

OSCILLATORS

VF75, VFHS84 and VFHS85 HALF SIZE HYBRID CRYSTAL CLOCK OSCILLATORS

Valpey-Fisher's half size crystal clock oscillators make available packages half the size of standard 14 pin DIP oscillators to solve critical board space problems. The VF75 TTL design is compatible with TTL circuitry and offers proven dependability, hermetic seal, and state of the art thick film technology. Enable/disable and tristate options are available to ensure compatibility of the VF75 series with automatic test equipment.

The VFHS84 and VFHS85 series of high speed HCMOS, half size hybrid crystal clock oscillators are compatible with both CMOS and HCMOS cir-

cuitry. The rugged, resistance-welded case features pin 4 case ground for RF radiation shielding and excellent resistance to temperature and humidity extremes. The VFHS84 also offers an enable/disable option.

All Valpey-Fisher half size hybrid crystal clock oscillators are available in surface mount packages as well, and are suitable for any surface mount soldering technique. Package options include pocket tape and reel and static free tubes.

FEATURES

- Half Size Case
- Low Profile
- Choice of Circuit Type
- Choice of Output Type
- Hermetic Seal
- Proven Quality
- Low Cost
- Through Hole or Gull Wing Surface Mount

Specifications	VF75	VFHS84	VFHS85
Frequency Range	30 KHz-70 MHz	500 KHz-20,000 MHz	8,000 MHz-25,000 MHz
Frequency Stability*	±.01% max, ±.005% avail	±.01% max	±.01% max
Operating Temperature Range	-10°C to +70°C	-10°C to +70°C	-10°C to +70°C
Storage Temperature Range	-55°C to +125°C	-55°C to +125°C	-55°C to +125°C
Input Voltage	+5.0V DC, ±0.5V DC	+5.0V DC, ±0.5V DC	+5.0V DC, ±0.5V DC
Input Current	I_{in} = 30 KHz-40.0 MHz: 30mA max I_{in} = 40 KHz-70.0 MHz: 40mA max	I_{in} = 500 KHz-8,000 MHz: 6.0mA max I_{in} = 8,001 MHz-20,000 MHz: 8.0mA max	15.0mA max
Symmetry (@ 50% VDD)	50%, ±10% max (tighter avail)	50%, ±10% max	50%, ±5%
Rise/Fall Time (0.5-4.5 V)	t_{r} = 30 KHz-40.0 MHz: 5 nsec max t_{f} = 40 MHz-70.0 MHz: 6 nsec max	10.0 nsec typ, 20.0 nsec max	5.0 nsec typ, 10.0 nsec max
Logic '0' Level	0.4 V max	0.5 V max	0.4 V max
Logic '1' Level	2.4 V min	4.0 V min	4.5 V min
Output Load	10 TTL	4 LSTTL	10 LSTTL
Start-up Time	2.0 msec typ, 10.0 msec max	2.0 msec typ, 10.0 msec max	1.0 msec typ, 5.0 msec max
Shock		1000 G's, 0.35 msec, 1/2 sine wave, 3 shocks each plane	
Vibration		10-55 Hz, amplitude 1.5 mm, 55-200 Hz, 35 G's in 3 directions, for 1 hour each	
Humidity		85°C, 90% relative humidity, 250 hours	
Hermetic Seal		Leak rate less than 2×10^{-8} atmosphere cc/sec of helium	

*Inclusive of calibration tolerance @ 25°C, operating temperature range, input voltage change, load voltage change, aging, shock and vibration.

All specifications subject to change without notice.

