Sym	Condition	Value			Unit	Note
			Min.	Typ.	Max.		
Frequency Range	F _{nom}		30		300	MHz	Frequency multiplication on 3 and 5
RF Output							
Signal Waveform			HCMOS(TTL) option				
Load	R _L		10kohm//5pf				100MHz
H-Level Voltage	V _H	V _{cc} =5V,12V	3.7			V	
		V _{cc} =3.3V	2.4			V	
L- Level Voltage	V _L				0.4	V	
Duty Cycle			45		55	%	
Rise/Fall time					3	ns	100MHz
Signal Waveform			Sinewave option				
Level		V _{cc} =5V,12V	+7			dBm	
		V _{cc} =3.3V	+4				
Load				50		ohm	
Harmonics					-30	dBc	
Sub-Harmonics					-40	dBc	100MHz
Power Supply							
Reference Voltage	V _{ref}	V _{cc} =5V,12V	4.0		4.3	V	
		V _{cc} =3.3V	2.5		3.1	V	
Supply Voltage	V _{cc}		11.4	12	12.6	V	
			4.75	5.0	5.25	V	
			3.15	3.3	3.45	V	
Warm-up Time	T _{up}	at +25°C to Δf/f=1e-7			180	sec	ref. to freq. after 15 min. of operation
Power Consumption		Steady state, +25°C			1200	mW	100MHz, -40°C - +85°C
		Warm-up			3500	mW	
Frequency Adjustment Range							
Electronic Frequency Control (EFC)		Compliance with 10 years of aging	±0.5			ppm	
EFC voltage	V _c	V _{cc} =5V,12V	0		4.3	V	
		V _{cc} =3.3V	0		3.1	V	
EFC Slope			positive				
Frequency Stability							
Versus Operating Temperature Range		ref. 25°C, air flow 0.5 m/s max.	±3.0			ppb	See ordering information
Initial Tolerance	(f-f ₀)/f ₀	+25°C, V _c =0.5*V _{ref}	±0.01	±0.1		ppm	
Versus supply voltage	V _s	ref V _{cc} typ		±0.2		ppb	
G – sensitivity		worst direction, 0 – 1kHz vibration BW (for 0 – 2kHz BW consult the factory)	±0.5	±1.0		ppb/G	
Retrace		24h work after 24h off			±10	ppb	100MHz
Aging Per Day		after 30 days of operation	±0.5			ppb	100MHz see ordering information
Aging 1 st Year			±0.05			ppm	
Allan Variance		1s	5	20		e-12	100MHz
SSB Phase noise (Typical phase noise is default option. For different phase noise consult the factory)		10Hz	-110	-100		dBc/Hz	100MHz Frequency multiplication on 5, V _{cc} =5V, 12V
		100Hz	-130	-121		dBc/Hz	
		1kHz	-145	-135		dBc/Hz	
		10kHz	-155	-145		dBc/Hz	
		100kHz	-155	-150		dBc/Hz	



Environmental, Mechanical Conditions	
Airflow velocity	0.5 m/s maximum
Operating temperature range	See ordering information
Storage temperature range	-60°C to 85°C
Mechanical shock	Per MIL-STD-202, 30G half sine pulse, 11ms (50G, 1ms — optionally)
Soldering conditions	Hand solder only – not reflow compatible. 260°C 10s (on pins)
Humidity	Hermetically sealed
Power Voltage	-0.5V to Vcc+20%
Control Voltage	-0.5V to 6V
Vibration	Per MIL-STD-202, 10G swept sine 0 to 2000Hz
Washing Conditions	Washing with water or alcohol based detergent allowed only with final enough drying stage

Ordering Information

OCXO2021C	-	100MHz	-	x	x	x	x	x
Group				01	02	03	04	05

For example, DOCXO2021C-100MHz-1-1-2-2-2 denotes the OCXO has the following specifications:

Temperature Range: 0°C to +50°C
 Stability Over Temperature: ±2ppb
 Aging per day / per year: 0.2ppb/0.02ppm
 Supply Voltage: 5V
 Output: Sinewave

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

02		Frequency Stability	
Code	Spec	Temperature range code available for 100MHz 5V	Temperature range code available for 300MHz 5V
1	±2ppb	1,2	--
2	±3ppb	1,2,3,4,5,6	1,2
3	±5ppb	1,2,3,4,5,6,7,8	1,2,3,4,5,6
4	±10ppb	1,2,3,4,5,6,7,8	1,2,3,4,5,6,7,8
5	±20ppb	1,2,3,4,5,6,7,8	1,2,3,4,5,6,7,8
6	±30ppb	1,2,3,4,5,6,7,8	1,2,3,4,5,6,7,8
7	±50ppb	1,2,3,4,5,6,7,8	1,2,3,4,5,6,7,8

03	Aging per day/per year,ppb/ppm	
Code	Specification	
1	0.1/0.015	For frequency range of 30-150 MHz
2	0.2/0.02	
3	0.3/0.03	
4	0.5/0.05	
5	1/0.1	
6	1.5/0.15	
7	2/0.2	For frequency range of 150-300 MHz
8	3/0.3	
9	5/0.5	

04	Supply Voltage
Code	Specification
1	3.3V±5%
2	5V±5%
3	12V±5%

05	Output
Code	Specification
1	HCMOS/TTL
2	Sinewave