

VFOV202

OCXO – High Frequency, High Stability

HCMOS / SINEWAVE



Features

- 5MHz to 250MHz Frequency Range
- High Stability (up to 5ppb over -40~+85°C)
- Sine Wave or HCMOS output



RoHS Status



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 Temp. E: -30°C to +70°C		± 10		ppb	STD option shown. See "How to Order" Chart below
		Vs. Supply Voltage		± 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.			± 10	ppb	
G-sensitivity		worst direction			± 1	ppb/g	
Supply Voltage	Vcc		11.4 4.75 3.10	12.0 5.0 3.3	12.6 5.25 3.50	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	τ	to 0.1ppm accuracy		2	3	min	



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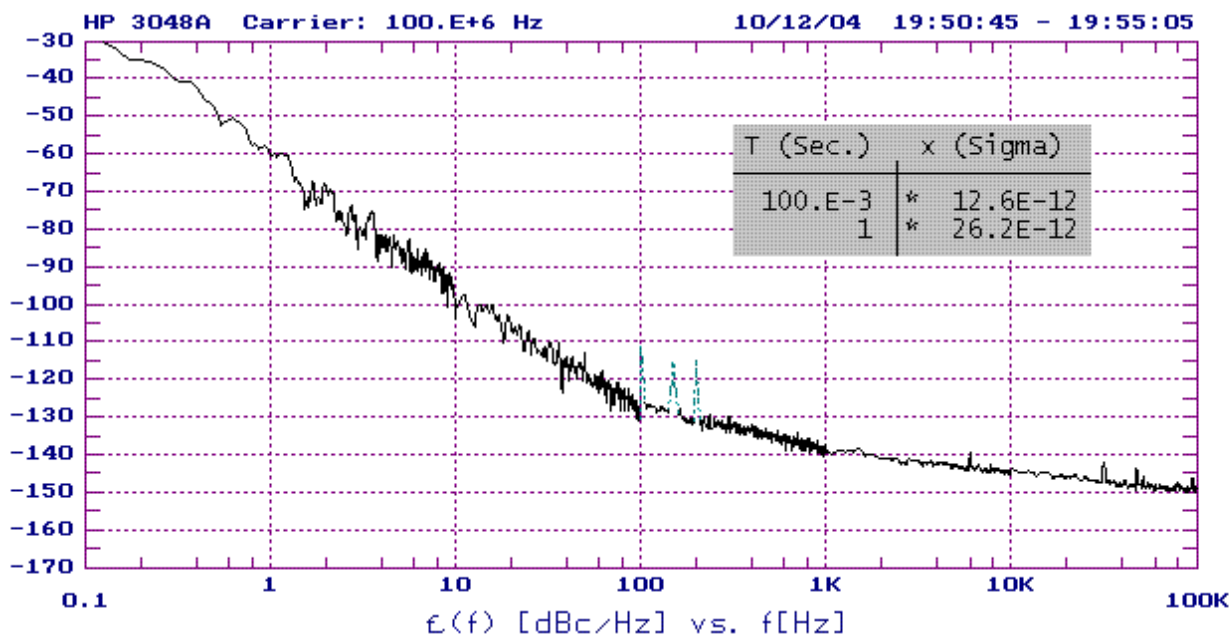
HCMOS / SINEWAVE



Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
HCMOS / TTL Output Levels		HCMOS/TTL	10KOhm / 15pF				Order Code H
	V _H	V _{cc} = 5 or 12V V _{cc} =3.3V	3.9 2.4			V	
	V _L				0.4	V	
Rise / Fall time		At 100MHz			10	ns	
Duty Cycle			45		55	%	
Sine-Wave Output Levels		V _{cc} =5 or 12V	+6	+8	+10	dBm	Order Code S
	R _L			50		Ω	
Harmonics					-25	dBc	
Sub-Harmonics		Frequency <30Mhz Frequency >30MHz	None		-40	dBc	**Multiplied fundamental
Control Voltage	V _c	V _{cc} = 5 or 12V V _{cc} =3.3V	0 0		4.3 2.8	V	
Pull Range		from nominal F	±0.5	±1		ppm	
Deviation slope		Monotonic, Positive		0.4		ppm/ V	
Reference output	V _{ref}	V _{cc} = 5 or 12V V _{cc} =3.3V	4.19 2.73	4.3 2.8	4.41 2.87	V	

