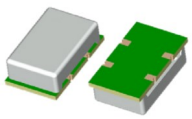
PLETRONICS VC22H Series
CMOS VCXO



VC22
13.9 x 9.1 x 3.6 mm
FR4 Base

Features

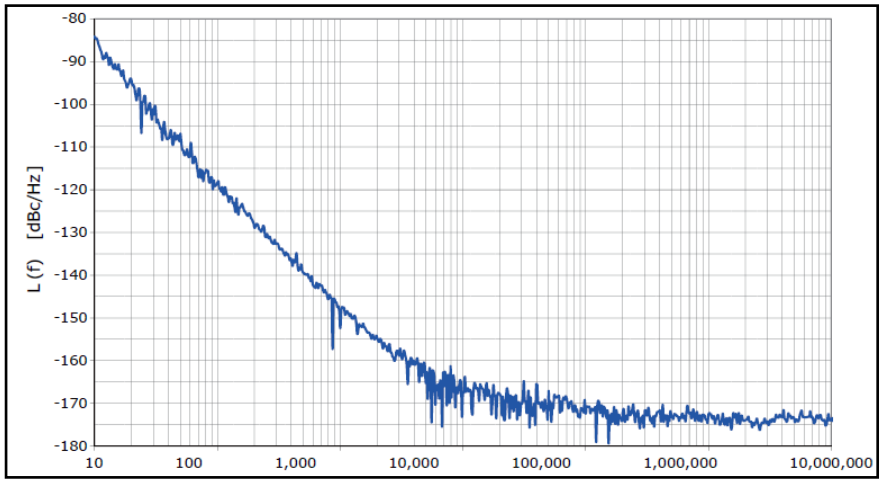
- Voltage Controlled Quartz crystal oscillator
- CMOS Output
- Vcontrol on pin 1
- Low Jitter
- 3.3V nominal Supply Voltage
- Low G sensitivity

Applications

Driving A/Ds, D/As, FPGAs
Digital Video
Ethernet, GbE
Medical
Storage Area Networking
COTS
Broad Band Access
SONET/ SDH/ DWDM
Base Stations/ Picocell
Test & Measurement

Electrical Characteristics

Parameter	Min	Typ	Max	Unit	Condition
Frequency Range	50	-	125	MHz	
Frequency Stability vs. Temperature	-	-	±25	ppm	Includes tolerance at 25°C, frequency vs temperature, supply voltage change, load change, aging for 10 years.
Operating Temperature Range	-20 -40	-	+70 +85	°C	
Supply Voltage V_{CC}	-	3.3	-	V	3.3V ± 5%
Supply Current I_{CC}	-	-	30	mA	Output load =15 pF
Output Waveform		CMOS			
Duty Cycle	45	-	55	%	See Load Circuit
Output V_{HIGH}	0.9Vcc	-	-	V	
Output V_{LOW}	-	-	0.1Vcc	V	
Output T_{RISE} and T_{FALL}	-	-	3	ns	C_{LOAD} = 15 pF, 20% to 80% of V_{CC}, See Load Circuit
Startup Time	-	-	10	ms	Time for output to reach specified frequency
Vcontrol Input Impedance	100	-	-	kΩ	
Modulation Bandwidth	1	-	-	kHz	(-3dB cut-off frequency)
Vcontrol Range	0	1.65	3.3	V	
Pullability	± 25	-	-	ppm	
Linearity	-	-	10	%	Slope Positive
G-Sensitivity	-	1.5	-	ppb/g	(worst axis)
Phase Noise 10 Hz 100 Hz 1 kHz 10 kHz 100 kHz 1 MHz	-	-85 -118 -147 -165 -172 -173	-	dBc/Hz	25°C ± 2°C at 100 MHz
Storage Temperature Range	-45	-	+90	°C	



Typical Phase Noise 100MHz

Device Marking

PLE VC22H
***FF.FFF*M**
- ***YMDxx***

PLE = Pletronics
VC22H = Part Series
FF.FFF = Frequency in MHz
YMD = Date Code (see table below)
All other markings are internal codes

Note: Specifications such as frequency stability, supply voltage and operating temperature range, etc. are not identified from marking.
External packaging labels and packing list will correctly identify the ordered Pletronics part number.

