

VFH3225

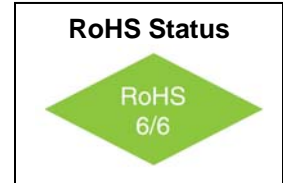
Clock Oscillators -55°C to $+125^{\circ}\text{C}$

3.2x2.5mm SMD, CMOS



Features

- 50 MHz to 160 MHz Frequency Range
- 3.3V, 2.8V, 2.5V, or 1.8V Supply Voltage
- Low Jitter
- Low power consumption



Applications

- Military Portable Communications
- Test & Measurement
- Gigabit Ethernet

Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note	
Frequency Range	F _{out}	3.3V 2.5V 1.8V	50		160	MHz	Consult Factory for Standard Frequencies	
Frequency Stability	$\Delta F/F$	Operating Temperature			± 100 ± 50	ppm	Order Code A Order Code B	
		Supply Voltage; 1st Year Aging			± 3 ± 3			
Operating Temperature	T _a		-55		+125	°C		
Supply Voltage	V _{DD}		3.00 2.52 2.25 1.71	3.30 2.80 2.50 1.80	3.60 3.08 2.75 1.89	V	Order Code D Order Code E Order Code F Order Code G	
Supply Current	I _{cc} MAX	50 MHz ≤ F _o < 160MHz	3.3V	2.8V	2.5V	1.8V	mA	Max Current across entire temp range
			10	9	8	7		
TRISTATE		Output Active or Enabled	0.7 V _{DD}			V		
		Output in Tri-State (Disable)			0.3 V _{DD}			
Rise / Fall Time	T _r /T _f	10% to 90% of V _{DD}			5.0	ns		
Duty Cycle			45	50	55	%		



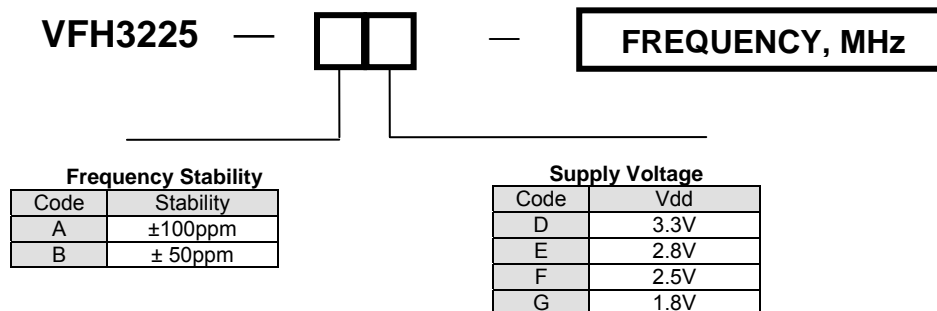
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Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Output		CL = 15 pF	LVCMOS				
Logic "1" Level	Voh		90% V _{DD}		-	V	
Logic "0" Level	Vol		-		10% V _{DD}	V	
Phase Noise	φ _n	10 Hz Offset 100 Hz 1K Hz 10K Hz 100 KHz 1 MHz		-66 -101 -126 -138 -145 -149		dBc/Hz	@ 66 MHz
Start up time					8	ms	
RMS Jitter	£	12KHz to 20MHz			1	ps	
Storage Temperature	T _s		-55		+125°	°C	

How to Order



Standard Available Frequencies:
50 MHz, 66 MHz, 75 MHz, 100 MHz, 125 MHz and 150 MHz
Consult Factory for Additional Available Frequencies.

