M2300 series
H2300 series
VCXO 3.3V
Full/Half size, Thru-hole, HCMOS/TTL

Valpey Fisher Corporation
High Frequency, Low Phase Noise Timing Solutions

Features

- Excellent incremental and best-straight-line linearity
- Start-up time is less than 5ms

RoHS Status

RoHS 5/6

Applications

- xDSL customer premise equipment
- Cable modems
- ATM/SONET/SDH

Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Frequency Range	F		1		150	MHz	
Frequency Stability	ΔF/F	Operating Temperature at 25°C		± 20	± 50	ppm	
Aging		First Year After First Year		3 1		ppm ppm/yr	
Operating Temperature	T		0°		+70°	°C	
Supply Voltage	Vcc		3.0	3.3	3.6	V	
Supply Current	Icc	1 KHz to 10 MHz 10.1 to 25 MHz 25.1 to 50 MHz 50.1 to 75 MHz 75.1 to 125 MHz		8 15 20 25 30	14 20 30 35 40	mA	
Output Levels		"0" Level, sinking 16mA "1" Level, sourcing 8mA	V_{DD}-0.4		0.4	V	
Rise & Fall Times		15 pf 30 pf 50 pf		3 4 6	4 5 8	ns	20 to 80% (<60MHz)
		15 pf 30 pf		2 3	2.5 4.5		20 to 80% (>60MHz)
Input Impedance		Control voltage		15	1000	KOhm	
Start-up Time	Ts				5	ms	
Symmetry		@ 50% V_{DD}		48/52	45/55	%	
Control Voltage Bandwidth			15	150		KHz	
APR				± 150		ppm	

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Environmental and Mechanical Conditions

Parameter	Specification
Shock	1000 Gs, 0.35 ms, 1/2 sine wave, 3 shocks in each plane
Vibration	10-2000 Hz of .06" d.a. or 20 Gs, whichever is less
Humidity	Resistant to 85° R.H. at 85°C
Gross Leak	Each unit checked in 125°C fluorocarbon
Fine Leak	Mass spectrometer leak rate less than 2 X 10^{-8} atm, cc/sec of helium
Pins	Kovar, nickel plated with 60/40 solder coat
Bend Test	Will withstand two bends of 90° from reference
Header	Steel, with nickel plate
Case	Stainless steel, type 304
Marking	Printing is black epoxy ink or laser marked
Resistance to Solvents	MIL STD 202, Method 215

Center Frequency is Between Two Voltages

MODEL	Control Voltage (Volts)	Frequency Deviation (ppm)	Guaranteed Capture Range (ppm)	Control Voltage at Center Frequency	Center Frequency Stability (ppm)
2306	0 to 3.0	± 150 min	± 150	—	± 30, typ ± 50, max

Center Frequency is at 1.5V with ±50 ppm stability

MODEL	Control Voltage (Volts)	Frequency Deviation (ppm)	Guaranteed Capture Range (ppm)	Control Voltage at Center Frequency	Center Frequency Stability (ppm)
2321	0.5 to 2.5	± 75 to 150	± 75	1.5	± 30, typ ± 50, max
2322	0.5 to 2.5	± 100 to 200	± 100	1.5	

Center Frequency is at 1.5V with ±50 ppm stability

MODEL	Control Voltage (Volts)	Frequency Deviation (ppm)	Guaranteed Capture Range (ppm)	Control Voltage at Center Frequency	Center Frequency Stability (ppm)
2331	0.5 to 2.5	± 75 to 150	± 75	1.5	± 20, typ ± 25, max
2332	0.5 to 2.5	± 100 to 200	± 100	1.5	

Center Frequency is at 1.5V with ±50 ppm stability

MODEL	Control Voltage (Volts)	Frequency Deviation (ppm)	Guaranteed Capture Range (ppm)	Control Voltage at Center Frequency	Center Frequency Stability (ppm)
2341	0.5 to 2.5	± 75 to 150	± 75	1.5	± 15, typ ± 20, max
2342	0.5 to 2.5	± 100 to 200	± 100	1.5	

DESCRIPTIONS

M2306, H2306	±150 ppm, min. deviation when using 0 to 3 control-voltage
M2321, H2321	±75 ppm capture when using using 0.5 to 2.5V control-voltage and 1.5V center with ±50 ppm stability
M2322, H2322	±100 ppm capture when using using 0.5 to 2.5V control-voltage and 1.5V center with ±50 ppm stability
M2331, H2331	±75 ppm capture when using using 0.5 to 2.5V control-voltage and 1.5V center with ±25 ppm stability
M2332, H2332	±100 ppm capture when using using 0.5 to 2.5V control-voltage and 1.5V center with ±25 ppm stability
M2341, H2341	±75 ppm capture when using using 0.5 to 2.5V control-voltage and 1.5V center with ±20 ppm stability
M2342, H2342	±100 ppm capture when using using 0.5 to 2.5V control-voltage and 1.5V center with ±20 ppm stability