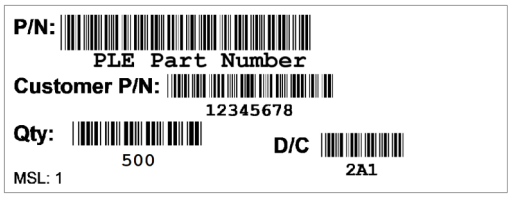
Codes for Date Code YMD (Year Month Day)

Code	3	4	5	6	7	Code	A	B	C	D	E	F	G	H	J	K	L	M
Year	2023	2024	2025	2026	2027	Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

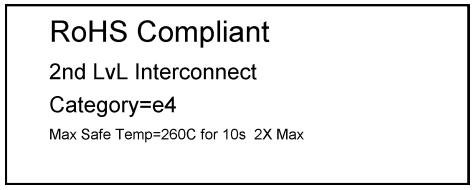
Code	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Code	H	J	K	L	M	N	P	R	T	U	V	W	X	Y	Z	
Day	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	

Package Labeling

P/N Label is 1" x 2.6" (25.4mm x 66.7mm)
Font is Courier New
Bar code is 39-Full ASCII



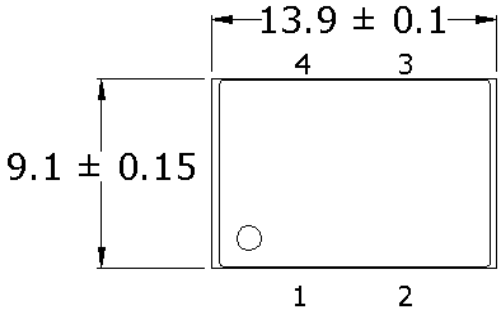
RoHs Label is 1" x 2.6" (25.4mm x 66.7mm)
Font is Arial



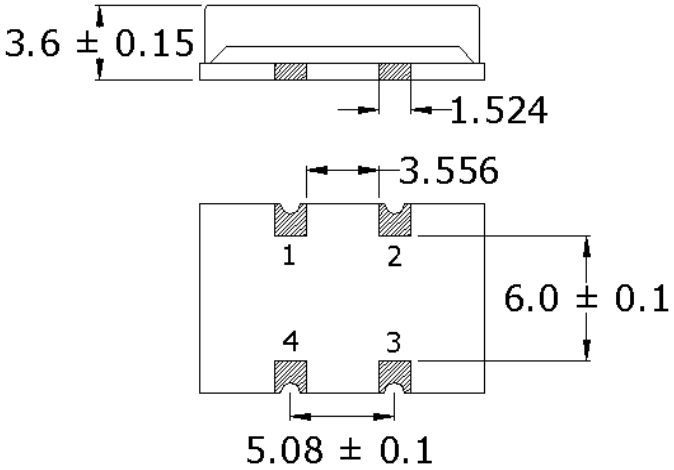
Pletronics Inc. certifies this device is in accordance with the RoHS and REACH directives.

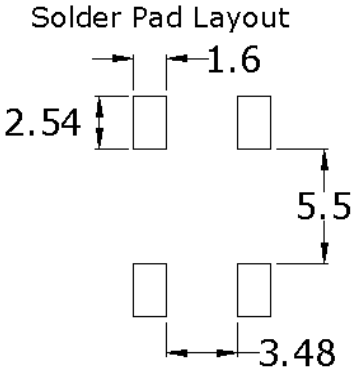
Pletronics Inc. guarantees the device does not contain the following: Cadmium, Hexavalent Chromium, Lead, Mercury, PBB's, PBDE's
Weight of the Device: 1.34 grams
Moisture Sensitivity Level: 1 As defined in J-STD-020D
Second Level Interconnect code: e4

