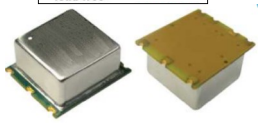
PLETRONICS OSJ7014-10.0M OCXO Oscillator



OSJ7 Series
25.4 x 22.1 x 12.2 mm
7 Pad SMD Package

Features

- Ovenized High Precision Quartz Crystal Oscillator
- Sinewave
- 3.3V nominal Supply Voltage
- 10.0 MHz Nominal Frequency
- SC cut crystal

Electrical Characteristics

Parameter	Min	Typ	Max	Unit	Condition
Frequency	-	10.0	-	MHz	
Initial Accuracy	-	-	±0.2	ppm	@+25 ± 1°C after turn on power 15 ± 1 minutes ≤90 days following date code, Vc = 1.65V ± 0.001V
Frequency Stability vs Temperature	-	-	±10	ppb	-20 to +70°C, referenced to 25°C
Frequency Stability vs Supply	-	-	±2	ppb	±5% voltage change
Frequency Stability Vs Load			±2	ppb	±5%
Short term	-	0.01	-	ppb/s	root Allan variance
Warm-up	-	-	±100	ppb	In 5 minutes @ +25°C, referenced to 1 hour
Aging	-	-	±1	ppb	per day, after 30 days
	-	-	±50	ppb	per year
	-	-	±0.3	ppm	20 years
Operating Temperature Range	-20	-	+70	°C	
Supply Voltage [1] V_{CC}	3.135	3.3	3.465	V	
Power - Turn-on	-	-	3.2	W	@ turn on
Power - Steady State	-	-	1.15	W	@ 25°C
Voltage Control Vc	0.3	1.65	3.0	V	
Vc Input Impedance	50	-	-	kΩ	
Pullability	±0.5	-	-	ppm	
Linearity	-	-	±10	%	Positive slope
Phase Noise 1 Hz 10 Hz 100 Hz 1 kHz 10 kHz 100 kHz	-	-85 -115 -140 -145 -150 -150	-	dBc/Hz	
Storage Temperature Range	-55	-	+125	°C	

Output Characteristics

Parameter	Min	Typ	Max	Unit	Condition
Output Waveform		Sinewave			
Output Load	-	50	-	Ω	
Output Level	+5	-	-	dBm	
Harmonic	-	-	-30	dBc	
Spurious	-	-	-80	dBc	
Startup time	-	-	0.5	s	

Note: [1] Place a 10nF power supply bypass capacitor next to device for correct operation

Device Marking

PLE
OSJ7014
10.0M
YMDz
S/N: *xxx*

PLE	=	Pletronics
OSJ7014	=	Model number/Part number
10.0M	=	Frequency (M = MHz)
YMD	=	Date code (Year-Month-Day: See Table below)
z	=	Internal Factory Code
S/N: *xxx*	=	Serial number

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

RoHS Compliant
2nd LvL Interconnect
Category=e4
Max Safe Temp=245C for 10s 2X Max

Pletronics Inc. certifies this device is in accordance with the RoHS (exemptions 6c, 7c-i) and REACH directives.
Pletronics Inc. guarantees the device does not contain the following: Cadmium, Hexavalent Chromium, Mercury, PBB's, PBDE's
Moisture Sensitivity Level: 1 As defined in J-STD-020D
Second Level Interconnect code: e4

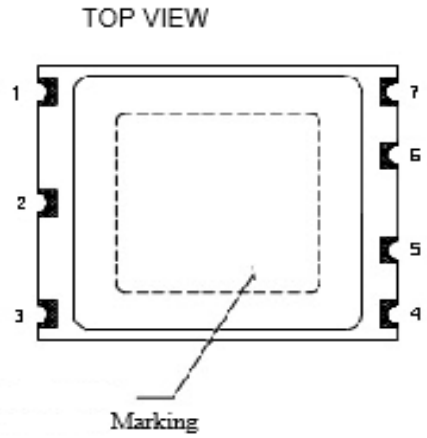
Environmental / ESD Ratings

Reliability: Environmental

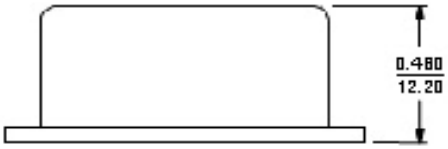
Parameter	Ref Standard	Condition
Solderability	MIL-STD-202, Method 208	
Mechanical Shock (non-operating)	MIL-STD-202, Method 213 Test Cond J	30g, 11ms, half-sine
Vibration (non-operating)	MIL-STD-202, Method 201	0.06" Total p-p, 10 to 55 Hz
Thermal Shock	MIL-STD=202, Method 107 Test Cond B	5 cycles –65 to +125 Deg C
Humidity	MIL-STD-202, Method 103, Test Condition A	95% RH @ +40°C, non-condensing, 240 hours

Parameter	Condition
Cleaning	Aqueous cleaning is FORBIDDEN
Reflow	Bottom side assembly is FORBIDDEN