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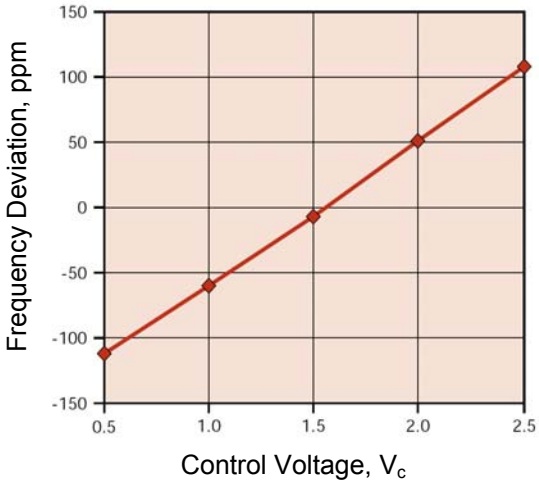
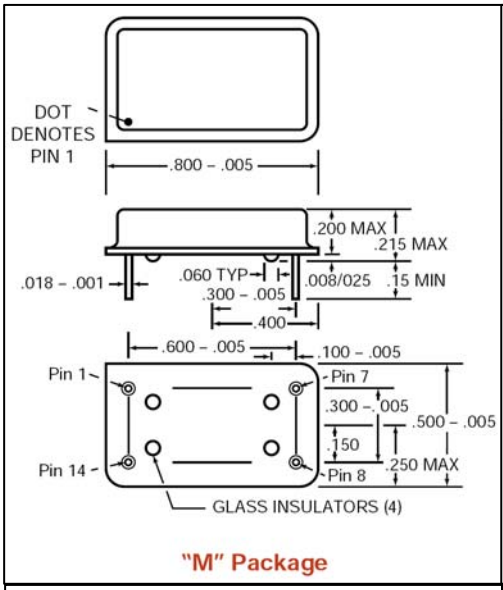
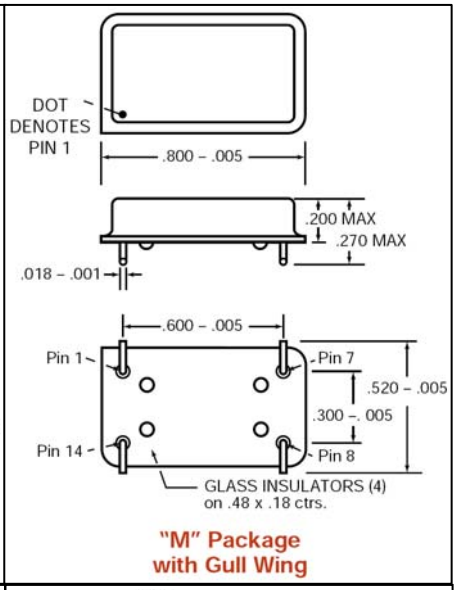
Pin #	Full size (M)	Half size (H)
1	Control Voltage	Control Voltage
4	N/C	Ground & Case
5	N/C	Output
7	Ground & Case	N/C
8	Output	+3.3V, V_{DD}
14	+3.3V, V_{DD}	N/C

Frequency vs. Control Voltage for M2331-16M

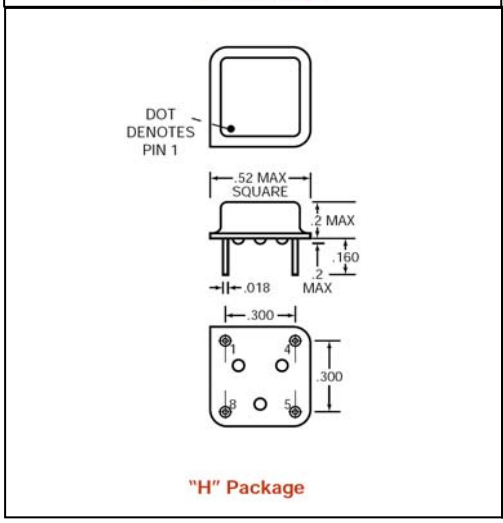




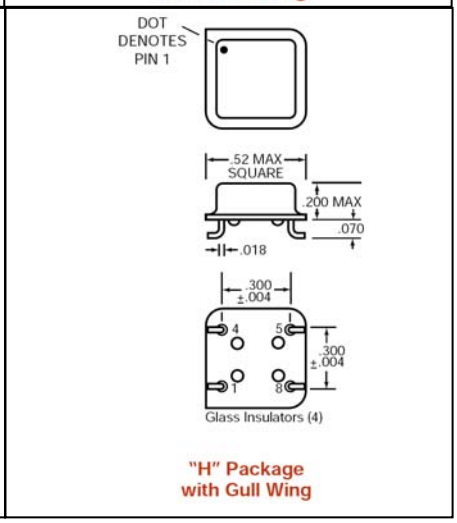
"M" Package



"M" Package with Gull Wing



"H" Package



"H" Package with Gull Wing

HOW TO ORDER

M - 2306 - FREQ. G

"M" is full size DIL
"H" is half size DIL

"2306" is model type

Leave blank for straight leads
Add "G" for gullwig