Mechanical Dimensions



Pad	Function
1	Vcontrol
2	Ground
3	Output
4	Vcc





Dimensions in mm

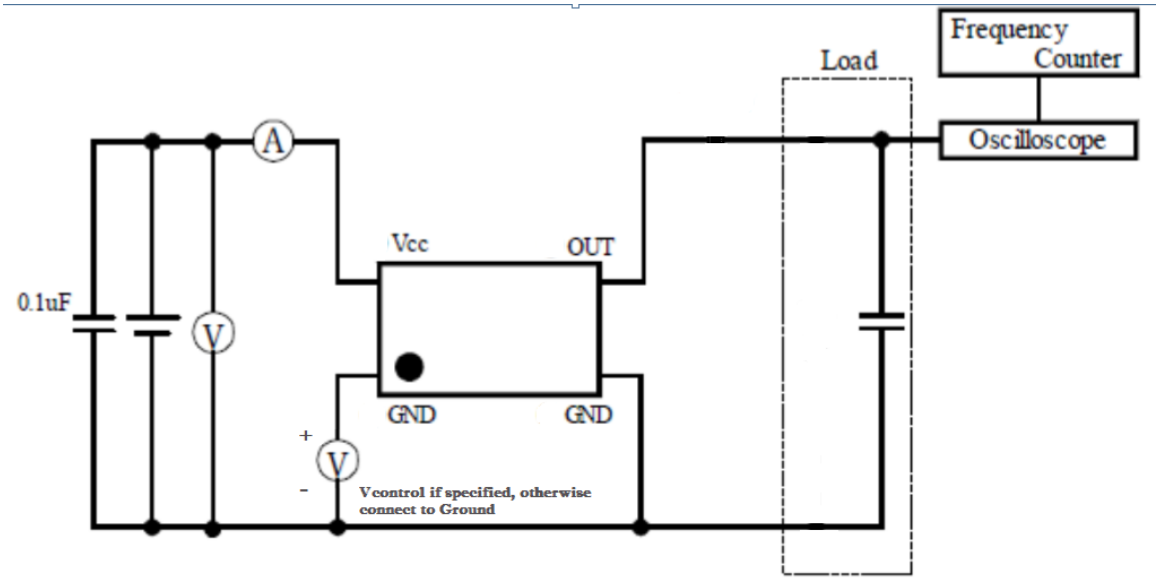
Pad Layout
Disclaimer: Recommended layout shown. Adjust layout as needed for individual process requirements.

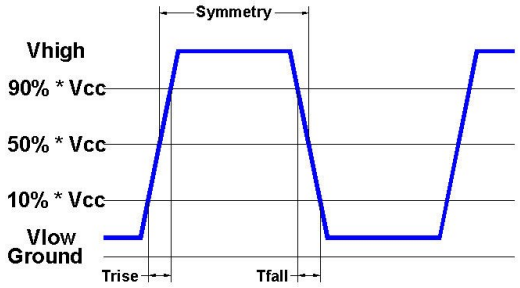
Terminations: ENIG Gold 0.05~0.12µm over Nickel 2~4µm

For Optimum Jitter Performance, Pletronics recommends:

- A ground plane under the device
- Do not route large transient signals (both current and voltage) under the device
- Do not place near a large magnetic field such as a high frequency switching power supply
- Do not place near piezoelectric buzzers or mechanical fans

Electrical Test / Load Circuit





Environmental

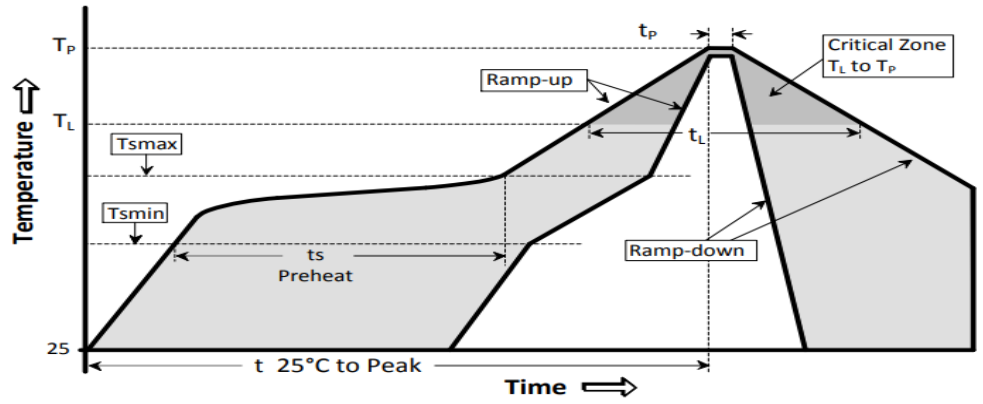
Reliability: Environmental

Parameter	Reference Standard	Condition
Mechanical Shock	DIN EN 60068-2-27	Test Ea
Vibration	DIN EN 60068-2-6	Test Fc 10~55Hz; 0.75mm Peak 55~2000Hz; 10g Peak 10 Cyc.; 3 axis; 1Oct./min
Thermal Shock	DIN EN 60068-2-14	Test Na 30 min @ each temperature, 10 cycles Transfer <1min,-40°C ± 3°C; 85°C ± 3°C

