



Dynamic Engineers Inc.

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OCXO3305 Ultra-low Noise VHF OCXOs

Features and Benefits

- Low Power (0.15 W at 25°C)
- Fast Warm-up (45 seconds)
- Excellent temperature stability
- Ultra low phase noise
- 155 dBc/Hz at 1 kHz
- 170 dBc/Hz at 10 kHz

Typical Applications

- Portable and Low Power
- Low Noise Test Equipment, and synthesizers
- Microwave Communications Systems

Description

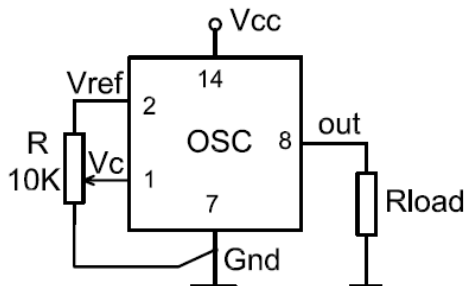
The OCXO3305 ovenized oscillator design technology offers a directly heated Crystal process which allows for very fast warm up without degrading Low phase noise and frequency stability required of traditional OCXO products.

Picture of Part

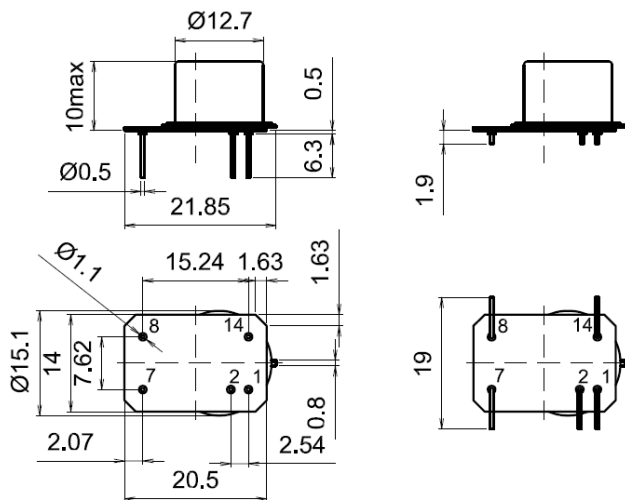


Mechanical Drawing & Pin Connections

Drawing No:



Pin	Function
1	Electrical tuning
2	Reference Voltage
3	GND
4	RF Out
5	+V Supply





Specifications

Oscillator Specification	Sym	Condition	Value			Unit	Note
			Min.	Typ.	Max.		
Operational Frequency Range	f ₀		5	100	250	MHz	
HCMOS Square Wave	Load				15	pF	In parallel with 10K ohm
	H – level voltage	V _H	3.9			V	
	L – level voltage	V _L			0.4	V	
	Rise & Fall time				2.5	ns	
N/A	Duty cycle		40	50	60	%	
Sine-wave option	Level	L	5	7	11	dBm	
	Load	R _L	45	50	55	Ohm	
	Harmonics				-25	dBc	
Subharmonics				-75		dBc	
Power Supply							
Voltage	V _{cc}		4.75	5.0	5.25	V	3.3 volt option available
Power Consumption		Warm-up		0.7	1.0	W	
		Steady-state, +25°C		0.15	0.23	W	
Warm-up Time***	T _{up}	To within ±1E-7, at +25°C			90	sec	ref. to frequency after 30 min.
Frequency Control*							
Control voltage range	V _c	5V supply 3.3V supply	0 0		4.3 2.8	V	Positive tuning slope
Tuning range			±1.0			ppm	
Reference voltage Output	V _{ref}	5V supply	4.1	4.3	4.4	V	
		3.3V supply	2.7	2.8	2.9	V	
Frequency Stability							
Versus temperature		-30°C to +70°C, ref 25°C			±50	ppb	
Versus 5% change in supply voltage		ref V _{cc} typ.			±5	ppb	
Versus acceleration		Worst direction			1.0	ppb/G	
Per Day Aging		Projected aging after 30 days operation\			±3	ppm	
Ten Year Aging		Projected aging after 30 days operation			±0.3	ppm	
SSB Phase noise		10 Hz		-95		dBc/Hz	For 100 MHz operational freq.
		100 Hz		-125			
		1 kHz		-153			
		10 kHz		-165			
		100 kHz		-168			
Allan variance		1 s		30		E-12	
Environmental Conditions							
Operating temperature range	-40°C to +80°C maximum range available that is standard						
Storage temperature range	-60°C to+90°C						
Humidity	Non-condensing 95%						
Mechanical shock	Per MIL-STD 202 30G half sine pulse, 11 ms						
Vibration	Per MIL-STD 202 10G swept sine 10 to 2000 Hz						
Soldering Condition	+260°C for 10 seconds						

*** The unit will be within ±0.1 ppm of the steady-state frequency that is reached after 30 minutes continuous operation



Ordering Information

OCXO3305-PKG-XXX.XXXXXX-W-Y-Z

1. Field " PKG " is leaded or surface mount package type
 - a. Option A : 14 Pin DIP Leaded
 - b. Option B : 14 Pin DIP surface mount style
2. Field " XXX.XXXXXX " is the Output Frequency to six decimals in MHz
3. Field " W " is Operating Temperature Range and Freq. Stability :
 - a. " 0 " for -30 °C to +70°C and ±50 ppb
 - b. " 1 " for - 40°C to +80°C and ±100 ppb
 - c. " 2 " for - 30 °C to +70°C and ±100 ppb
 - d. " 3 " for - 40°C to +85°C and ±100 ppb
 - e. " 4 " for - 40°C to +85°C and ±50 ppb
 - f. " 5 " for - 40°C to +85°C and ±20 ppb
4. Field " Y " is Power Supply Option :
 - a. " 0 " for 5V ±5%
 - b. " 1 " for 3.3V ±5%
5. Field " Z " is sine wave output versus square wave output
 - a. " 0 " for sine wave output, 7 dBm typical
 - b. " 1 " for square wave output
 - c. " 2 " for sine wave output, 10 dBm typical

Part Number Example

OCXO3305-A-100.000000-1-1-0

Option A Package Type: DIP14 Leaded

100.000000 MHz Operating Frequency

Operating Temperature of -40 °C to +80 °C

±100 ppb Frequency Stability

3.3 volt supply

Sine wave output