PLETRONICS OeM8 Series
OeXO® Oscillator

OeM8
12.37 x 20.0 x 5.72 mm
DIP/DIL Metal Package

Features

- Pletronics' OeXO® Series Ovenized equivalent Temperature Compensated Crystal Oscillator
- Optional Voltage Control Function
- Low Power / Fast Warm Up
- CMOS Output
- 3.3V nominal Supply Voltage
- See tables for available Frequencies

Applications

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

Electrical Characteristics

Parameter	Min	Typ	Max	Unit	Condition (Consult factory for other options)
Frequency Range [2]	9.60	-	26.0	MHz	See table below for developed frequencies
Frequency Stability vs. Temperature [2]	-50	-	+50	ppb	Over -40°C to +85°C — at fixed V_{CC} + load (reference to midpoint min/max frequency) See factory for other options
Frequency Initial Calibration		-	±1.0	ppm	Vcontrol 1.50 volts at 25°C ± 2°C when $V_{CC} \geq$ 2.8 volts If Vcontrol used
Operating Temperature Range [2]	-40	-	+85	°C	
Supply Voltage [1, 2] V_{CC}	-	3.3	-	Volts	± 5%
Supply Current [2] I_{CC}	-	20	30	mA	10 MHz 20 MHz — Load: 15 pF, V_{CC} ± 5%
Frequency Stability vs. Supply	-	-	±0.05	ppm	Load: 15 pF, V_{CC} ± 5%
Frequency Stability vs. Load	-	-	±0.05	ppm	Load: 15 pF ± 10%
Vcontrol Range	0.5	-	2.5	Volts	1.50 volts nominal for V_{CC}
Frequency Pullability [2]	0	±6.0	±8.0	ppm	Positive Slope
Linearity	-	-	2.0	%	
Output Waveform		CMOS			
Duty Cycle	40	50	60	%	Load: 15 pF Vth: T_R and T_F 10% and 90% of amplitude Vth: D.C. 50% of amplitude
Output V_{HIGH}	90	-	-	%Vdd	
Output V_{LOW}	-	-	10	%Vdd	
Output T_{RISE} and T_{FALL}	-	-	6.5	nS	
Startup Time	-	1.0	-	S	Within ± 2.0 ppm of final frequency
Long Term Stability (Aging)	-	-	±2.0	ppm	10 years at 25°C ± 2°C
Phase Noise 100 Hz 1 kHz 10 kHz 100 kHz	-	-120 -134 -144 -145	-	dBc/Hz	25°C ± 2°C at 20.0 MHz
Storage Temperature Range	-55	-	+90	°C	

Note: [1] Place a 10nF power supply bypass capacitor next to device for correct operation
[2] Typical capabilities shown. A unique OeXO® datasheet is created for each specific device. See Factory for other options.

The following is a list of developed frequencies. Consult factory for other options.

9.60M, 10.00M, 13.00M, 16.384M, 19.20M, 20.00M, 26.00M only

Part Number (Possible Options shown)

Series Model	V_{CC} Supply Voltage [1]	Operating Temperature		Stability [1, 2]	Pullability [1]	Frequency
		Lowest	Highest	(ppm)	(ppm)	(MHz)
OEM8	**A unique number will be assigned for your exact specification**					**-19.20M**
	3.3 volts nominal	-40°C	+85°C	± 0.05	0 ± 5 ± 8	9.6 - 26 MHz **Developed:** 9.60M, 10.00M, 13.00M, 19.20M, 20.00M, 26.00M

[1] Contact Factory for non-standard specifications
[2] Not all stabilities are available with all operating temperature ranges. Contact Factory for exact combinations available.

Device Marking

PLE
OEM8*
*FFFF*M
• YMDzzz

PLE = Pletronics
FFFF = Frequency in MHz
YMD = Date code
zzz = Internal factory codes

* A unique number is assigned for your exact specifications.
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	6	7	8	9	0	Code	A	B	C	D	E	F	G	H	J	K	L	M
Year	2016	2017	2018	2019	2020	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

Tube or pad packaging is available.

