Dynamic Engineers Inc.
2550 Gray Falls Dr., Suite#128, Houston, TX, 77077 USA
TEL: 1-281-870-8822 EMAIL: Sales@DynamicEng.com

DOCXO2020AW_Sine
Very high stability miniature OCXO

Features and Benefits

Frequency range: 5-100MHz
Supply voltage: 3.3V,5.0V
Steady power consumption: 1-1.2W
Output waveform: Sinewave
Frequency stability vs. operating temperature: ±0.1-2.0ppb
Aging: ±0.015ppm per year
Phase noise@100KHz: -173dBc/Hz
Operating temperature: -40°C to +85°C
Size: 20.2x20.2x13.8mm

Typical Applications

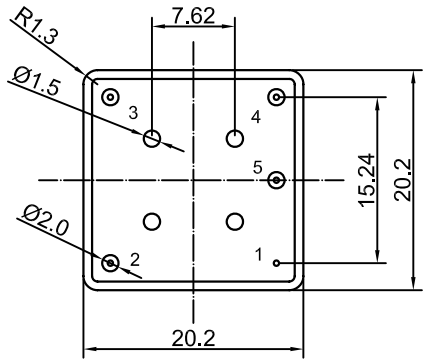
Rubidium Standard Replacement
GPS Receivers
Instrumentation
Stratum 2 Clock Systems

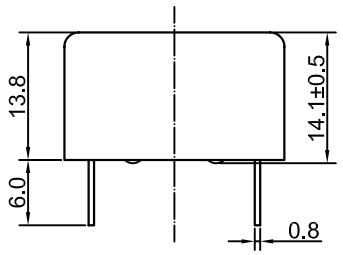
Description

DOCXO2020AW_Sine offers high frequency stability, low long-term aging and low phase noise, all in a compact package to suit the different communication needs.

Mechanical Drawing & Pin Connections

Drawing No: MD140069-9





Pin Connections

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

Unit in mm
1mm = 0.0394 inches

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Specifications

Oscillator Specification	Sym	Condition	Value Min.	Value Typ.	Value Max.	Unit	Note
Operational Frequency	F_0		5		100	MHz	
RF Output							
Signal Waveform			Sinewave				
Level		Vcc=5.0V	7			dBm	
		Vcc=3.3V	4			dBm	
Load				50		ohm	
Harmonics level					-30	dBc	
Sub-harmonics level		Operational frequency ⩽20 MHz		none		dBc	
		Operational frequency >20MHz			-40	dBc	Frequency multiplier used
Power Supply							
Supply Voltage	V_{cc}		3.15	3.3	3.45	V	
			4.75	5.0	5.25	V	
Warm-up Time	T_{up}	At +25°C to ∆f/f=1e-7			180	sec	ref to freq after 15 min of operation
Power Consumption		Steady state, +25°C		1000	1200	mW	10MHz, -40°C to +85°C
		Warm-up			4500	mW	
Frequency Adjustment Range							
Electronic Frequency Control (EFC)		Compliance with 10 years of aging	±0.3			ppm	Positive
EFC voltage	V_c	Vcc=3.3V	0		3.1	V	
		Vcc=5.0V	0		4.3	V	
Reference voltage	Vref	Vcc=3.3V	2.7		3.1	V	
		Vcc=5.0V	4.0		4.3	V	
Frequency Stability							
Versus Operating Temperature Range		@+25°C air flow 0.5 m/s max.	±0.1		±2	ppb	Please consult our sales
Initial Tolerance @+25°C		$(f-f_0)/f_0$	±0.01	±0.1		ppm	Vc=0.5Vref
Versus supply voltage	V_S	Ref Vcc typ		±0.2		ppb	
G – sensitivity		worst direction, 0 – 1kHz vibration BW (for 0 – 2kHz BW consult the factory)	±0.2	±1.0		ppb/G	
Retrace		24h work after 24h off			±10	ppb	10MHz
Allan deviation		1s	1.5		20	e-12	10MHz
Aging Per Day		After 30 days of operation	±0.1			ppb	Please consult our sales
Aging 1st Year			±0.015			ppm	
SSB Phase noise		1Hz	-110/---		-90/---	dBc	10/100MHz, Vcc=5.0V
		10Hz	-140/-100		-120/-90	dBc	
		100Hz	-155/-130		-145/-120	dBc	
		1kHz	-165/-155		-155/-150	dBc	
		10kHz	-170/-170		-165/-165	dBc	
		100kHz	-170/-173		-165/-165	dBc	

Environmental,Mechanical Conditions	
Operating temperature range	-40°C to +85°C (pls consult our sales)
Storage temperature range	-60°C to +85°C
Power voltage	-0.5V to Vcc+20%
Control voltage	-0.5V to 6V
Air flow velocity	0.5 m/s maximum
Humidity	Hermetically sealed
Mechanical shock	Per MIL-STD-202, 30G half sine pulse, 11ms
Vibration	Per MIL-STD-202, 10G swept sine 10 to 2000Hz (5G swept sine 10 to 500Hz for OCXO with 0.5mm pins)
Soldering conditions	Hand solder only – not reflow compatible. 260ºC 10s (on pins)
Washing conditions	Washing with water or alcohol-based detergent allowed only with final enough drying stage