



VCXO

Has Extended its Frequency Range

Leadless Ceramic Carrier Minimizes Footprint of Voltage Controlled Oscillator

Hopkinton, MA ~ USA - In an effort to address constraint design engineers face, ValpeyFisher Corporation is please to announce improvements to its VF194/VF294 tri-state VCXO (voltage controlled crystal oscillator). This device not only astounds with its incredibly small size, but also with an extended frequency range from 1.5 to 160 MHz. The world's smallest VCXO, measuring just 5.09 mm x 7.62mm, offers designers the widest frequency in a package of this size.

With the ability to combine different aspects of oscillator design, ValpeyFisher is able to offer solutions to design engineers servicing many markets. The frequency range that this VCXO can now achieve well exceeds the 155.520MHz used in SONET applications. Although the VF194/VF294 is applicable in many electrical circuit devices, xDSL communications, SONET/SDH, digital video, HDTV, cellular base stations, ISDN, and wireless LANs particularly compliment this VCXO's size and frequency range.

This tri-state hybrid device, housed in a standard 6-pin leadless ceramic chip carrier, offers ± 25 ppm stability, with ± 100 ppm pullability. The selectable tri-state options are available on pin 2 or pin 5, which will help to accommodate design preferences.

This device is HCMOS/TTL compatible with an ECL output version under development. Both 5V and 3.3V devices are available. The VF194/VF294 operates over either commercial or industrial temperature ranges. An extremely simple design makes the miniature clock source cost effective for many applications.

The standard VF194/VF294 tri-state VCXO is priced at \$6.00 in 1,000 piece quantities.

Need more Information?

For more information, contact ValpeyFisher Corporation at 1-508-435-6831, or by fax at 1-508-435-5289. You can also visit our web site at www.valpeyfisher.com

Located outside of Boston, MA ValpeyFisher is a leading designer and manufacturer of a wide range of quartz crystals and oscillators for a variety of industries, including telecommunications, computers, instruments and aerospace. In addition to a complete set of standard products, the company offers custom designs to meet a wide range of requirements.

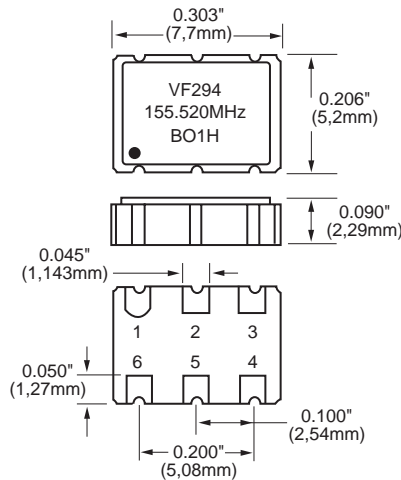
VF194/VF294 Series



HCMOS/TTL Hybrid VCXO Surface Mount Ceramic Package Tristate Output Standard

FEATURES

- Very Low Phase Jitter
- Industrial Temperature Range
- High Reliability
- Wide Frequency Range
- Miniature Package
- 3.3V supply available



All dimensions are typical unless otherwise specified.

Creating a Part Number
VF194/294 [] [] [] [] - [] - [] - **FREQ.**

FREQUENCY STABILITY	
Code	Specification
S	±20 ppm (std.)

ABSOLUTE PULL RANGE (ppm)	
Code	Specification
XXX	Specify Deviation MIN. (MAX. ±100 PPM)

OPERATIONAL TEMP. RANGE	
Code	Specification
1	0°C to +70°C (std.) -40°C to +85°C

DUTY CYCLE	
Code	Specification
H	±5%
	±10% (std.)

INPUT VOLTAGE	
Code	Specification
L	3.3 Volt ±5%
	5.0 Volt ±5% (std.)

Example: VF194-1-100-77.76MHz; Frequency Stability ±25ppm, Duty Cycle ±10%, Input Voltage 5.0 Volt ±5%, Operating Temperature -40°C to +85°C, Absolute Pull Range (ppm) ±100min. Output Tristate Control Pin #5, Frequency 77.76MHz.

Notes:

1. Current is frequency and load dependent.
2. Tighter duty cycle available.
3. ±100ppm available at some frequencies. ±32ppm for some frequencies at 3.3V is the only option.
4. 0-5V control voltage available for Vcc 3.3V. Nominal control voltage is 2.5V and setability is ±0.5V in this case.
5. For higher frequency Tr/Tf is shorter.

All specifications are subject to change without notice.

Parameter	Symb	Condition	Min	Typ	Max	Unit	Note	
Absolute Max. Ratings	Input Break Down Voltage	Vcc	-0.5		7.0	V		
	Storage Temp.	Ts	-55		+125	°C		
	Control Voltage	Vc	-1		9	V		
Electrical	Frequency Range	F	1.5		160	MHz		
	Frequency Stability	³ F/F	vs. Temp., Vcc			±25	ppm	
	Input Voltage	Vcc		4.75 3.15	5.00 3.30	5.25 3.45	V	Standard LV Opt.
	Input Current	Icc	No load			30	mA	1
	Load	10 TTL gates or 50pF						
	Duty Cycle		@ 1.4V	40	50	60	%	2
	Rise/Fall Time	Tr/Tf	20% to 80% 0.4V to 2.4V			6 4	ns	5
	Logic "1" Level	Voh	Max Load	0.9Vcc			V	
	Logic "0" Level	Vol	Max Load			0.1Vcc	V	
	Start-up Time	Ts			2	10	ms	
	Phase Jitter		1s, F<52 MHz 1s, F>52 MHz			1 20	ps	fj>1KHz
	Modulation BW	fm	@ Vc = 2.5V	10			KHz	@-3db
	Input Impedance		fm<10KHz	50			KOhm	
	Control Voltage	Vc	Vcc = 5.0V Vcc = 3.3V	0 0		5.0V 3.3V	V	4
	Absolute Pull Range	APR	Overall	±50			ppm	3
	Deviation Slope		Monotonic, positive		50		ppm/V	
	Linearity					±20	%	
	Setability (Vc for center freq)	Vc0	@25°C, Fnominal	2.00 1.25	2.50 1.65	3.00 2.05	V	Vcc = 5.0V Vcc = 3.3V
Tristate Function		Input HIGH (>2.5V) or floating: Input LOW (<0.5V):				ACTIVE INFINITE IMPEDANCE		
Enable/Disable Time					100	ns		
Environmental and Mechanical	Operating Temperature Range	0°C to +70°C (-40°C to +85°C available)						
	Mechanical Shock	Per MIL-STD-202, Method 213, Cond. E						
	Thermal Shock	Per MIL-STD-883, Method 1011, Cond. A						
	Vibration	Per MIL-STD-883, Method 2007, Cond. A						
	Soldering Conditions	230°C, for 90s, Max.						
Electrical Connections	Hermetic Seal	Leak rate less than 5 x 10 ⁻⁸ atm.cc/s of helium						
	Pin Out	Pin #1-Voltage Control Pin #3-Ground, Case Pin #5-Tristate (194), N/C (294)		Pin #2-N/C (194) Tristate (294) Pin #4-Output Pin #6-Vcc				