Thermal Characteristics:
The maximum die or junction temperature is 125°C

Reflow Cycle

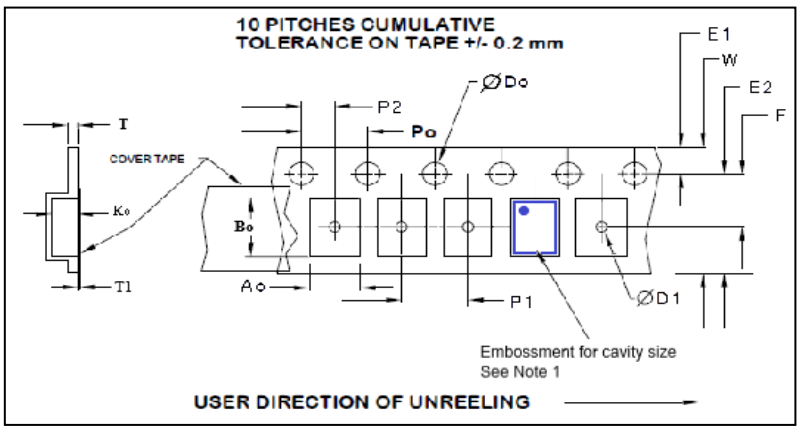
Maximum Reflow Conditions in accordance with IPC/JEDEC J-STD-020C "Pb-free"

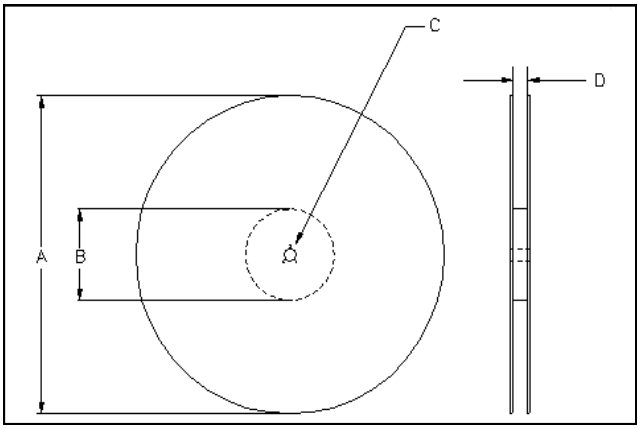


Temperature Profile	Symbol	Condition	Unit
Average ramp-up rate	(Ts_{max} to T_P)	3°C / second max	°C / s
Ramp down Rate	T_{cool}	6°C / second max	°C / s
Time 25°C to Peak Temperature	$T_{to\text{-}peak}$	8 minutes max	min
Preheat			
Temperature min	Ts_{min}	150	°C
Temperature max	Ts_{max}	200	°C
Time Ts_{min} to Ts_{max}	ts	60 – 180	sec
Soldering above liquidus			
Temperature liquidus	T_L	217	°C
Time above liquidus	t_L	60 – 150	sec
Peak temperature			
Peak Temperature	Tp	260	°C
Time within 5°C of peak temperature	tp	20 – 40	sec

Tape and Reel

Tape and Reel available for quantities of 250 to 500 per reel, cut tape for < 250. 24mm tape, 12mm pitch.





Tape Variable Dimensions Table 2							
Tape Size	E2 typ	F	P1	W max	Ao	Bo	Ko
24mm	22.25	11.5 ± 0.1	12.0 ± 0.1	24.3	9.45 ± 0.2	14.3 ± 0.2	5.3 ± 0.2

Dimensions in mm Drawing Not to scale

Note 1: Embossed cavity to conform to EIA– 481-B

Tape Constant Dimensions Table 1							
Tape Size	Do	D1	E1	Po	P2	T max	T1 max
24mm	1.5 ± 0.1	1.5 ± 0.1	1.75 ± 0.1	4.0 ± 0.1	2.0 ± 0.1	0.4	0.1

Reel Dimensions (may vary) Table 3						
	A		B		C	D
Reel Size	Inches	mm	Inches	mm	mm	mm
13	13.0	330	4	100	13.0 ± 0.5	Tape size +0.4 +2.0 -0.0

Important Notice

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