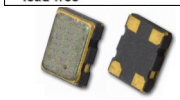
PLETRONICS UCF4004-50.0M TCVCXO



UCF4
2.0 x 2.5 x 0.7 mm
LCC Ceramic Package

Features

- Pletronics' UCF4004-50.0M Temperature Compensated Crystal Oscillator
- Clipped Sine Wave Output
- Voltage Control Function
- 3.0-3.3V nominal Supply Voltage
- 50.0 MHz Frequency

Applications

GPS
WiMAX, Wi-Fi, Wi-LAN
Handsets
Broadband Access
Point to point radios
Seismic Exploration
Wireless Communications
Base Stations
Test Equipment

Electrical Characteristics

Parameter	Min	Typ	Max	Unit	Condition
Frequency Range	-	50.0	-	MHz	
Frequency Stability vs. Temperature -30 to +85°C	-0.5	-	+0.5	ppm	$(f_{max} - f_{min}) / 2$
Frequency Stability vs. Temperature -40 to -30°C	-1.5	-	+1.5	ppm	$(f_{max} - f_{min}) / 2$
Frequency Initial Calibration	-	-	±2.0	ppm	Vcontrol 1.50 volts at 25°C ± 2°C
Operating Temperature Range	-40	-	+85	°C	
Supply Voltage [1] V_{CC}	3.0	-	3.3	V	± 5%
Supply Current I_{CC}	-	2.0	3.0	mA	Load: 10 Kohm || 10 pF, V_{CC} ± 5%
Frequency Stability vs. Supply	-	-	±0.2	ppm	Load: 10 Kohm || 10 pF, V_{CC} ± 5%
Frequency Stability vs. Load	-	-	±0.2	ppm	Load: 10 Kohm || 10 pF ± 5%
Vcontrol Range	0.50	1.50	2.50	V	1.50 volts nominal
Frequency Pullability	-	±8.0	-	ppm	Positive Slope
Output Waveform	Clipped Sine Wave				DC Coupled
Output Level	0.8	-	-	V p-p	Load: 10 Kohm || 10 pF ± 10%
Startup Time	-	-	2.0	ms	Within ± 2.0 ppm of final frequency
Long Term Stability (Aging)	-	-	±1.0	ppm	Per year at 25°C ± 2°C
Phase Noise 100 Hz 1 kHz 10 kHz	-	-115 -135 -148	-	dBc/Hz	25°C ± 2°C
Storage Temperature Range	-55	-	+85	°C	

Notes:
[1] Place an appropriate power supply bypass capacitor next to device for correct operation

Device Marking

Pff.f
• *YMxxx*

P = Pletronics
ff.f = Frequency in MHz
YM = Date Code (Year Month) See below for YM codes
x = 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.

Code	0	1	2	3	4	Code	1	2	3	4	5	6	7	8	9	O	N	D
Year	2020	2021	2022	2023	2024	**Month**	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

Package Labeling

Tape and Reel available for quantities of 250 to 1000 per reel, cut tape for < 250. 8mm tape, 4mm pitch.

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

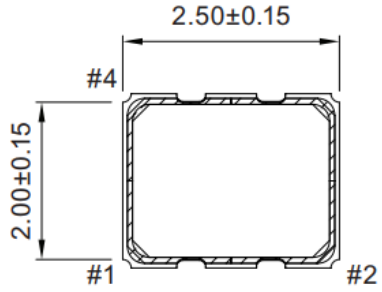
RoHS Compliant
2nd LvL Interconnect
Category=e4
Max Safe Temp=260C for 10s 2X Max

Pletronics Inc. certifies this device is in accordance with the RoHS 3 and WEEE 2 directives.

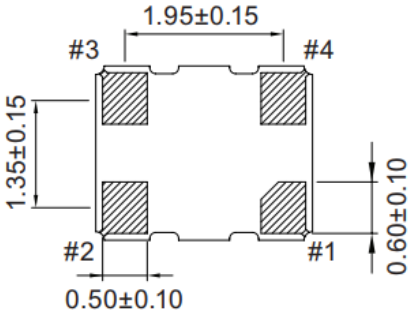
Pletronics Inc. guarantees the device does not contain the following: Cadmium, Hexavalent Chromium, Lead, Mercury, PBB's, PBDE's
Weight of the Device: 0.02 grams
Moisture Sensitivity Level: 1 As defined in J-STD-020D
Second Level Interconnect code: e4

Mechanical Dimensions (mm)

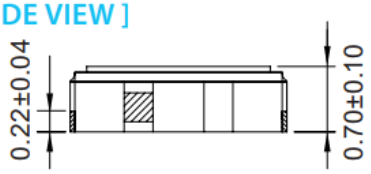
[TOP VIEW]



