

# VFOV102

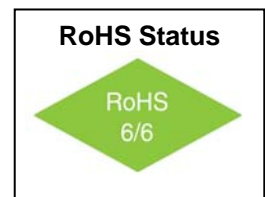
## OCXO – Ultra Low Noise, Ultra Stable

### HCMOS / SINEWAVE



#### Features

- 5MHz to 120MHz Frequency Range
- Ultra Low Phase Noise: (fundamental crystal)
  - -155 dBc/Hz @ 1KHz offset
  - -168 dBc/Hz floor
- Sine Wave or HCMOS output



#### Applications

- PLL reference for Telecommunication Systems
- Microwave Communications / RADAR signal source
- GPS holdover
- Instrumentation / Test and Measurement

#### Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Frequency Range	F		5		120	MHz	
Frequency Stability	$\Delta F/F$	Vs. Operating Temp. E: -30°C to +70°C		$\pm 10$		ppb	STD option shown. See "How to Order" Chart below
		Vs. Supply Voltage		$\pm 3$	$\pm 5$	ppb	Ref. Vcc typ.
		Vs. Aging / Day Vs. Aging / Year		3 0.3		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		1Hz		-95		dBc/Hz	For 10MHz Oscillator  ( For 100MHz see plot on next page )
		10Hz		-125			
		100Hz		-145			
		1KHz		-155			
		10KHz		-165			
		100KHz		-168			
Retrace		After 30 min.			$\pm 20$	ppb	
G-sensitivity		worst direction			$\pm 1$	ppb/g	
Supply Voltage	Vcc		11.4 4.75 3.14	12.0 5.0 3.3	12.6 5.25 3.47	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	$\tau$	+25°C		2	3	min	to 0.1ppm accuracy



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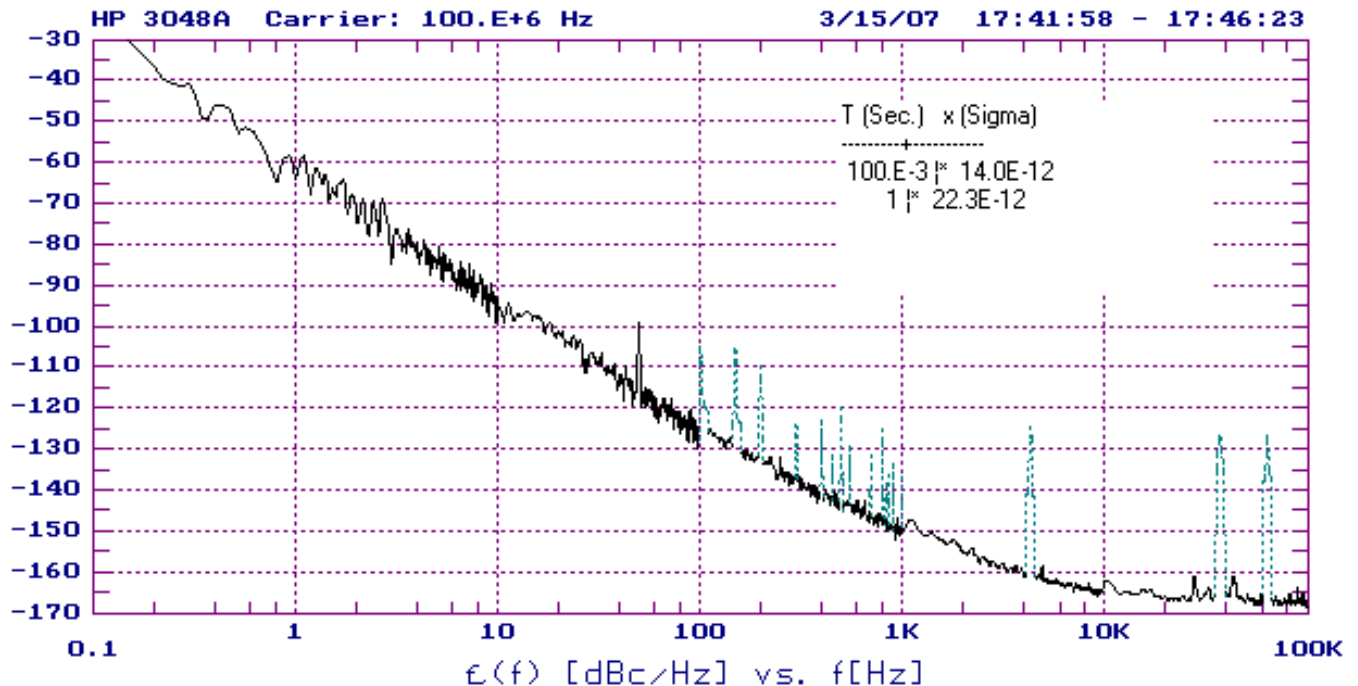
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#### Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
HCMOS / TTL Output Levels		HCMOS/TTL	10KOhm / 15pF				Order Code H
	V <sub>H</sub>	V <sub>cc</sub> = 5 or 12V V <sub>cc</sub> =3.3V	3.9 2.4			V	
	V <sub>L</sub>				0.4	V	
Rise / Fall time		At 100MHz			10	ns	
Duty Cycle			45		55	%	
Sine-Wave Output Levels		V <sub>cc</sub> =5 or 12V V <sub>cc</sub> =3.3V	+6 +3	+8 +4	+10 +5	dBm	Order Code S
	RL			50		Ω	
Harmonics					-25	dBc	
Sub-Harmonics			none				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 nominal F	±0.5	±1		ppm	
Deviation slope		V <sub>cc</sub> = 5 or 12V V <sub>cc</sub> = 3.3V	0.125 0.4			ppm/ V	Monotonic, Positive
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	



