

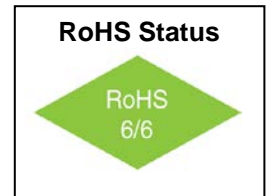
# VFOV200

## OCXO – High Frequency, High Stability HCMOS / SINE WAVE



### Features

- 5MHz to 250MHz frequency range
- High stability (up to 5ppb over -40°C to +85°C)
- HCMOS or sine wave output



### Applications

- PLL Reference for Telecommunication Systems
- Stratum 3E Clock Systems
- Base Station Reference Source
- GPS Holdover
- Instrumentation / Test and Measurement

### Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Frequency Range	F		5		250	MHz	
Frequency Stability	$\Delta F/F$	Vs. Operating temperature G: -40°C to +85°C		$\pm 5$		ppb	STD option shown. See "How to Order" Chart below
		Vs. Supply Voltage		$\pm 1$		ppb	Ref. Vcc typ.
		Vs. Aging / Day Vs. Aging / Year		0.5 0.1		ppb ppm	after 30 days 0.2ppb available
Operating Temperature Range	T		-30		+70	°C	STD option shown. See "How to Order" Chart below
Allan Variance		1s		10e-12			
SSB Phase Noise		10Hz 100Hz 1kHz 10kHz 100kHz		-125 -143 -150 -158 -160		dBc/Hz	For 10MHz oscillator (For 100MHz see plot next page)
Retrace		After 30 min.			$\pm 20$	ppb	
G-sensitivity		worst direction			$\pm 1$	ppb/g	
Supply Voltage	Vcc		11.4 4.75 3.15	12.0 5.0 3.3	12.6 5.25 3.45	V	
Power Consumption	P	steady state, 25°C steady state, -30°C start-up		1.0 2.0 3.2	1.2 2.2 3.5	W	
Warm-Up Time	$\tau$	to 0.1ppm accuracy		2	3	min	@ +25°C

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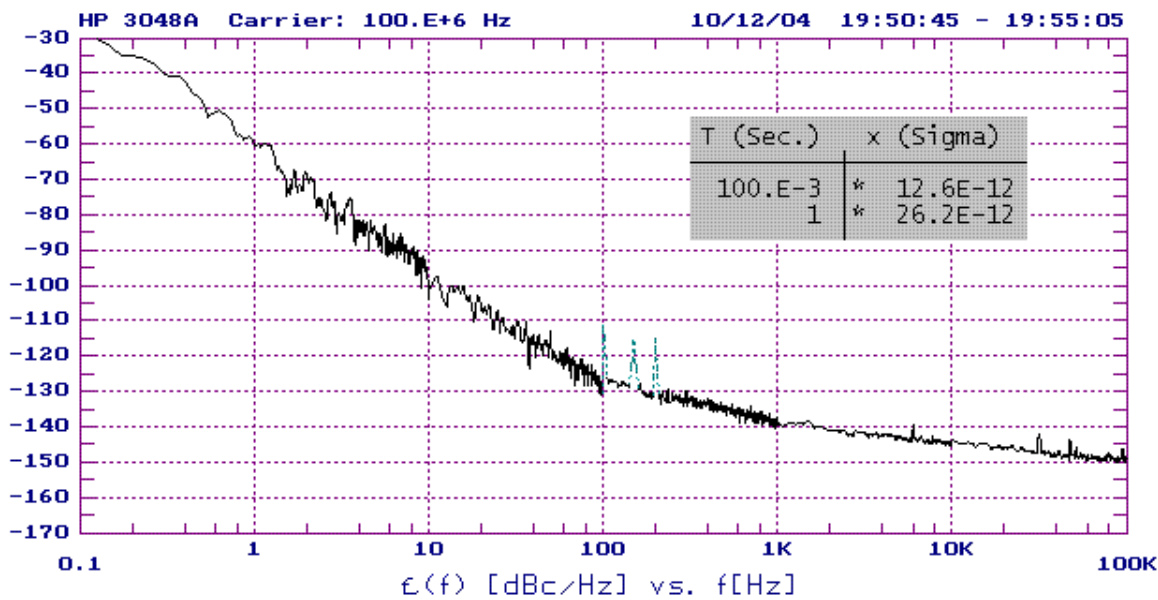
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### Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
HCMOS / TTL Output Levels		HCMOS/TTL			10kOhms / 15pF 10kOhms / 5pF		10MHz 100MHz
	V <sub>H</sub>	V <sub>CC</sub> =5 or 12V V <sub>CC</sub> =3.3V	3.8 2.4			V	
	V <sub>L</sub>				0.4	V	
Rise / Fall time					10 3	ns	10MHz 100MHz
Duty Cycle			45		55	%	
Sine-Wave Output Levels		V <sub>CC</sub> =5 or 12V	+6	+8	+10	dBm	Order Code S
	RL			50		Ω	
Harmonics					-25	dBc	
Sub-Harmonics		Frequency <30MHz Frequency >30MHz	None		-40	dBc	**Multiplied fundamental
Control Voltage	V <sub>C</sub>	V <sub>CC</sub> = 5 or 12V V <sub>CC</sub> =3.3V	0 0		4.2 2.8	V	
Pull Range		from F <sub>NOM</sub>	±0.5	±1		ppm	
Deviation Slope		Monotonic, Positive		0.4		ppm/V	
Reference Output	V <sub>REF</sub>	V <sub>CC</sub> = 5 or 12V V <sub>CC</sub> =3.3V	4.1 2.7	4.2 2.8	4.3 2.9	V	