Mechanical Dimensions

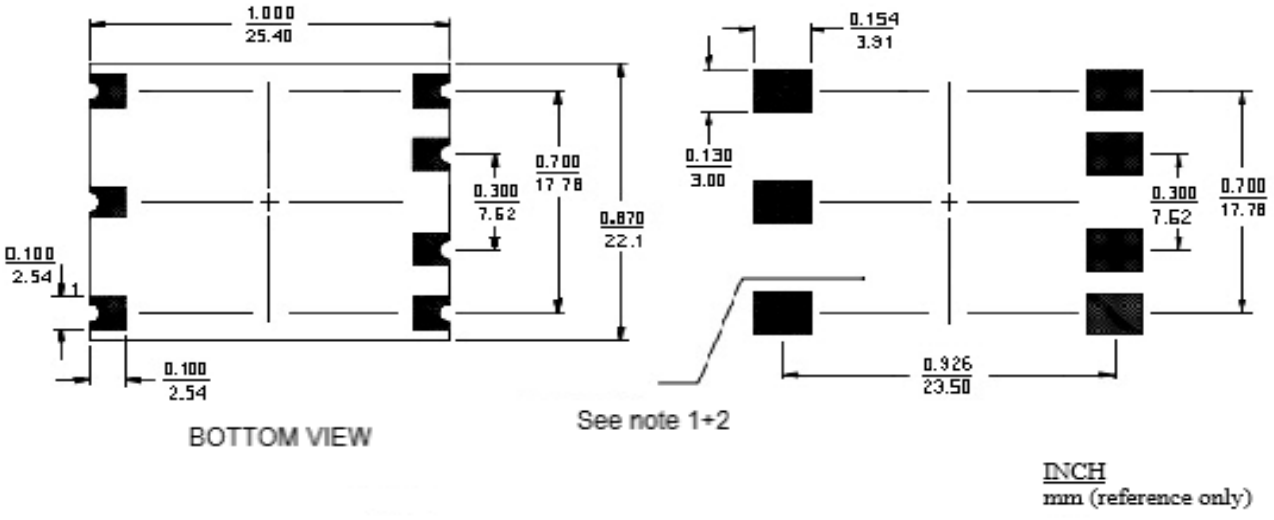


Pin Connections	
PIN	FUNCTION
1	Vc Input
2	Not Connected
3	+VDC
4	R.F. Output
5	Not Connected
6	Not Connected
7	0 Volts & Case



Note 1: Copper in this area should be kept to a minimum to reduce heat loss from the OCXO.
Note 2: Consult oscillator specification for exposed OCXO copper in this area.

Recommended solder pad layout



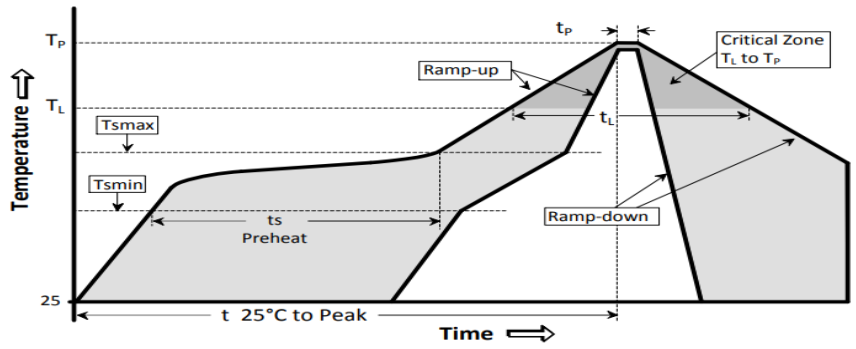
INCH
mm (reference only)

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
- Minimize air flow across the device

Reflow Cycle

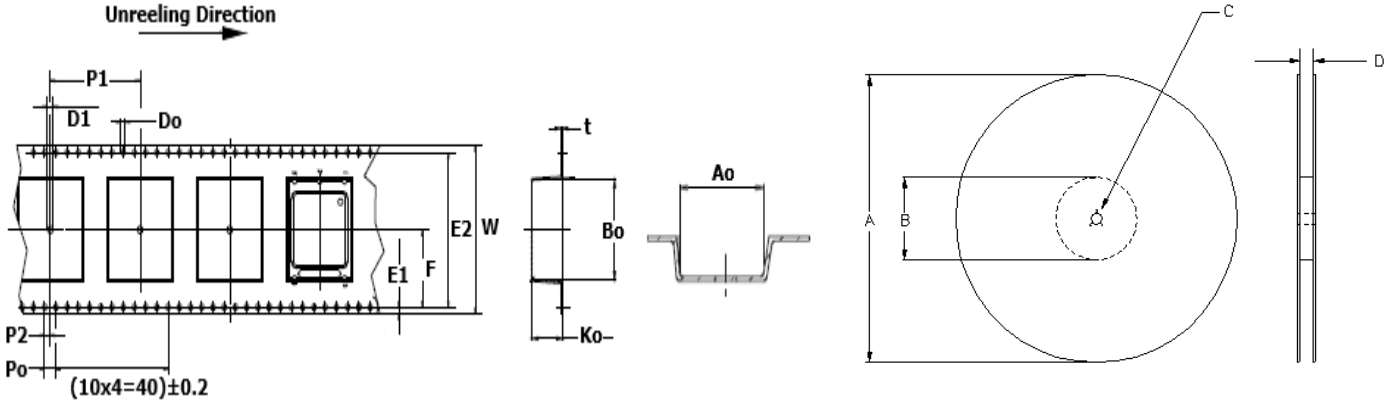
Maximum Reflow Conditions in accordance with IPC/JEDEC J-STD-020C "Pb-free"



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 200, cut tape for < 200. 44mm tape, 32mm pitch.



Tape Variable Dimensions Table 2							
Tape Size	E2 typ	F	P1	W max	Ao	Bo	Ko
44mm	40.4	20.2 ±0.15	32.0 ±0.1	44.3	23±0.1	26±0.1	12.5±0.1

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
44mm	1.5 +0.1 -0.0	2.0 ±0.1	1.75 ±0.1	4.0 ±0.1	2.0 ±0.05	0.55

Reel Dimensions (may vary) Table 3						
	A		B		C	D
Reel Size	Inches	mm	Inches	mm	mm	mm
13	13.0	330.2	3.94	100	13.0 +0.5 -0.2	44.4 +2.0 -0.0

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