How To Order

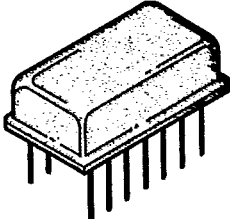
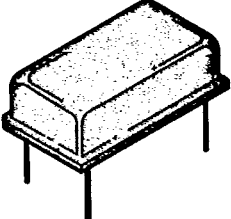
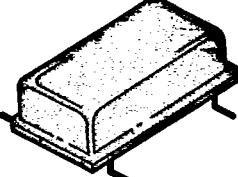
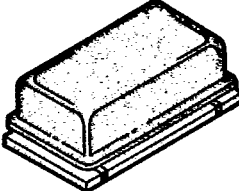
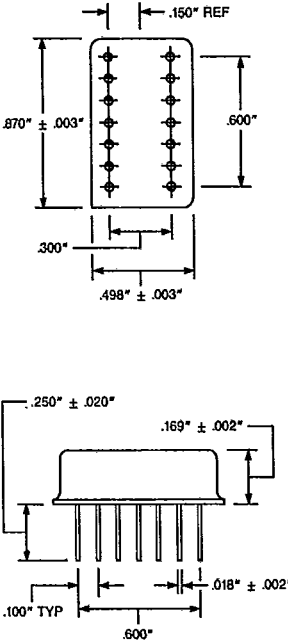
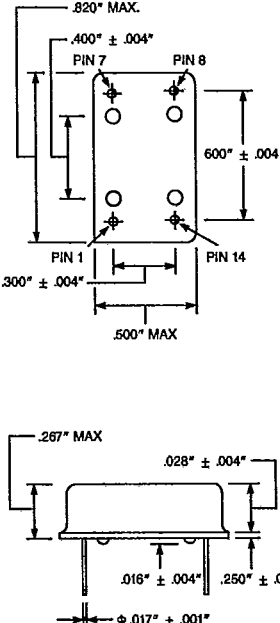
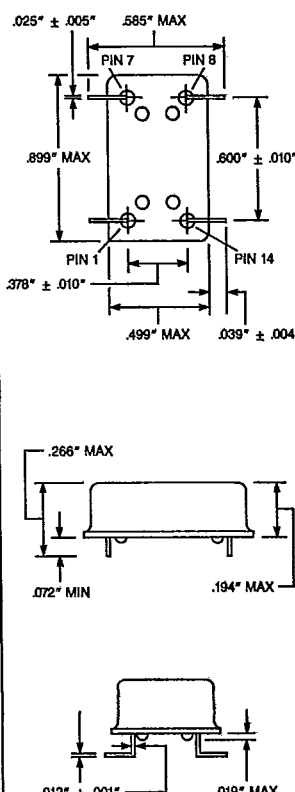
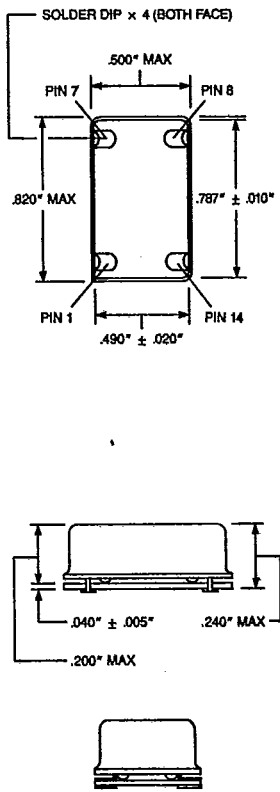
	Output			
	Standard	Enable/Disable*		Tri-State
Leaded Package	VF75 VFHS84 VFHS85	Logic 0	Logic 1	VF75-T
		VF75-C VFHS84-C	VF75-C1 VFHS84-C1	
Surface Mount	VF75SM VFHS84SM VFHS85SM	VF75SM-C VFHS84SM-C	VF75SM-C1 VFHS84SM-C1	VF75SM-T

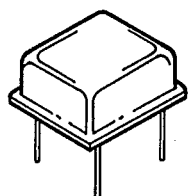
Pin Connection	
#1	NC
#4	GND
#5	OUT
#8	V _{cc}

*Both options use Pin 1 enable signal Logic 1, disable signal Logic 0.