\*\* High frequency fundamental (up to 120MHz) available without sub-harmonics. Please refer to VFOV100.



100MHz output with internal multiplied 20MHz fundamental crystal

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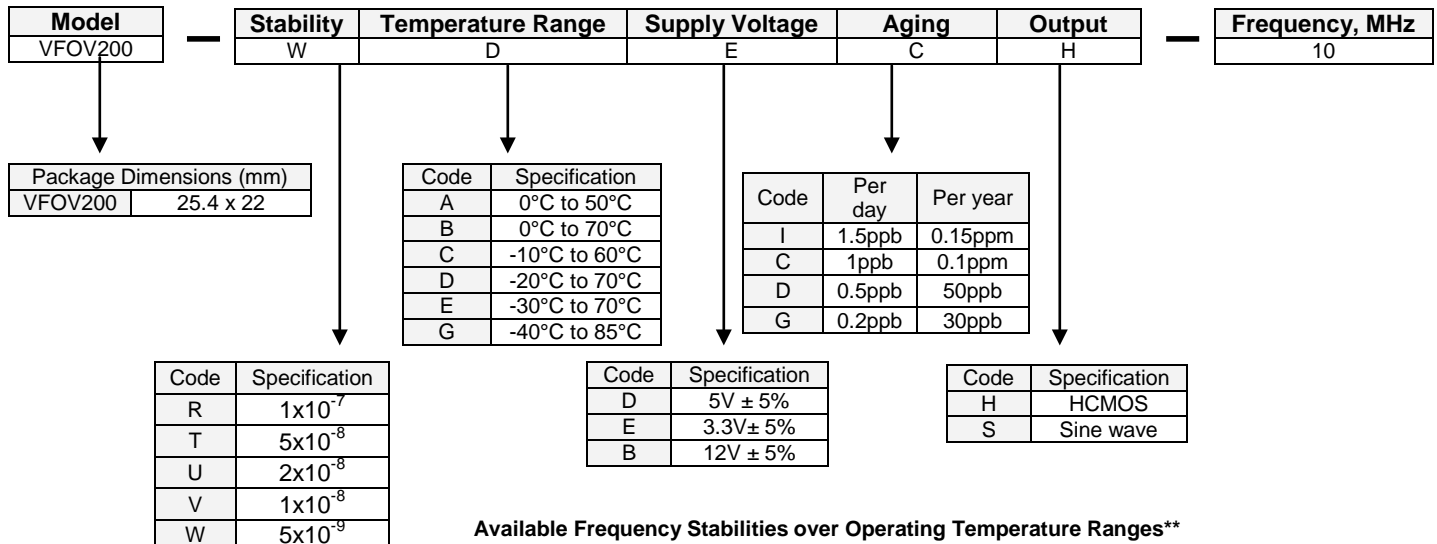
### Absolute Maximum Ratings

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Supply Break Down Voltage	V <sub>CC</sub>		-0.5		V <sub>CC</sub> +20%	V	
Control Voltage	V <sub>C</sub>		-1		6	V	