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

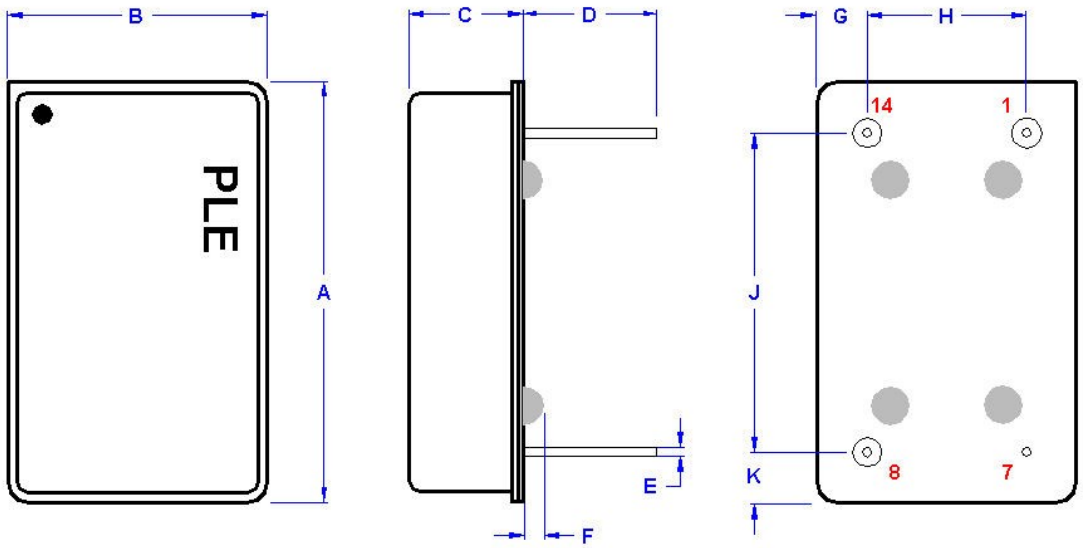
RoHS Compliant
2nd LvL Interconnect
Category=e1
Max Safe Temp=245C for 10s (Reflow only) 2X Max
Max Safe Temp=280C for 15s (Wave solder only)

Pletronics Inc. certifies this device is in accordance with the RoHS 2 (2011/65/EU) and WEEE (2002/96/EC) directives.
Pletronics Inc. guarantees the device does not contain the following: Cadmium, Hexavalent Chromium, Lead, Mercury, PBB's, PBDE's
Weight of the Device: 4.0 grams
Moisture Sensitivity Level: 1 As defined in J-STD-020D
Second Level Interconnect code: e1

Mechanical Dimensions

	Inches	mm
A	0.792 ± 0.004	20.12 ± 0.1
B	0.492 ± 0.004	12.50 ± 0.1
C	0.33 max	8.38 max
D[1]	0.287	7.30
E[1]	0.018	0.45
F[1]	0.031	0.80
G[1]	0.096	2.44
H[1]	0.300	7.62
J[1]	0.600	15.24
K[1]	0.096	2.43

[1] Typical dimensions



(Not to Scale)

Cover: Kovar, Electroless Nickel Plated 1µinch (25µm) typical, Resistance welded to base, Laser Marked

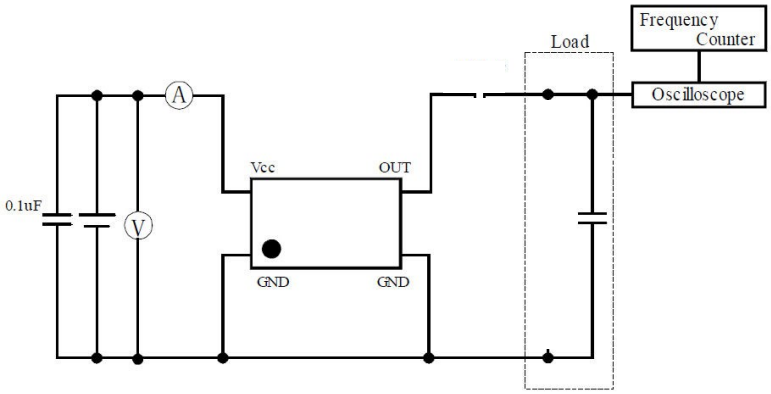
Layout

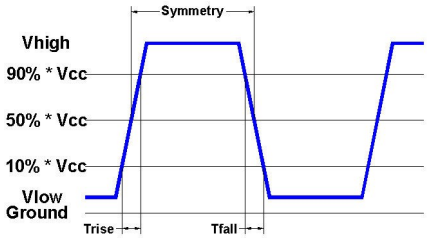
Pin	Function	Note
1	Vcontrol Input	If this function is not specified, recommend connecting this pin to ground. EFC (Electronic Frequency Control).
7	Ground (GND)	
8	Output	CMOS or Clipped Sine Wave (output is DC coupled. Most commonly used with external coupling capacitor. 0.001 to 0.01µF recommended)
14	V_{CC} Supply Voltage	Connect an appropriate 10nF power supply bypass capacitor as close as possible

