



### Features and Benefits

- Frequency range: 10MHz
- Supply voltage: 3.3V
- Steady current: 400mA/Max
- Output waveform: HCMOS
- Frequency stability vs. operating temperature:  $\pm 0.5$ ppb
- Aging:  $\pm 0.1$ ppm per year
- Phase noise@100KHz: -160dBc/Hz
- Operating temperature: -40°C to +80°C
- Size: 20.2x20.2x13.8mm

### Typical Applications

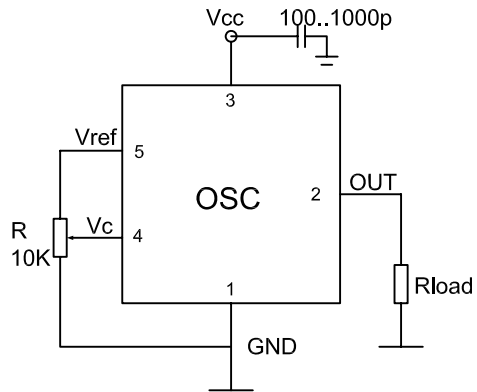
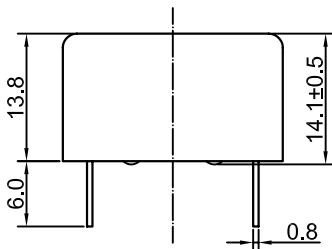
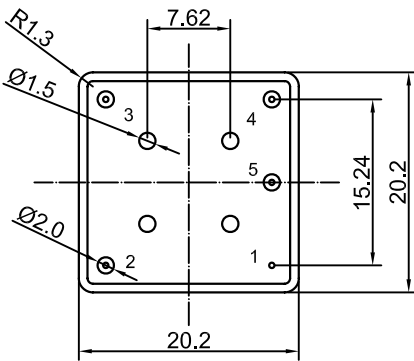
- GPS Disciplined Mobile Frequency Standards
- Portable Instrumentation
- Mobile Communication Systems
- Battery Supply Beacons

### Description

DOCXO2020AW-10MHz-B-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 <sub>0</sub>			10		MHz	
<b>RF Output</b>							
Signal Waveform			HCMOS				
High-Voltage			2.4			V	
Low-Voltage					0.4	V	
Load	RL		10kohm//15pF				
Rise/Fall time		10-90%			10	ns	
Duty Cycle			45	50	55	%	
<b>Power Supply</b>							
Supply Voltage	V <sub>cc</sub>		3.15	3.3	3.45	V	
Warm-up Time	T <sub>up</sub>	At +25°C to Δf/f=1e-7			180	sec	ref to freq after 15 min of operation
Power Consumption		Steady state, +25°C			400	mA	
		Warm-up	900		1200	mA	
<b>Frequency Adjustment Range</b>							
Electronic Frequency Control (EFC)	(fL-f)/f	Vc=0 V			-0.3	ppm	
	(f-f)/f	Vc=Vc0		0		ppm	
	(fH-f)/f	Vc=Vref	+0.3			ppm	
EFC voltage	V <sub>c</sub>		0		2.9	V	
Preset control voltage	V <sub>c0</sub>	disconnected Vc pin	1.2	1.4	1.6	V	
Input resistance	R <sub>in</sub>			11		kΩ	
Output resistance of Vref				91		ohm	
Reference voltage	V <sub>ref</sub>		2.7	2.8	2.9	V	
<b>Frequency Stability</b>							
Versus Operating Temperature Range		@+25°C			±0.5	ppb	
Initial Tolerance @+25°C		(f-f <sub>0</sub> )/f <sub>0</sub>	-0.1		+0.1	ppm	at +25°C, Vc=Vc <sub>0</sub>
Versus supply voltage	V <sub>s</sub>	Ref Vcc typ			±0.3	ppb	
Versus load		5% change			±0.3	ppb	
Aging Per Day		After 30 days of operation			±1	ppb	
Aging 1 <sup>st</sup> Year						±0.1	ppm
SSB Phase noise (Static. Values are for reference only and are subject to change.)		1Hz		-95		dBc	
		10Hz		-125		dBc	
		100Hz		-150		dBc	
		1kHz		-155		dBc	
		10kHz		-160		dBc	
		100kHz		-160		dBc	
<b>Environmental, Mechanical Conditions</b>							
Operating temperature range			-40°C to 80°C				
Storage temperature range			-60°C to 90°C				
Power voltage			-0.5V to 4V				
Control voltage			-1V to 4V				
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				