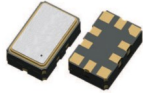




# PLETRONICS OeDA011-20.0M OeXO® Oscillator



OeDA  
5.0 x 3.2 x 1.85 mm  
LCC Ceramic Package

## Features

- Pletronics' OeXO® Series Ovenized equivalent Temperature Compensated Crystal Oscillator
- Low Power / Fast Warm Up
- CMOS Output
- 3.3V nominal Supply Voltage
- 20.0 MHz nominal frequency

## Applications

SONET / SDH / DWDM  
Test & Measurement  
Telecom Transmission & Switching Equipment  
Base Stations / Picocell  
Wireless Communication Equipment

## Electrical Characteristics

Parameter	Min	Typ	Max	Unit	Condition
Frequency Range	-	20	-	MHz	
Frequency Stability vs. Temperature	-	-	±0.28	ppm	Over -40°C to +85°C at fixed V <sub>CC</sub> + load (reference to (F <sub>max</sub> +F <sub>min</sub> )/2)
Frequency Tolerance	-	-	±1.0	ppm	at 25°C
Operating Temperature Range	-40	-	+85	°C	
Supply Voltage <sup>1</sup> V <sub>CC</sub>	3.135	3.3	3.465	Volts	
Supply Current I <sub>CC</sub>	-	-	6.0	mA	Load: 15 pF, V <sub>CC</sub> ± 5%
Output Waveform	CMOS				
Duty Cycle	45	50	55	%	Load: 15 pF ± 5%
Output V <sub>HIGH</sub>	90	-	-	%V <sub>CC</sub>	V <sub>th</sub> : T <sub>R</sub> and T <sub>F</sub> 10% and 90% of V <sub>CC</sub> V <sub>th</sub> : D.C. 50% of V <sub>CC</sub>
Output V <sub>LOW</sub>	-	-	10	%V <sub>CC</sub>	
Output T <sub>RISE</sub> and T <sub>FALL</sub>	-	-	6.5	nS	
Start-up Time	-	-	5.0	mS	
Phase Noise	100 Hz 1 kHz 10 kHz	-130 -145 -154	-	dBc/Hz	25°C ± 2°C
Storage Temperature Range	-55	-	+125	°C	

Note: <sup>1</sup> Place a 10nF power supply bypass capacitor next to device for correct operation  
<sup>2</sup> Connect 0.033µF capacitor on pin 7 to ground, required to meet phase noise performance



## Device Marking

2000 YMD  • P zzz	2000 = 20.0MHz Frequency YMD = Date Code (year, month, day) z = Internal factory codes P = Pletronics
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Specifications such as part number, 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.

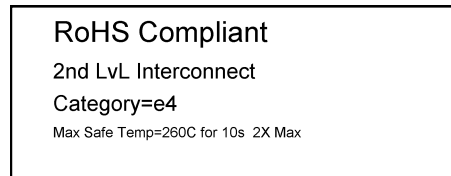
Codes for Date Code YMD (Year Month Day)

Code	2	3	4	5	6	Code	A	B	C	D	E	F	G	H	J	K	L	M													
Year	2022	2023	2024	2025	2026	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	H	J	K	L	M	N	P	R	T	U	V	W	X	Y	Z
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	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

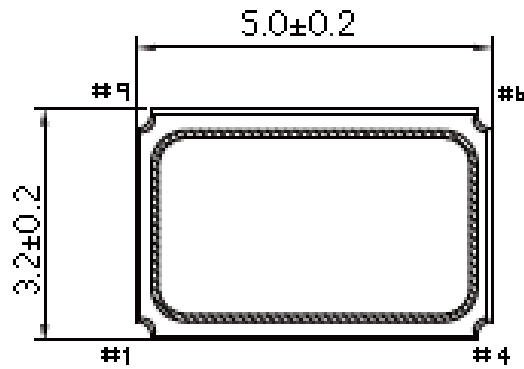
Weight of the Device: 0.10 grams

Moisture Sensitivity Level: 1 As defined in J-STD-020D

Second Level Interconnect code: e4

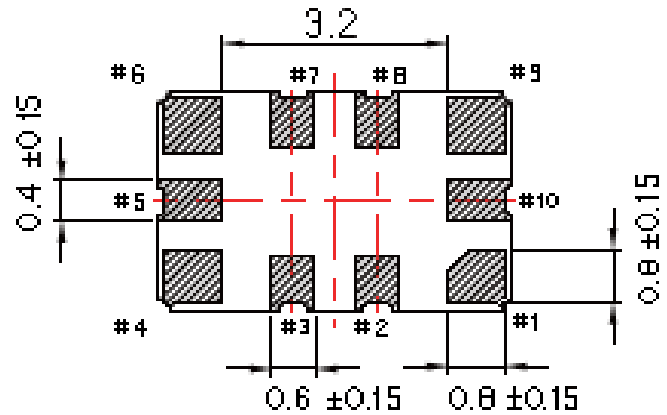
## Mechanical Dimensions (mm)

[ TOP VIEW ]

