Field Programmable Blank Oscillator

Series CPPL

- ***Programmed with the PG-2000P, PG-3000 field oscillator programming instrument within seconds***
- ***Can be programmed twice***
- ***Provides a sealed finished custom oscillator***
- ***Standard Package Options***
- ***Ultra low jitter @ 1 million samples***
- ***Power down and Tri-State options***

RoHS COMPLIANT 2002 / 95 / EC

Part Numbering Example: CPPL C 1 L Z - A5 B6 - XX.XXXX TS

CPPL	C	1	L	Z	A5	B6	XX.XXXX	TS
SERIES	OUTPUT	PACKAGE STYLE	VOLTAGE	ADDED FEATURES	OPERATING TEMP.	STABILITY	FREQUENCY	TRI-STATE
CPPL	C = CMOS T = TTL	1 = Full Size 4 = Half Size 5 = 3.2X5 Ceramic 7 = 5X7 Ceramic 8 = PLASTIC SMD 8B = PLASTIC SMD	Blank = 5V L = 3.3 V	Blank = Bulk T = Tube Z = Tape and Reel	Blank = 0°C +70°C A5 = -20°C +70°C A7 = -40°C +85°C	B6 = ±100 ppm BP = ±50 ppm BR = ±25 ppm	1.000~133.000 MHz	TS = Tri-State PD=PowerDwn

Specifications:

Description	Min	Typ	Max	Unit
Frequency Range: Programmable to Any Discrete Frequency	1.000		133.000	MHz
Available Stability Options:	-100		100	ppm
	-50		50	ppm
	-25		25	ppm
Programmable Input Voltage:				
(1–133 MHz)	4.5	5.0	5.5	V
(1–100 MHz)	3.0	3.3	3.6	V
Operating Temperature Range Options:	0		+70	°C
	-20		+70	°C
	-40		+85	°C
Storage Temperature:	-55		+125	°C
Aging (PPM/Year) Ta=25C, Vdd=5/3.3V			±5	
Programmable Output Level:	TTL/CMOS			
Packaging:	Tape and Reel (1K per Reel) Tube Bulk Shipping			

Operating Load Conditions:

	Description	Min	Max	Unit
Vdd	Supply Voltage	3.0	5.5	V
C_{TTL}	Max Capacitive Load on outputs for TTL levels			
	4.5V–5.5V Vdd ≤ 40 MHz		50	pF
	4.5V–5.5V Vdd > 40–133 MHz		25	pF
C_{CMOS}	Max Capacitive Load on outputs for CMOS levels			
	4.5V–5.5V Vdd, ≤ 66 MHz		50	pF
	4.5V–5.5V Vdd, >66–133 MHz		25	pF
	3.0V–3.6V Vdd, ≤ 40 MHz		30	pF
	3.0V–3.6V Vdd, >40–100 MHz		15	pF

Cardinal Components, Inc.
155 Route 46 West
Wayne, NJ 07470
Rev: C-090414-11

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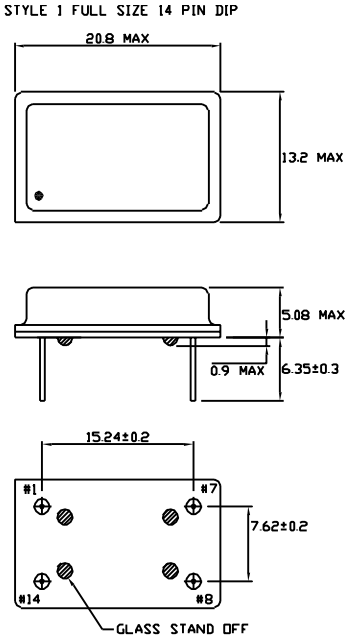
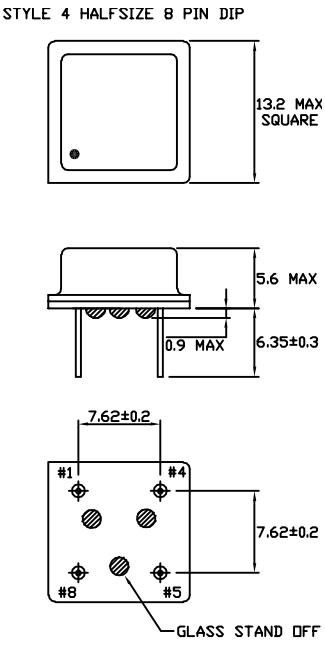
Note: ***Bypass*** Vdd ***to GND with a 0.01 µF capacitor***