### Environmental and Mechanical Conditions

Parameter	Condition
Storage Temperature	-60°C to +90°C
Seal	Non hermetic – cleaning by liquid immersion is not recommended
Humidity	95%, non-condensing
Mechanical Shock	Per MIL-STD-202, 30g, half sine, 11ms
Vibration	Per MIL-STD-202, 10G swept Sine to 500Hz
Soldering Conditions	260°C for 10s at terminations (hand solder only – not reflow compatible)
Marking	Epoxy ink or laser engraved

### How to Order



Available Frequency Stabilities over Operating Temperature Ranges\*\*

Order Code	Temperature Range	Stability				
		1x10 <sup>-7</sup>	5x10 <sup>-8</sup>	2x10 <sup>-8</sup>	1x10 <sup>-8</sup>	5x10 <sup>-9</sup>
A	0°C to 50°C	*	*	*	*	*
B	0°C to 70°C	*	*	*	*	◇
C	-10°C to 60°C	*	*	*	*	*
D	-20°C to 70°C	*	*	*	*	◇
E	-30°C to 70°C	*	*	*	*	◇
G	-40°C to 85°C	*	*	*	*	◇

◇ Only available below 30MHz.

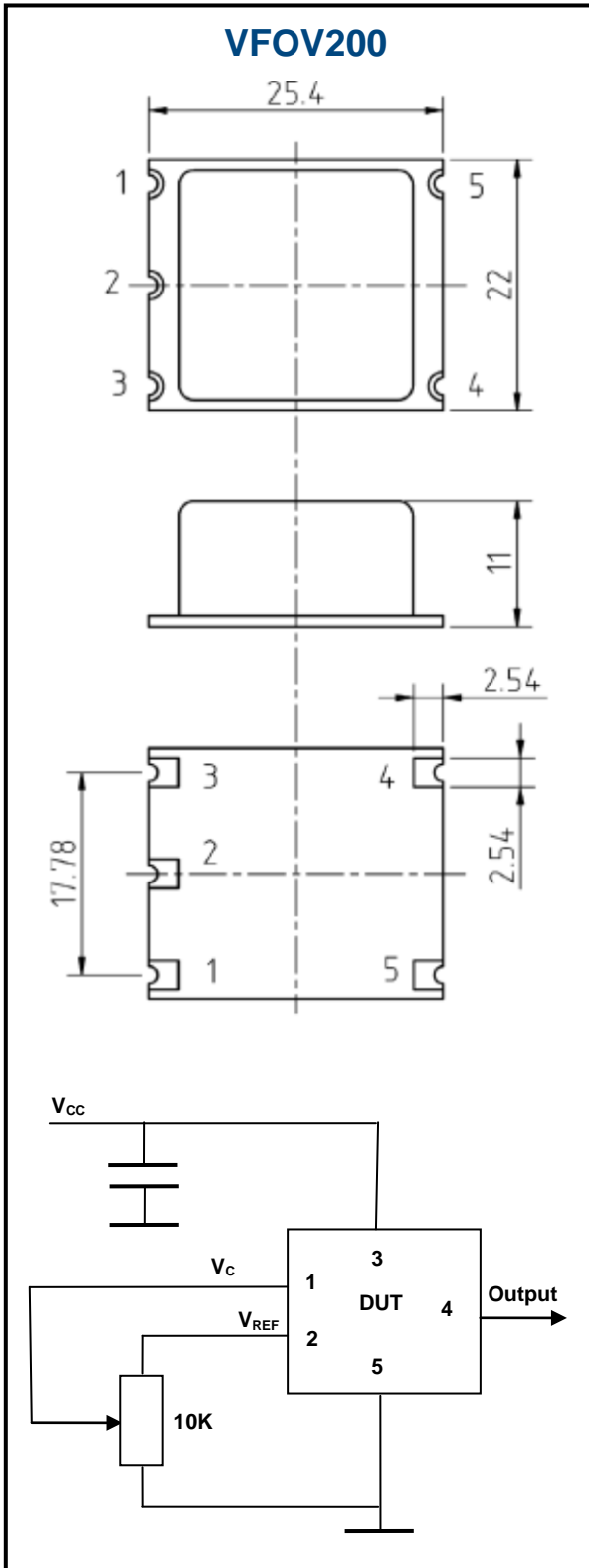
\*\*Not all combinations are available. Consult factory for the right configurations that will meet your requirements.



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## Package



Pin #	Connection
1	V <sub>C</sub>
2	V <sub>REF</sub>
3	V <sub>CC</sub>
4	Output
5	GND