



Features and Benefits

Frequency range: 100MHz
Supply voltage: 3.3V
Steady current: 360mA Max.
Output waveform: HCMOS
Frequency stability vs. operating temperature: ± 0.2 ppb
Aging: ± 0.1 ppm per year
Phase noise@100KHz: -150dBc/Hz
Operating temperature: -40°C to +85°C
Size: 20.2x20.2x13.8mm

Typical Applications

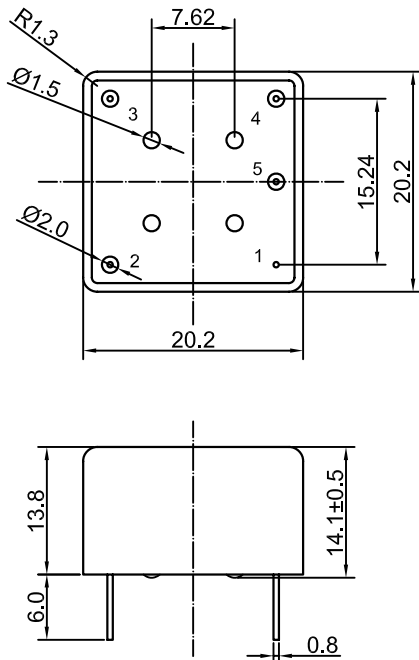
GPS Disciplined Mobile Frequency Standards
Portable Instrumentation
Mobile Communication Systems
Battery Supply Beacons

Description

DOCXO2020AW-100MHz-C-V 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



Specifications

Oscillator Specification	Sym	Condition	Value			Unit	Note
			Min.	Typ.	Max.		
Operational Frequency	f_0			100		MHz	
RF Output							
Signal Waveform			HCMOS				
High-Voltage			2.4			V	
Low-Voltage					0.4	V	
Load	R_L		10			kOhm	
	C_L				5	pF	
Rise/Fall time		10,90%			5	ns	
Duty Cycle			45	50	55	%	
Sub-Harmonic Level		$f_{SH}=f_0 \pm (n * f_0 / 5)$ $N=1,2,3...$			-35	dBc	
Power Supply							
Supply Voltage	V_{CC}		3.15	3.3	3.45	V	
Warm-up Time	T_{up}	At +25°C to $\Delta f/f=1e-7$			180	sec	Ref at 15min
Power Consumption		Steady state, +25°C			360	mA	$V_{CC}=3.3V$
		Warm-up	900		1100	mA	$V_{CC}=3.3V$
Frequency Adjustment Range							
Electronic Frequency Control (EFC)	$(f_L-f)/f$	$V_C=0V$			-0.4	ppm	+
	$(f-f)/f$	$V_C=V_{C0}$		0		ppm	
	$(f_H-f)/f$	$V_C=V_{ref}$	+0.4			ppm	+
EFC Voltage	V_C		0		2.9	V	
Preset Control Voltage	V_{C0}	Disconnected V_C pin	1.2	1.4	1.6	V	
Input Impedance	R_{in}			11		kΩ	
Output Resistance of V_{ref}				91		ohm	
Reference Voltage	V_{ref}		2.7	2.8	2.9	V	
Frequency Stability							
Versus Operating Temperature Range		Ref +25°C			±0.2	ppb	
Initial Tolerance @+25°C		$(f-f_0)/f_0$	-0.1		+0.1	ppm	at +25°C, $V_C=V_{C0}$
Versus supply voltage	V_S	Ref V_{CC} typ			±0.15	ppb	
Retrace		24h work after 24h off			±10	ppb	
Aging Per Day		After 30 days of operation			±1	ppb	
Aging 1 st Year						±0.1	ppm
SSB Phase noise (Static. Values are for reference only and are subject to change.)		10Hz			-90	dBc/Hz	
		100Hz			-120	dBc/Hz	
		1kHz			-145	dBc/Hz	
		10kHz			-148	dBc/Hz	
		100kHz			-150	dBc/Hz	
Environmental, Mechanical Conditions							
Operating Temperature Range	-40°C to +85°C						
Storage Temperature Range	-60°C to +85°C						
Power Voltage	-0.5V to 4.0V						
Control Voltage	-1.0V to 6.0V						
Air flow Velocity	0.5 m/s maximum						
Humidity	Hermetically sealed						
Mechanical Shock	Per MIL-STD-202,30G,11mS						
Vibration	Per MIL-STD-202, 10G to 2000 Hz						
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						