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

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

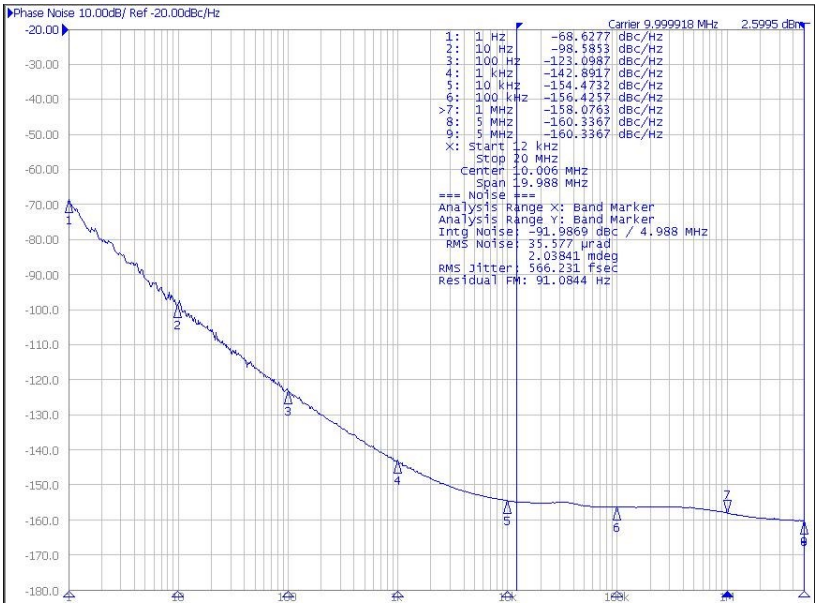
Model	Min. Voltage	Condition
Human Body Model	2000V	JESD22-A114
Charged Device Model	500V	JESD 22-C101
Machine Model	200V	JESD22-A115

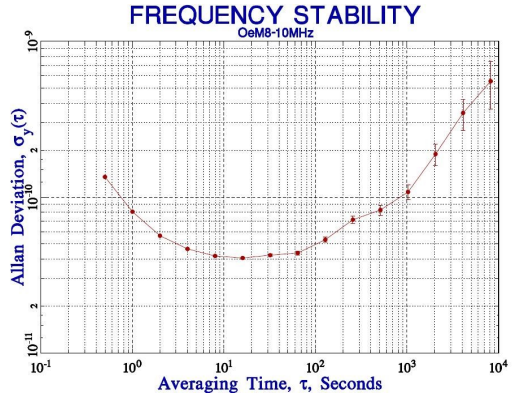
Thermal Characteristics:
The maximum die or junction temperature is 155°C
The thermal resistance junction to board is 120°C/Watt depending on the solder pads, ground plane and construction of the PCB.

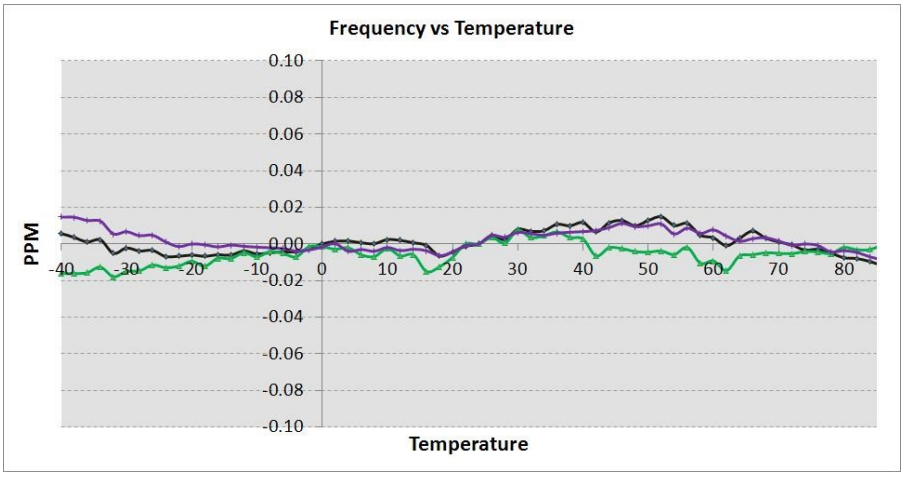
Absolute Maximum Ratings

Parameter	Unit
V_{CC} Supply Voltage	-0.6V to +6.0V
Vi Input Voltage	-0.6V to V_{CC} + 0.6V
Io Output Current	-10mA to +10mA

Charts







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