** High frequency fundamental (up to 120MHz) available without sub-harmonics. Please refer to VFOV102.



100MHz output with internal multiplied 20MHz fundamental Crystal



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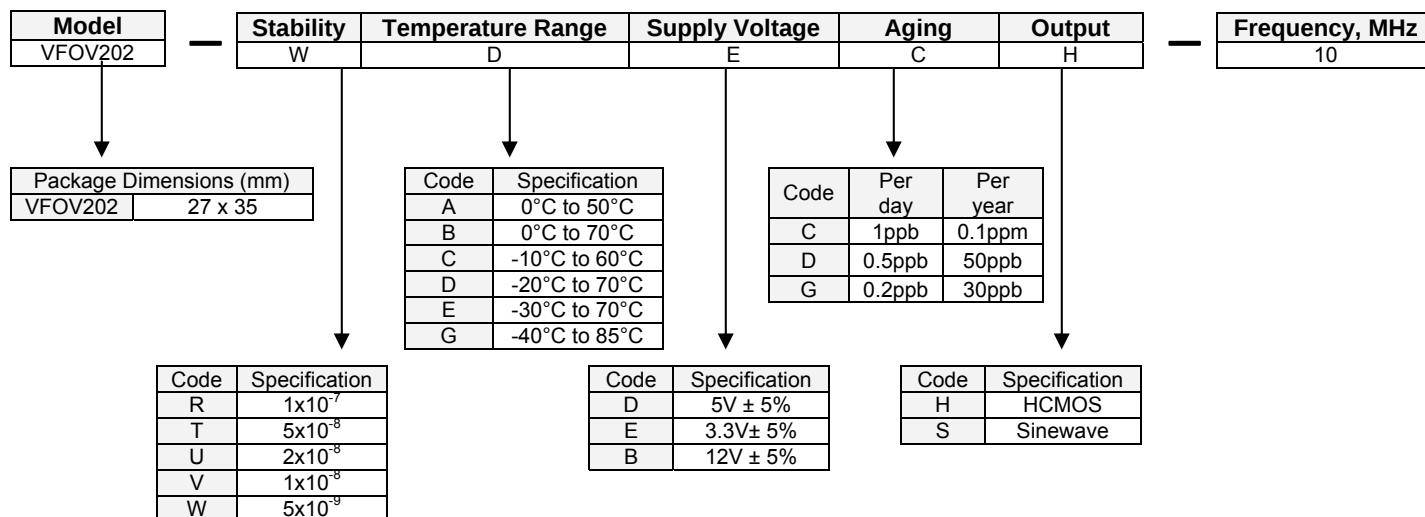
Absolute Maximum Ratings

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Supply Break Down Voltage	V _{cc}		-0.5		V _{cc} +20%	V	
Control Voltage	V _c		-1		9	V	

Environmental and Mechanical

Parameter	Specification
Storage Temperature	-60°C to +90°C
Humidity	Hermetically Sealed
Mechanical Shock	Per MIL-STD-202, 30g, half sine, 11ms
Vibration	Per MIL-STD-202, 10g swept Sine to 2000Hz
Soldering Conditions	260°C for 10s

How to Order



Available Frequency Stabilities over Operating Temperature Ranges

Order Code	Temperature Range	Stability				
		1x10 ⁻⁷	5x10 ⁻⁸	2x10 ⁻⁸	1x10 ⁻⁸	5x10 ⁻⁹
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



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Package

