



Features and Benefits

Frequency range: 100MHz
Supply voltage: 3.3V
Steady current: 360mA Max.
Output waveform: HCMOS
Frequency stability vs. operating temperature: ± 0.3 ppb
Aging: ± 0.05 ppm per year
Phase noise@100KHz: -150dBc/Hz
Operating temperature: -40°C to +80°C
Size: 20.2x20.2x13.8mm

Typical Applications

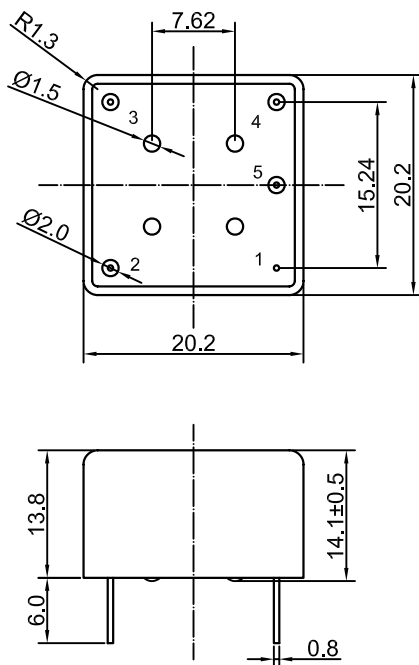
GPS Disciplined Mobile Frequency Standards
Portable Instrumentation
Mobile Communication Systems
Battery Supply Beacons

Description

DOCXO2020AW-100MHz-D-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 ±(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 Δf/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 =0 V			-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			±0.3	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			±0.2	ppb	
Aging Per Day		After 30 days of operation			±0.5	ppb	
Aging 1 st Year					±0.05	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 +80°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						