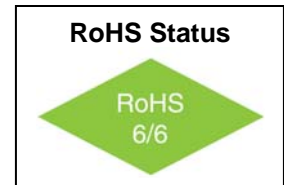


VFH2121-VFH2124, VFH2221-VFH2224
VFH2521-VFH2524, VFH2621-VFH2624
XO Hi-Rel, 5.0V, 3.3V
5x7mm SMD, HCMOS/TTL



Features

- Leadless chip carrier package is hermetically sealed for superior aging and field performance
- Crystal angle controlled to ± 0.5 minute for excellent temperature stability
- 168 hour Class B burn-in and extensive environmental testing for best performance in rugged field environments
- Guarantee start-up with a ramping DC supply
- Start-up time <5ms, typical
- Tristate option available
- Calculated MTBF is 3.8×10^6 hours at 125°C



Description

These high reliability oscillators provide HCMOS clock outputs for applications subjected to the most stringent environmental conditions. They are mechanically robust and weigh less than 0.2 grams. This 5x7 mm SMD package has a hermetic seal, thus ensuring the integrity of each part. Each oscillator is burned-in at 125°C for 168 hours, temperature cycled and centrifuged then fully tested in accordance with Table 1. Reliability tests are performed per Table 2.

Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Frequency Range	F		1 0.5		105 125	MHz	5.0V 3.3V
Frequency Stability	$\Delta F/F$	Vs. Operating Temperature	± 25		± 75	ppm	See "How to Order" Chart
		Aging 1 st Year After 1 st Year			± 3 ± 1		
Operating Temperature Range	T		-55°		+125°	°C	See "How to Order" Chart
Input Voltage	V _{CC}		3.0 4.5	3.30 5.0	3.6 5.5	V	
Input Current	I _{CC}				45	mA	5.0V
		3 to 10MHz 10.1 to 20MHz 20.1 to 30MHz 30.1 to 50MHz 50.1 to 67MHz 67.1 to 125MHz			4.5 6.0 15.5 20.0 30.0 40.0		3.3V
RMS Jitter					5 6	ps	5.0V 3.3V

VFH2121-VFH2124, VFH2221-VFH2224
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Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Waveform Symmetry		Measured at 50% V _{DD}		48/52	45/55 45/55	%	5.0V 3.3V
Rise / Fall Time	T _R /T _F	CMOS, 15pF, from 0.4 to (V _{DD} -0.4) V			4	ns	5.0V
		CMOS, 15pF, 20% to 80% (<60MHz)		3.0	4.0		3.3V
		20% to 80% (≥60MHz)		2.0	2.5		
		CMOS, 30pF, 20% to 80% (<60MHz)		4.0	5.0		
		20% to 80% (≥60MHz)		3.0	4.5		
		CMOS, 50pF, 20% to 80% (<60MHz)		6.0	8.0		
Output Level	“Zero” Level	Sinking 16mA			0.4	V	
	“One” Level	Sourcing 8mA	V _{DD} -0.4				
Input Requirement for Pin 1		“1”: On-Pin 1 may float or 2.4V min., sourcing 400 microAmp “0”: Disable or Tristate-Pin 1 requires 0.4V, sinking 400 microAmp					

Environmental and Mechanical Conditions

Parameter	Conditions
Storage Temperature	-55°C to +150°C
Shock	1000 Gs, 0.35 ms, ½ sine wave, 3 shocks in each plane
Vibration	10-2000 Hz of 0.06” d.a. or 20Gs, whichever is less
Humidity	Resistant to 85° R.H. at 85°C
Leak	Per MIL-STD-883, Method 1014, Condition A and Condition C
Case	Hermetically sealed ceramic LCC
Pads	15 microinch of gold over nickel
Resistance to Solvents	Per MIL-STD-202, Method 215
Marking	Epoxy ink or laser engraved

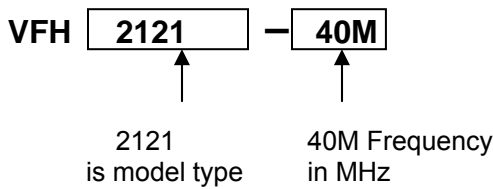
**VFH2121-VFH2124, VFH2221-VFH2224
VFH2521-VFH2524, VFH2621-VFH2624
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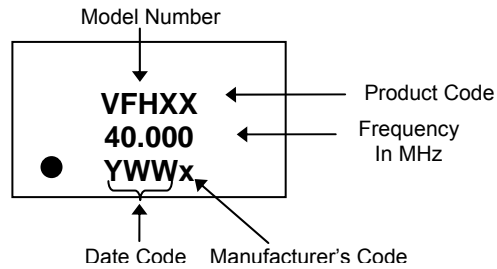
Models

FIXED OUTPUT		TRISTATE		Operating Temperature	Frequency Stability
3.3V	5.0V	3.3V	5.0V		
VFH2121	VFH2521	VFH2221	VFH2621	-55°C to +85°C	±25 ppm
VFH2122	VFH2522	VFH2222	VFH2622	-55°C to +85°C	±50 ppm
VFH2123	VFH2523	VFH2223	VFH2623	-55°C to +125°C	±75 ppm
VFH2124	VFH2524	VFH2224	VFH2624	-55°C to +125°C	±50 ppm

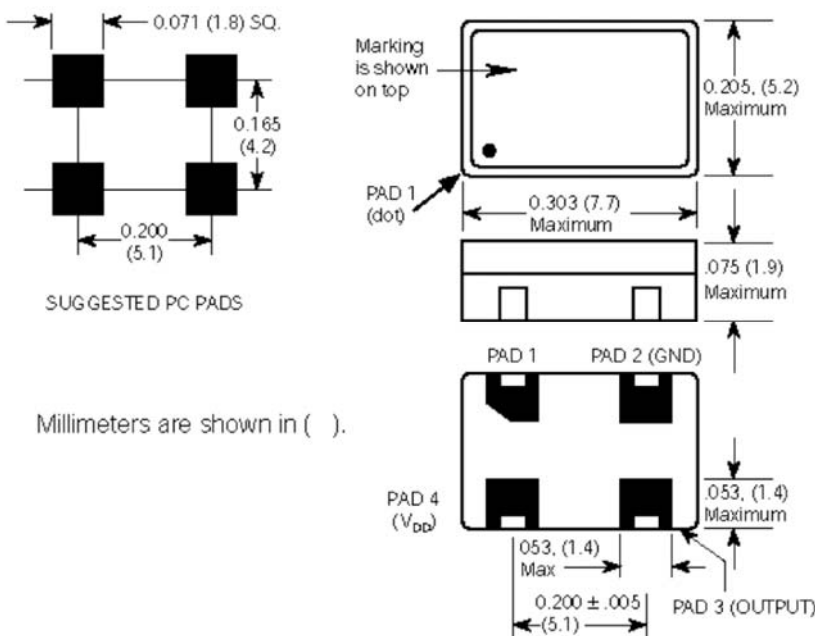
How to Order



Marking Specification



Package



Pin Assignment

Pin	VFH2121-VFH2124 VFH2521-VFH2524	VFH2221-VFH2224 VFH2621-VFH2624
1	N/C	Tristate
2	Ground	
3	Output	
4	V _{DD}	