OSCILLATORS

OSCILLATOR
HOLDERS AND ENCLOSURES

				
Package Description	14 pin DIP PTH, 14 pins loaded	14 pin DIP PTH, 4 pins loaded	14 pin DIP SMT, 4 leads, Gullwing	14 pin DIP SMT, 4 pads on substrate
Package Designation	Special, consult factory	Standard	G	L
Construction	Metal, Resistance Weld	Metal, Resistance Weld	Metal, Resistance Weld	Metal, Resistance Weld
Logic or Oscillator Series	VF150 (TTL) VF160 (ECL) VF170 (CMOS) VFHS170 (HCMOS) VF600 (VCXO)	VF150 (TTL) VF160 (ECL) VF170 (CMOS) VFHS170 (HCMOS) VF600 (VCXO)	VF150 (TTL) VF160 (ECL) VF170 (CMOS) VFHS170 (HCMOS) VF600 (VCXO)	VF150 (TTL) VF160 (ECL) VF170 (CMOS) VFHS170 (HCMOS)
Package Dimensions Type Available in this Package				

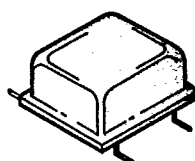


1/2 size DIP
PTH, 4 pins
loaded

84, 85

Metal,
Resistance
Weld

VF75 (TTL)
VF84 (CMOS)
VFHS85 (HCMOS)



1/2 size DIP
SMT, 4 leads
Gullwing

SM

Metal,
Resistance
Weld

VF75 (TTL)
VF84 (CMOS)
VFHS85 (HCMOS)

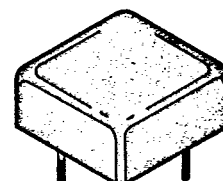


28 pin PLCC,
SMT, 4 "J" leads

PSM

Plastic,
Molded

VF500(TTL/CMOS)

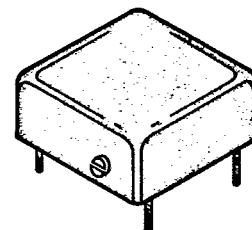


1.5" x 1.5"
stamped, PTH
4 pins

D

Metal,
Solder
Seal

VF500 (TCXO)
VF600 (VCXO)

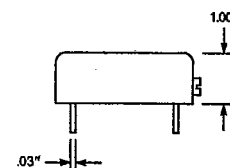
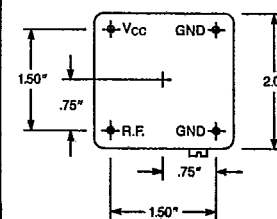
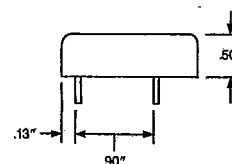
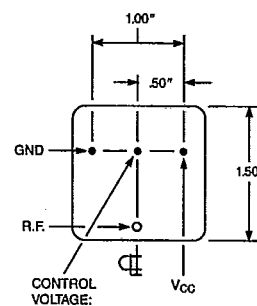
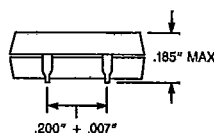
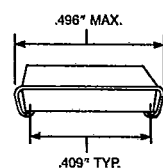
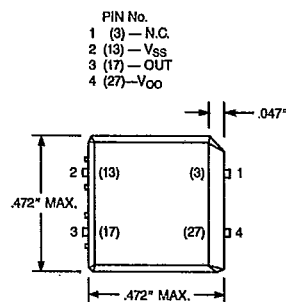
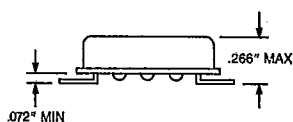
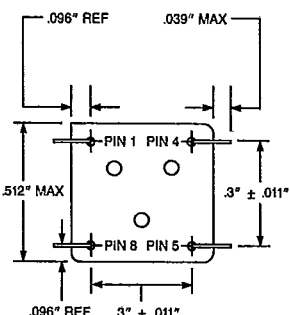
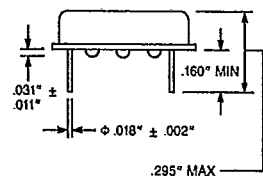
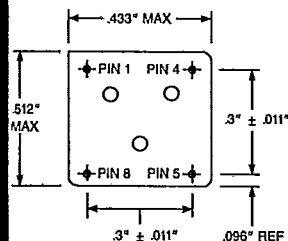