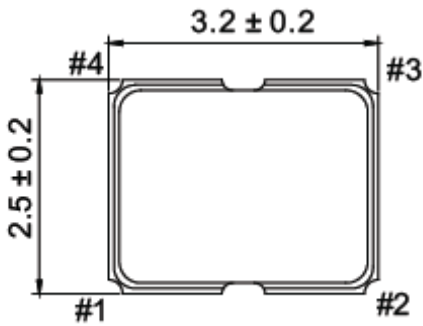


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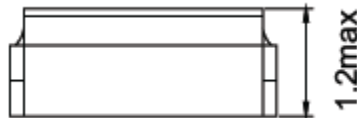
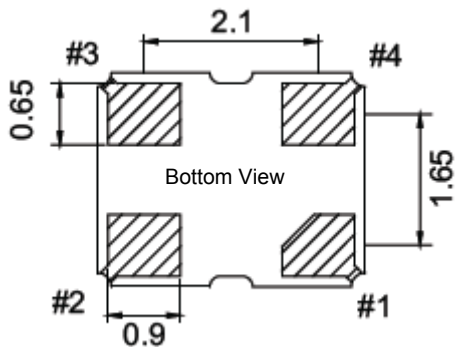


Environmental and Mechanical

Parameter	Specification
Mechanical Shock	Per MIL-STD-202, Method 213, Condition E
Thermal Shock	Per MIL-STD-883, Method 1011, Condition A
Vibration	Per MIL-STD-883, Method 2007, Condition A
Soldering Conditions	260°C for 10s max
Hermetic Seal	Leak rate less than 5×10^{-8} atm.cc/s of helium



Pin #	Connection
1	TRISTATE
2	GND
3	Output
4	V _{DD}



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TABLE 2
Reliability Test Procedures and Conditions for Quartz Crystal Oscillators

1. Group A

- Electrical Characteristics at -55°, +25° and +125 ° C
 - Frequency @ +1.8 and + 3.3 volts
 - Symmetry (Duty Cycle)
 - Input current
 - Zero/One levels
 - Rise/Fall times
- Physical Dimensions
 - Length/width
 - Height
 - Package finish (Corrosion, discoloration, etc.)
 - Marking placement/legibility

2. Group B- Life Test

1000 hrs at 125°C with bias and load

3. Group C- All units have passed Group A testing

A. Subgroup 1-12pcs.

<u>Standard</u>	<u>Condition</u>	<u>Description</u>	<u>End Point Measurement</u>
MIL-STD-883	Method 2002 COND.B	Mechanical Shock 1500 g's, 5ms 5 drops, 6 axis	Frequency Output waveform
MIL-STD-883	Method 2007 COND. A.	Vibration, var. freq. 20 g's, .06" disp., 20- 20, 000-20 Hz	Frequency Output waveform
MIL-STD-883	Method 2003	Solderability	Visual 95% Coverage

B. Subgroup 2: 6 pcs (One-half of Subgroup 1)

<u>Standard</u>	<u>Condition</u>	<u>Description</u>	<u>End point Measurement</u>
MIL-STD-883	Method 1011 COND. B	Thermal Shock Liq. To liq.	Frequency Output waveform 15 cycles
MIL-STD-202	Method 105 COND. B	Altitude, 3.44 inch Hg. 12 hrs	Frequency Output waveform
MIL-STD-883	Method 1004	Moisture resist. with 3.3V applied 25-65°C, 90 to 100% RH, 10 cycles	Frequency Output waveform
MIL-STD-202	Method 210 COND.A	Resistance to Solder Heat	Frequency Output waveform Immersion @350°C 3.5 sec

C. Subgroups 3: 6 pcs. (One half of Subgroup 1)

<u>Standard</u>	<u>Condition</u>	<u>Description</u>	<u>End point Measurement</u>
	Storage Temp. No. Oper	24 hrs. @ -55°C 24 hrs. @ 125°C	Frequency Output waveform
MIL-STD-883	Method 1009 COND. A	Salt Atmosphere 24 hrs. @ 35°C .5-3.0% Solution	Frequency Output waveform Visual
MIL-STD-883	Method 1014 COND. B	Fine Leak	Qs <5 X10 ⁻⁸
MIL-STD-883	Method 1014 COND. C	Gross Leak	Visual in 125°C Detector fluid

