

TTL/HCMOS COMPATIBLE HYBRID CRYSTAL CLOCK OSCILLATORS

VF140 Series TTL/HCMOS Compatible Hybrid Crystal Clock Oscillators

Valpey-Fisher's VF140 series designates a family of HCMOS oscillators that meet most of the performance specifications of TTL devices. TTL/HCMOS compatible oscillators are capable of achieving higher logic "1" levels of output than TTL only devices.

Specifications

Frequency Range	250 KHz to 100 MHz
Output:	HCMOS/TTL Compatible
Symmetry	60/40 to 40/60% standard. 45/55 symmetry available.
Rise & Fall Times	15 ns max. (250 KHz to 10 MHz) 10 ns max. (10.1 MHz to 25 MHz) 6 ns max. (25.1 MHz to 100 MHz)
"0" Level (max) "1" Level (min)	0.5 V min (HCMOS) 0.4 V min (TTL) 4.5 V min (HCMOS) 2.4 V (TTL)
Load	10 TTL gates
Input Voltage	5.0 VDC $\pm$ 10%
Input Current (max.)	10 mA to 60 mA without load (varies with frequency and load)
Storage Temperature	-55°C to +150°C
Package	See Oscillator Package Chart.
Electrical Connections	Pin #1 NC Pin #7 Case GND Pin #14 +5VDC Pin #8 Output

Type Numbers & Options

VF Type Number	Frequency Range	Stability (%)	Option	Operating Temperature Range (°C)		
				0 to +70 Standard	-40 to +85 Option 1	-55 to +125 Option 2
VF140	250 KHz to 100 MHz	0.005	B	VF140B	VF140B-1	VF140B-2
		0.01	Standard	VF140	VF140-1	VF140-2
		0.05	C	VF140C	VF140C-1	VF140C-2
		0.1	E	VF140E	VF140E-1	VF140E-2

VF70 Series Half Size TTL/HCMOS Compatible Hybrid Crystal Clock Oscillators

Valpey-Fisher's VF70 series designates a family of HCMOS oscillators that meet most of the performance specifications of TTL devices in smaller 8 pin DIP packages — approximately "half the size" of Valpey-Fisher's VF140 Series oscillators. TTL/HCMOS compatible oscillators are capable of achieving higher logic "1" levels of output than TTL only devices.

Type Numbers & Options

VF Type Number	Frequency Range	Stability (%)	Option	Operating Temperature Range (°C)		
				0 to +70 Standard	-40 to +85 Option 1	-55 to +125 Option 2
VF70	250 KHz to 100 MHz	0.005	B	VF70B	VF70B-1	VF70B-2
		0.01	Standard	VF70	VF70-1	VF70-2
		0.05	C	VF70C	VF70C-1	VF70C-2
		0.1	E	VF70E	VF70E-1	VF70E-2

VF70 Series (continued)

Specifications

Frequency Range	250 KHz to 100 MHz
Output:	HCMOS/TTL Compatible
Symmetry	60/40 to 40/60% standard. 45/55 symmetry available.
Rise & Fall Times	15 ns max. (250 KHz to 10 MHz) 10 ns max. (10.1 MHz to 25 MHz) 6 ns max. (25.1 MHz to 100 MHz)
"0" Levels (max) "1" Levels (min)	0.5 V min (HCMOS) 0.4 V min (TTL) 4.5 V min (HCMOS) 2.4 V (TTL)
Load	10 TTL gates
Input Voltage	5.0 VDC $\pm 10\%$
Input Current (max.)	10 mA to 60 mA without load (varies with frequency and load)
Storage Temperature	-55°C to +150°C
Package	See Oscillator Package Chart.
Electrical Connections	Pin #1 NC Pin #4 Case GND Pin #8 +5VDC Pin #5 Output

**VF240 Series Dual Output
TTL/HCMOS Compatible
Hybrid Crystal Clock Oscillators**

Valpey-Fisher's VF240 series designates a family of HCMOS oscillators with two outputs that meet most of the performance specifications of TTL devices. These dual output oscillators utilize two distinct crystals, thereby allowing the resulting outputs to be completely independent of each other.