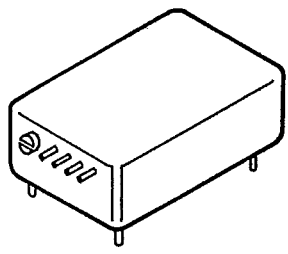
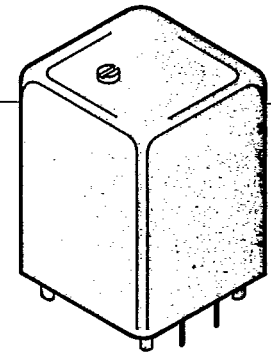
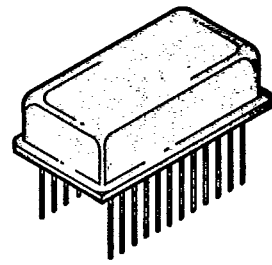
2.0" x 2.0"
stamped, PTH
4 pins

H

Metal,
Solder
Seal

VF500 (TCXO)
VF600 (VCXO)



		
2.0" x 3.0" stamped, PTH, 4 pins + SMT connector	2.0" x 2.0" x 3.0" ht, PTH, 4 studs, 2 pins, SMA connector	24 pin DIP, PTH, 4 to 24 pins loaded
M	R	U
Metal, Solder Seal	Metal, Solder Seal	Metal, Resistance Weld
VF500 (TCXO) VF600 (VCXO)	VF800 (OCXO)	VF500 (TCXO) VF600 (VCXO)

Valpey-Fisher Hybrid Oscillator Options

SERIES/ OPTION	Tighter Symmetry	Half Size	Plastic Package	Double and Triple Outputs	Enable/ Disable Function	Tristate Output
VF75 (TTL)	✓	✓			✓	✓
VF84 (HCMOS)	✓	✓			✓	✓
VF85 (HCMOS)	✓	✓			✓	✓
VF150 (TTL)	✓			✓	✓	✓
VF160 (ECL)					✓	
VF160R (ECL)					✓	
VF161 (ECL)					✓	
VF161R (ECL)					✓	
VF170 (CMOS)	✓					
VFHS170 (HCMOS)	✓			✓	✓	
VFHS170P (HCMOS)	✓		✓			

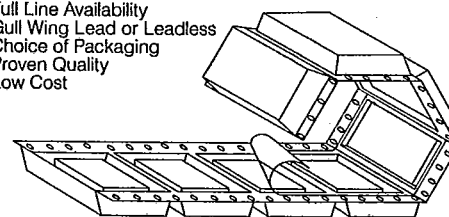
Valpey-Fisher Surface Mount Hybrid Clock Oscillators

Valpey-Fisher oscillators are available in surface mount packages, giving you the many benefits of surface mount technology while continuing Valpey-Fisher's tradition of quality, service and economy. Surface mount oscillators meet the needs of almost every circuit design, allowing reduction in printed circuit board layers and increase in component density. Further benefits can include reduced labor content and cost, increased system reliability, more easily automated assembly and testing, and increased circuit speed due to shorter circuit runs.

Surface mount oscillators from Valpey-Fisher are available in gull wing leaded or leadless design and are suitable for any surface mount soldering technique, including wave, vapor phase, and infrared reflow. Package options include pocket tape and reel and static-free tubes.

Features

- Full Line Availability
- Gull Wing Lead or Leadless
- Choice of Packaging
- Proven Quality
- Low Cost

POCKET TAPE
AND REEL

STATIC FREE TUBE