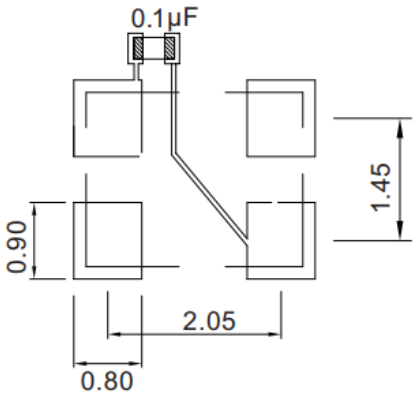
[BOTTOM VIEW]



[SIDE VIEW]



Pin#	Function
1	VCON:VC-TCXO GND / NC: TCXO
2	GND
3	Output
4	VDD

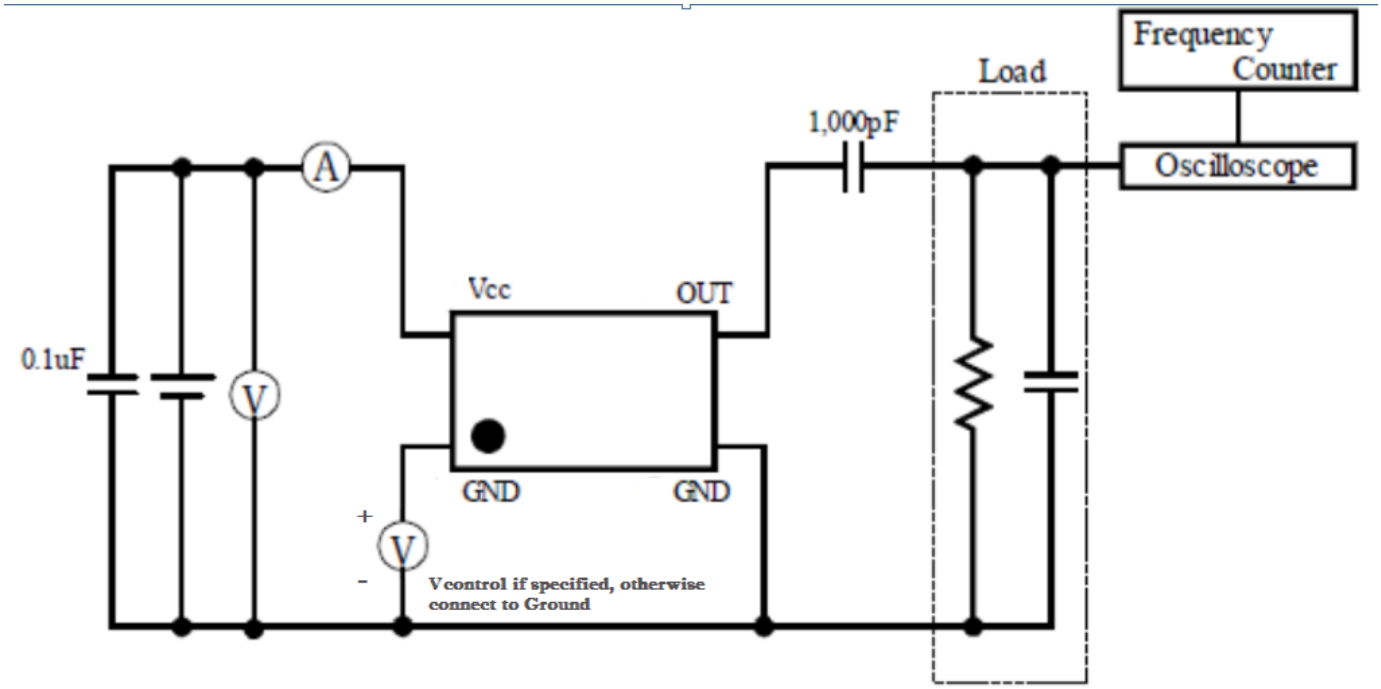


To ensure optimal oscillator performance, place a by-pass capacitor of 0.1µF as close to the part as possible between Vdd and GND pads.