Specifications

Frequency Range	4.0 MHz to 60.0 MHz
Output	HCMOS/TTL Compatible
Symmetry	60/40 to 40/60% standard. 45/55 symmetry available.
Rise & Fall Times	6 ns max. with 3 TTL load
"0" Level (max) "1" Level (min)	0.5 V min (HCMOS) 0.4 V min (TTL) 4.5 V min (HCMOS) 2.4 V (TTL)
Load	3 TTL gates
Input Voltage	5.0 VDC $\pm 10\%$
Input Current (max.)	10 mA to 60 mA without load (varies with frequency and load)
Operating Temperature	0°C to +70°C
Package	See Oscillator Package Chart.
Electrical Connections	Pin #1 NC* Pin #7 Case GND Pin #14 +5VDC Pin #8 Output*

*Separate return for each output

Type Numbers & Options

Type Number	Frequency Range	Stability (%)	Option
VF240B	4.0 MHz to 60.0 MHz	0.005	B
VF240		0.01	Standard
VF240C		0.05	C
VF240E		0.1	E

VF140-T Series Tri-State TTL/HCMOS Compatible Hybrid Crystal Clock Oscillators

Valpey-Fisher's VF140-T Tri-State series designates a family of HCMOS oscillators that meet most of the performance specifications of TTL devices. In addition these oscillators have the capability of being isolated from the circuit on application of a command signal. When this feature is activated, the output of the oscillator assumes a high impedance state.

Specifications

Frequency Range	500 KHz to 100 MHz
Output:	HCMOS/TTL Compatible
Symmetry	60/40 to 40/60% standard. 45/55 symmetry available.
Rise & Fall Times	15 ns max. (500 KHz to 10.0 MHz) 10 ns max. (10.1 MHz to 25.0 MHz) 6 ns max. (25.1 MHz to 100.0 MHz)
"0" Level (max) "1" Level (min)	0.5 V min (HCMOS) 0.4 V min (TTL) 4.5 V min (HCMOS) 2.4 V (TTL)
Load	10 TTL gates
Input Voltage	5 VDC $\pm$ 10%
Input Current (max.)	10 mA to 60 mA without load (varies with frequency and load)
Requirement for Enable/Disable Input at Pin #1	Enable State (Logic "1"): 0.6 V _{DD} minimum (V _{IH}), 10 μ A maximum (I _{IH}) Disable State (Logic "0"): 0.4 V _{DD} maximum (V _{IL}), 150 μ A maximum (I _{IL})
Output at Pin #8 corresponding to each Input State	Enable State: Normal Output Disable State: High Impedance Output
Operating Temperature	0°C to 70°C
Package	See Oscillator Package Chart.
Electrical Connections	Pin #1 Enable/Disable Input Pin #7 Case GND Pin #14 +5VDC Pin #8 Output

VF70-T Series Half-Size Tri-State TTL/HCMOS Compatible Hybrid Crystal Clock Oscillators

Valpey-Fisher's VF70-T Tri-State series designates a family of HCMOS oscillators that meet most of the performance specifications of TTL devices in smaller 8 pin DIP packages — approximately "half the size" of Valpey-Fisher's VF140-T series oscillators. In addition these oscillators have the capability of being isolated from the circuit on application of a command signal. When this feature is activated, the output of the oscillator assumes a high impedance state.

Type Numbers & Options

Type Number	Frequency Range	Stability (%)	Option
VF70B-T	500 KHz to 100 MHz	0.005	B
VF70-T		0.01	Standard
VF70C-T		0.05	C
VF70E-T		0.01	E

Specifications

Frequency Range	500 KHz to 100 MHz
Output:	HCMOS/TTL Compatible
Symmetry	60/40 to 40/60% standard. 45/55 symmetry available.
Rise & Fall Times	15 ns max (500 KHz to 10.0 MHz) 10 ns max (10.1 MHz to 25.0 MHz) 6 ns max (25.1 MHz to 100.0 MHz)
"0" Level (max) "1" Level (min)	0.5 V min (HCMOS) 0.4 V min (TTL) 4.5 V min (HCMOS) 2.4 V (TTL)
Load	10 TTL gates
Input Voltage	5 VDC $\pm$ 10%
Input Current (max.)	10 mA to 60 mA without load (varies with frequency and load)
Requirement for Enable/Disable Input at Pin #1	Enable State (Logic "1"): 0.6 V _{DD} minimum (V _{IH}), 10 μ A maximum (I _{IH}) Disable State (Logic "0"): 0.4 V _{DD} maximum (V _{IL}), 150 μ A maximum (I _{IL})
Output at Pin #8 corresponding to each Input State	Enable State: Normal Output Disable State: High Impedance Output
Operating Temperature	0°C to 70°C
Package	See Oscillator Package Chart.
Electrical Connections	Pin #1 Enable/Disable Input Pin #7 Case GND Pin #8 +5VDC Pin #5 Output