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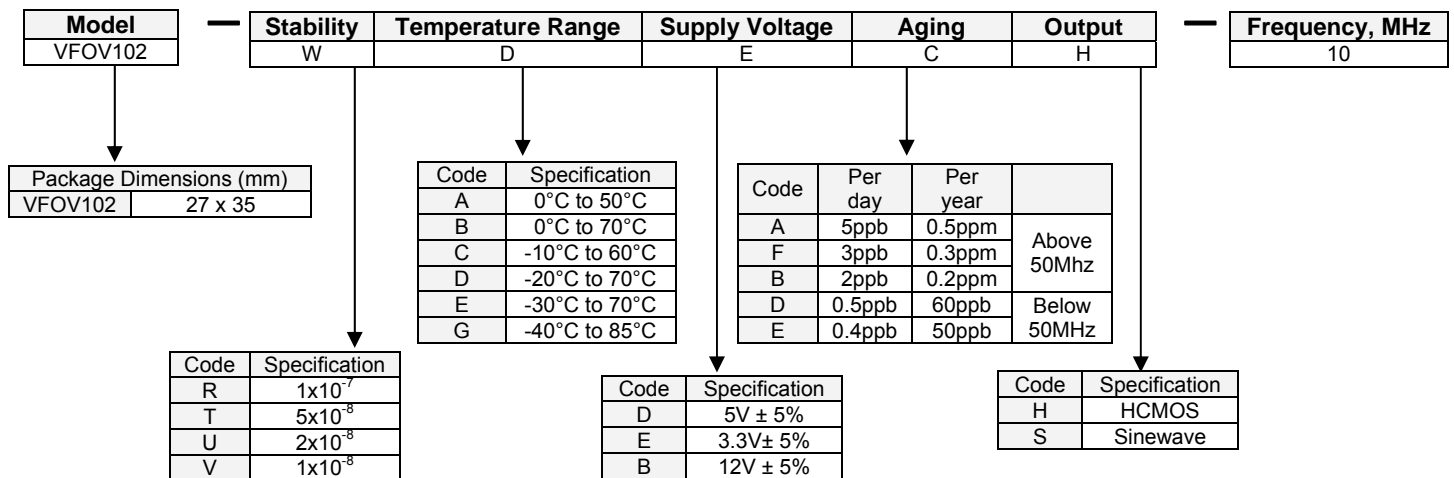
### Absolute Ratings

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		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 500Hz
Soldering Conditions	260°C for 10s

### 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>
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	*	*	*	

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#### Package