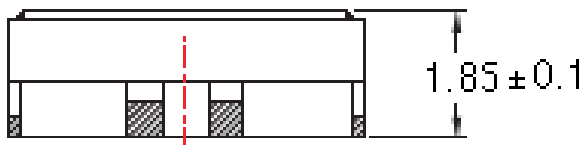


Pin 1 Mark

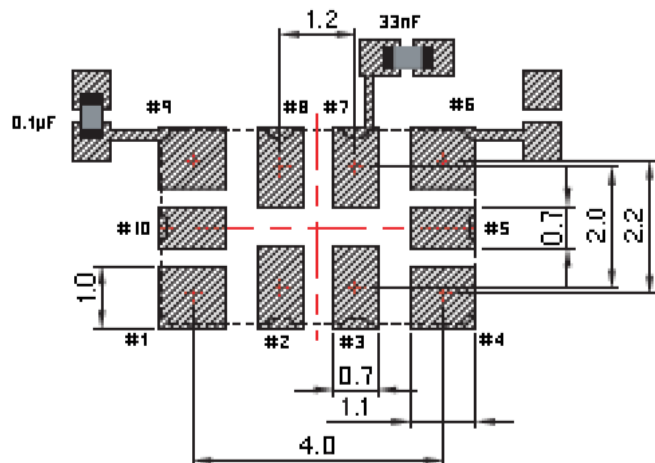
[ BOTTOM VIEW ]



[ SIDE VIEW ]



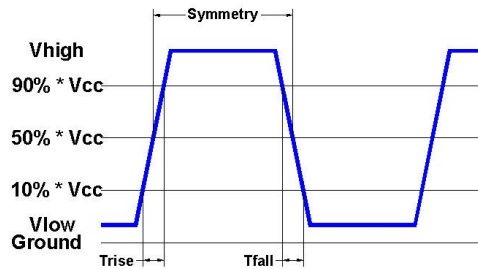
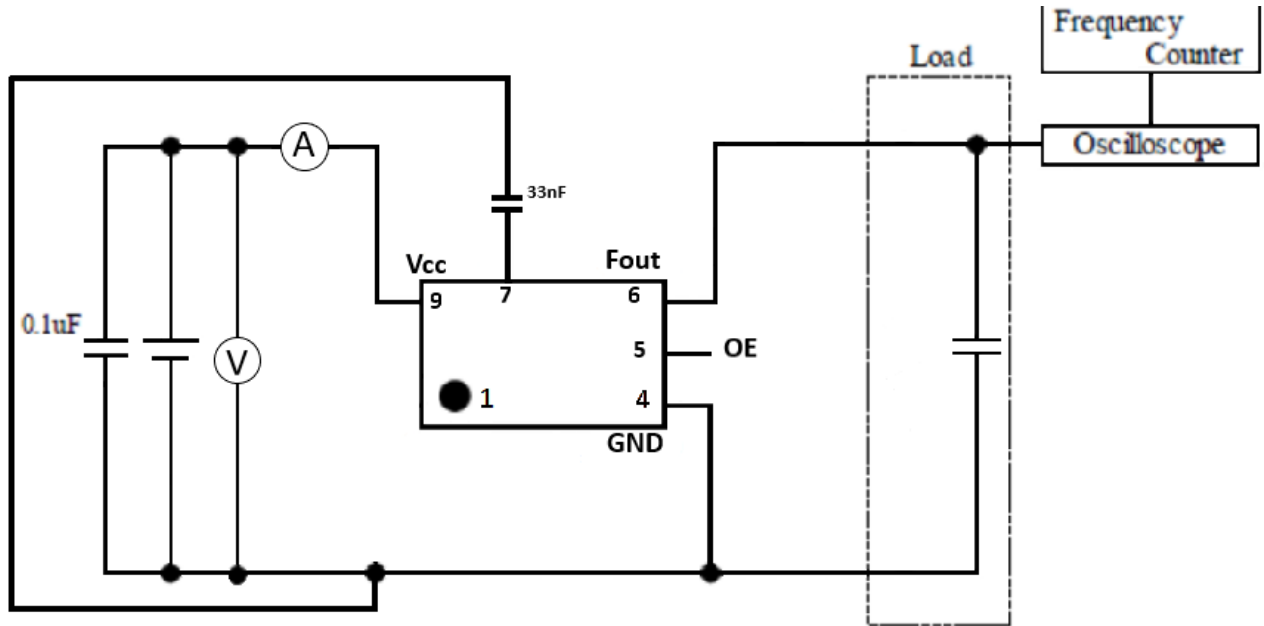
PIN#	FUNCTION
1	NC:TCXO
2	NC
3	NC
4	GND
5	Tri-state
6	Fout
7	VC Filter
8	NC
9	VDD
10	GND



Recommended soldering layout

To ensure optimal performance, place a 0.1µF capacitor as close as possible to the TCXO between Vdd and ground pads

## Electrical Test /Load Circuit



## Environmental / ESD Ratings

### Reliability: Environmental

Parameter	Condition
Mechanical Shock	MIL-STD-883, Method 2002, Condition B
Vibration	MIL-STD-883, Method 2007, Condition A
Solderability	IPC J-STD-002
Thermal Cycle	MIL-STD-883 Method 1010, Condition B

