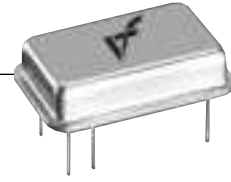


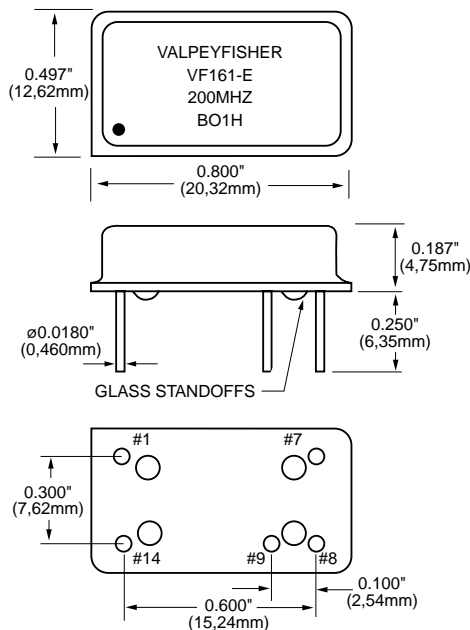
# VF160-E/VF161-E

## 10KH ECL/PECL Compatible Enable/Disable Clock Oscillator



### FEATURES

- Enable/Disable Output
- Industrial Temperature Range
- In-house "Inverted Mesa" Crystal Technology for Higher Frequencies
- Wide Frequency Range
- Very Low Phase Jitter



All dimensions are typical unless otherwise specified.

Creating a Part Number  
**VF160/161** [ ] [ ] [ ] - [ ] - **E** - **FREQ.**

FREQUENCY STABILITY		LEAD CONFIGURATION	
Code	Specification	Code	Specification
S	±20 ppm	G	Gull Wing
A	±25 ppm		Through Hole (std.)
B	±50 ppm		
	±100 ppm (std.)		

DUTY CYCLE		OUTPUT	
Code	Specification	Code	Specification
HH	±2.5%	C	Complementary
	±5%		Single output (std.)

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

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

Example: VF161SHHL-1CE-200MHz: Frequency Stability ±20ppm, Duty Cycle ±2.5%, Input Voltage 3.3 Volt ±5%, Operating Temperature -40°C to +85°C, Complementary Output, Enable/Disable, Frequency 200.000MHz.

	Absolute Max. Ratings							
	Parameter	Symb	Condition	Min	Typ	Max	Unit Note	
Electrical	Input Break Down Voltage	V <sub>cc-Vee</sub>		-0.5		7.0	V	
	Storage Temp.	T <sub>s</sub>		-40		+85	°C	
	Frequency Range	F		10		300	MHz	
	Frequency Stability	ΔF/F	Overall Conditions Including: Calibration, temp., aging 10 yrs. shock, vibration			±100	ppm 1	
	Input Voltage	V <sub>cc</sub> V <sub>cc</sub> V <sub>ee</sub>	PECL IVPECL ECL	4.75 3.15 -4.95	5.00 3.30 -5.20	5.25 3.45 -5.45	V	VF161E VF161LE VF160E
	Input Current	I <sub>cc</sub> /I <sub>ee</sub>	50 Ohm Load			80	mA	
	Load	50 Ohm to V <sub>cc</sub> -2V or Thevenin Equiv. Bias required						
	Duty Cycle		@50%	45	50	55	%	2
	Rise/ Fall Time	T <sub>r</sub> /T <sub>f</sub>	20% to 80%			1.5	ns	
	Logic "1" Level	V <sub>oh</sub>	@V <sub>cc</sub> = 5.0V @V <sub>ee</sub> = -5.2V @V <sub>cc</sub> = 3.3V	4.04 -0.96 2.59		4.19 -0.81 2.74	V	PECL ECL IVPECL
Logic "0" Level	V <sub>ol</sub>	@V <sub>cc</sub> = 5.0V @V <sub>ee</sub> = -5.2V @V <sub>cc</sub> = 3.3V	3.15 -1.85 1.45		3.25 -1.65 1.55	V	PECL ECL IVPECL	
Start-up Time	T <sub>s</sub>			2	10	ms		
Phase Jitter		1σ			1	ps	f <sub>o</sub> > 1KHz	
Enable/Disable Function	Control input "Vee" or floating Control input "High"				- Enable - Disable Low			
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	260°C, for 10s, Max.						
	Hermetic Seal	Leak rate less than 5 x 10 <sup>-8</sup> atm.cc/ s of helium						
Electrical Connections	Pin Out	Pin #1-Enable/ Disable Control Pin #7-Ground, Case (PECL)/ Vee (ECL) Pin #8-O utput Pin #9-Optional - Complementary output Pin #14-Vcc (PECL)/ Ground, Case (ECL)						

#### Notes:

1. Standard frequency stability (±20, ±25, ±50, others available).
2. Tighter duty cycles available. Measure @ 50% of the voltage swing.
3. Pin #9 omitted if complementary output is not specified.

All specifications are subject to change without notice.