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 / ESD Ratings

Reliability: Environmental Compliance

Parameter	Condition
Mechanical Shock	JESD22-B104
Vibration	JESD22-B103
Solderability	IPC J-STD-002
Thermal Shock	MIL-STD-883 Method 1011, Condition A

ESD Rating

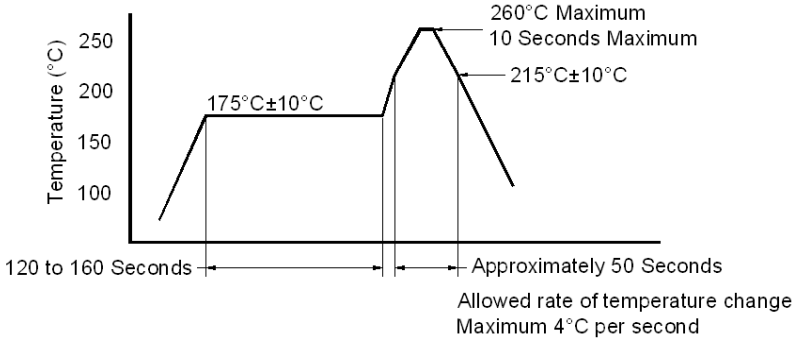
Model	Min. Voltage	Condition
Human Body Model	2000V	JESD22-A114
Charged Device Model	500V	JESD 22-C101
Machine Model	200V	JESD22-A115

Thermal Characteristics:
The maximum die or junction temperature is 155°C
The thermal resistance junction to board is 30 to 50°C/Watt depending on the solder pads, ground plane and construction of the PCB.

Absolute Maximum Ratings

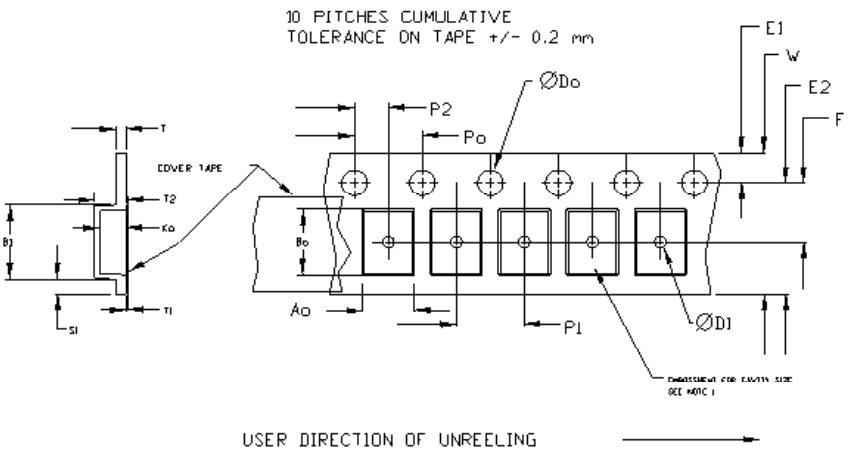
Parameter	Unit
V_{CC} Supply Voltage	-0.6V to +4.6V
Vi Input Voltage	-0.6V to V_{CC} + 0.6V
Io Output Current	-10mA to +10mA

Reflow Cycle



The part may be reflowed 2 times without degradation (typical for lead free processing).

Tape and Reel

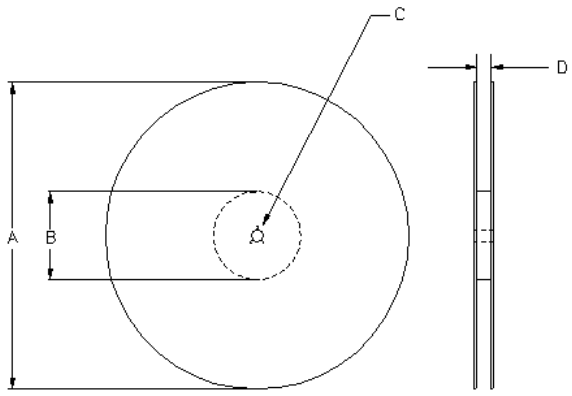


Tape Constant Dimensions Table 1								
Tape Size	Do	D1 min	E1	Po	P2	S1 min	T max	T1 max
8mm	1.5 +0.1 -0.0	1.0	1.75 ±0.1	4.0 ±0.1	2.0 ±0.05	0.6	0.6	0.1
12mm		1.5						
16mm		1.5			2.0 ±0.1			
24mm		1.5						

Tape Variable Dimensions Table 2							
Tape Size	B1 max	E2 min	F	P1	T2 max	W max	Ao, Bo & Ko
8mm	4.2	6.25	3.5 ±0.05	4.0 ±0.1	2.0	8.3	Note 1

Dimensions in mm Drawing Not to scale

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



Reel Dimensions (may vary) Table 3						
	A		B		C	D
Reel Size	Inches	mm	Inches	mm	mm	mm
7	7.0	177.8	2.50	63.5	13.0 +0.5 -0.2	Tape size +0.4 +2.0 -0.0
10	10.0	254.0	4.00	101.6		
13	13.0	330.2	3.75	95.3		

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