### ESD Rating

Model	Min. Voltage	Condition
Human Body Model	2000V	JESD22-A114
Machine Model	200V	JESD22-A115

### Absolute Maximum Ratings

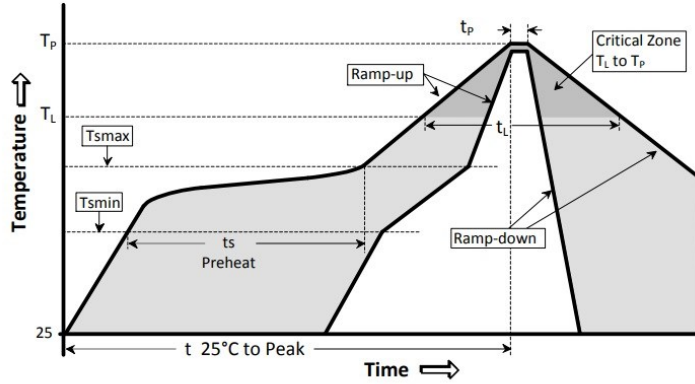
Parameter	Unit
V <sub>cc</sub> Supply Voltage	-0.6V to +4.6V
V <sub>i</sub> Input Voltage	-0.6V to V <sub>cc</sub> + 0.6V
I <sub>o</sub> Output Current	±10mA

### 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"

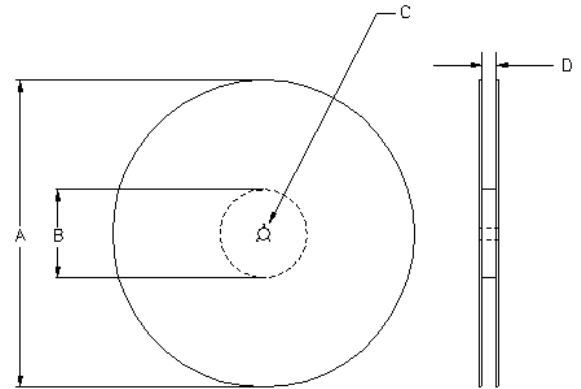
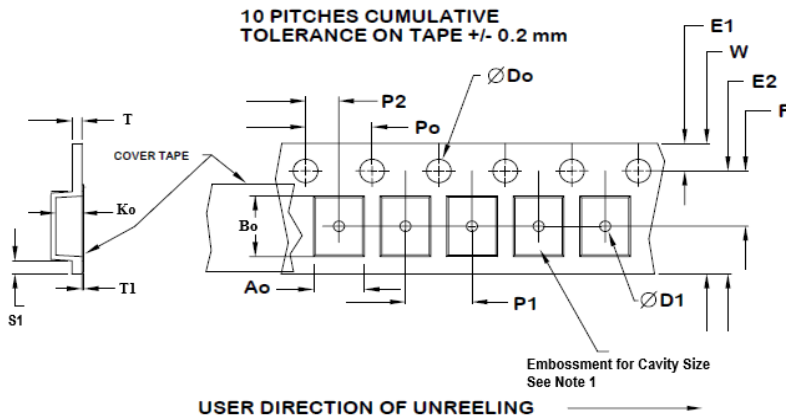


The part may be reflowed 2 times without degradation (typical for lead free processing).

Temperature Profile	Symbol	Condition	Unit
Average ramp-up rate	$(T_{S_{max}} \text{ to } T_p)$	3°C / second max	°C / s
Ramp down Rate	$T_{cool}$	6°C / second max	°C / s
Time 25°C to Peak Temperature	$T_{\text{to-peak}}$	8 minutes max	min
<b>Preheat</b>			
Temperature min	$T_{S_{min}}$	150	°C
Temperature max	$T_{S_{max}}$	200	°C
Time $T_{S_{min}}$ to $T_{S_{max}}$	$t_s$	60 – 180	sec
<b>Soldering above liquidus</b>			
Temperature liquidus	$T_l$	217	°C
Time above liquidus	$t_l$	60 – 150	sec
<b>Peak temperature</b>			
Peak Temperature	$T_p$	260	°C
Time within 5°C of peak temperature	$t_p$	20 – 40	sec

## Tape and Reel

Tape and Reel available for quantities of 250 to 1000 per reel, cut tape for < 250. 12mm tape, 8mm pitch.



Tape Size	E2 typ	F	P1	W max	Ao	Bo	Ko
12mm	10.25	5.5 ±0.05	8.0 ±0.1	12.2	3.5±0.1	5.3±0.1	1.9±0.1

Dimensions in mm Drawing Not to scale  
Note 1: Embossed cavity to conform to EIA-481-B

Tape Size	Do	D1 min	E1	Po	P2	S1 min	T max	T1 max
12mm	1.5 +0.1 -0.0	1.5	1.75 ±0.1	4.0 ±0.1	2.0 ±0.05	0.6	0.3	0.1

Reel Size	A		B		C	D
	Inches	mm	Inches	mm	mm	mm
7	7.0	180	2.50	60	13.0 +0.5 -0.2	Tape size +0.4 +2.0 -0.0



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