VF940
VCXO, 3.3V or 5.0V
12.62 x 20.32 mm, HCMOS/TTL

CTS ELECTRONIC COMPONENTS

Features

- Wide pull range – up to ±1,000ppm for some frequencies
- Fundamental crystal design
- Hermetically sealed package

RoHS Status

RoHS 5/6

Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Frequency Range	F		1.54		200	MHz	
Frequency Stability	ΔF/F	Vs. Operating Temperature, V_{CC}			±25	ppm	
Operating Temperature	T		-40		+85	°C	
Supply Voltage	V_{CC}		4.75 3.15	5.0 3.3	5.25 3.45	V	
Supply Current	I_{CC}	No load		20		mA	@ 20MHz
Load		10 TTL gates or 50 pF max., AC coupled 50 Ohms termination recommended for F > 54MHz					
Duty Cycle		@ 1.4V	40	50	60	%	*Note 1*
Rise & Fall Times	T_R/T_F	20% to 80%			6 3	ns	F < 54MHz F > 54MHz
Output Levels	V_{OH}	Max load	0.9 V_{CC}				
	V_{OH}	Max load			0.1 V_{CC}		
Start-up Time	T_S			2	10	ms	
Phase Jitter		1σ			1	ps	fj > 1kHz

Note 1: ±5% symmetry available, contact factory for tighter requirements.

Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Modulation Bandwidth	fm	@ V_C = 2.5V	10			kHz	@ -3dB
Input Impedance		fm < 10kHz	50			kOhm	
Absolute Pull Range	APR	Overall	±50			ppm	*Note 2*
Deviation Slope		Monotonic, positive		±50 ±75		ppm/V	5.0V 3.3V
Linearity					±20	%	*Note 3*
Setability (V_C for center frequency)	V_C0	@ 25°C, F_{NOM}	2.00 1.25	2.50 1.65	3.00 2.05	V	*Note 4* LV Option

Note 2: Up to ±1,000 ppm pull range available at some frequencies.
Note 3: ±10% and ±5% linearity available.
Note 4: 0 to 5V control voltage available for V_{CC} 3.3V. Nominal control voltage is 2.5V and setability is ±0.5V in this case.

Absolute Maximum Ratings

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Input Break Down Voltage	V_{CC}		-0.5		+7.0	V	
Storage Temperature	T_S		-40		+85	°C	
Control Voltage	V_C		-1		+9	V	

Environmental and Mechanical Conditions

Parameter	Condition
Mechanical Shock	MIL STD 202, Method 213, Condition E
Thermal Shock	MIL STD 883, Method 1011, Condition A
Vibration	MIL STD 883, Method 2007, Condition A
Soldering Conditions	260°C, for 10s max
Hermetic Seal	Leak rate less than $5x10^{-8}$ atm.cc/s of helium
Marking	Epoxy ink or laser engraved

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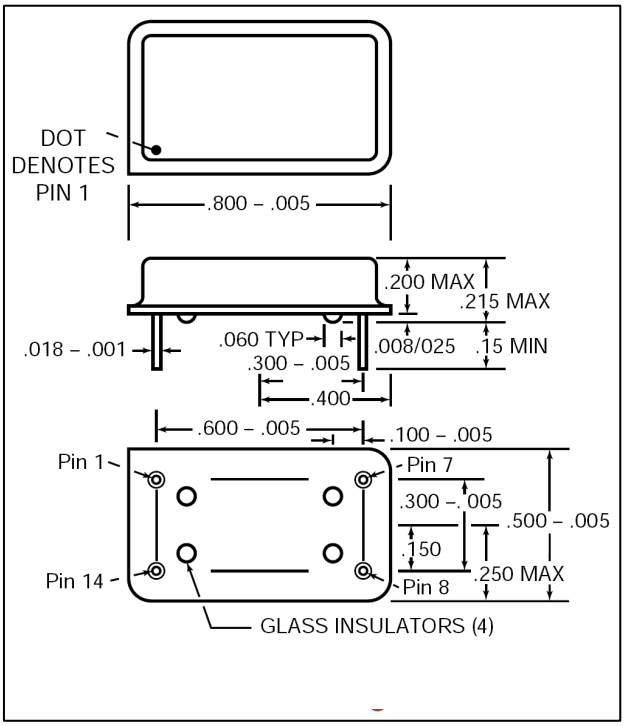
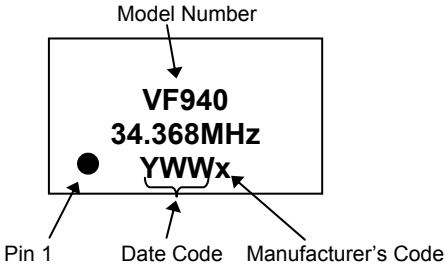
Pin Assignments

Pin #	Connection
1	$V_{CONTROL}$
7	Ground, Case
8	Output
14	V_{CC}

Package



Marking Specification



How to Order

VF940 □□□ – □□ – □ – FREQUENCY, MHz

Stability

Code	Specification*
S	±20 ppm
	±25 ppm

*Old code A is ±25 ppm.
See new code above.

Duty Cycle

Code	Specification
H	±5%
	±10% (std.)

Supply Voltage

Code	Specification
L	3.3V
	5.0V (std.)

Operating Temperature Range

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

Lead Configuration

Code	Specification
G	Gull Wing
	Through Hole (std.)

Absolute Pull Range

Code	Specification
	±50 ppm min. (std.)
XXXX	Up to ±1,000 ppm max.