Style 1 Full Size 14 Pin Dip



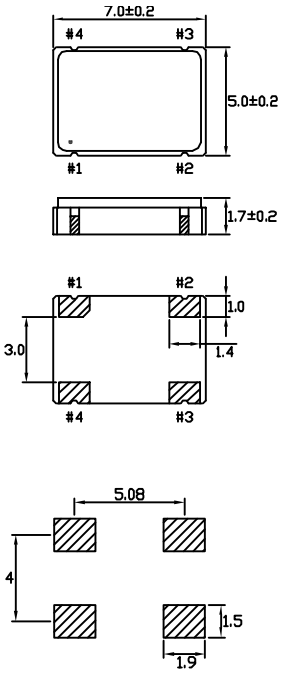
PIN FUNCTION
1 CONTROL
7 GND
8 OUTPUT
14 Vdd

Style 4 Half Size 8 Pin Dip



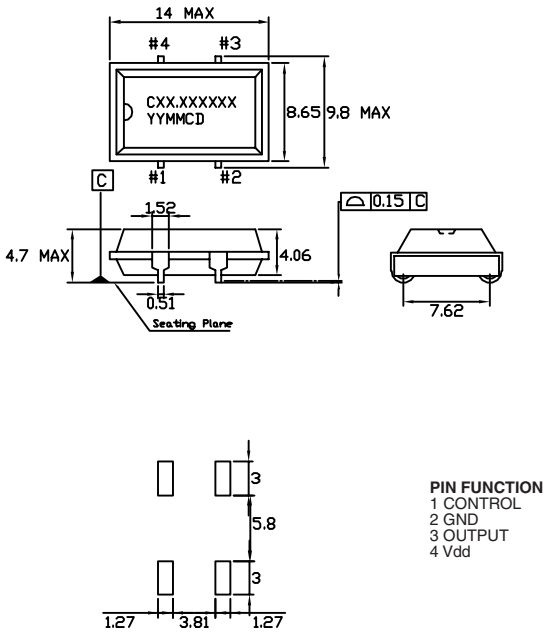
PIN FUNCTION
1 CONTROL
4 GND
5 OUTPUT
8 Vdd

Style 7 5x7 Ceramic SMD



PIN FUNCTION
1 CONTROL
2 GND
3 OUTPUT
4 Vdd

Style 8 Plastic SMD



PIN FUNCTION
1 CONTROL
2 GND
3 OUTPUT
4 Vdd

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Output Clock Switching Characteristics

Description	Test Conditions	Min	Typ	Max	Unit
Duty Cycle:					
TTL @ 1.4 V	≤ 50 MHz, C_L = 50 pF	45		55	%
4.5-5.5 Vdd	50–66 MHz, C_L = 15 pF	45		55	%
	66–125 MHz, C_L = 25 pF	40		60	%
	125–133 MHz, C_L = 15 pF	40		60	%
Duty Cycle:	≤ 66 MHz, C_L ≤ 25 pF	45		55	%
CMOS @ Vdd/2	66–125 MHz, C_L ≤ 25 pF	40		60	%
4.5-5.5 Vdd	125–133 MHz, C_L ≤ 15 pF	40		60	%
3.0–3.6 Vdd	≤ 40 MHz, C_L ≤ 30 pF	45		55	%
	40-100 MHz, C_L ≤ 15 pF	40		60	%
Output Clock Rise/Fall					
	0.8V–2.0V, 4.5-5.5 Vdd, C_L = 50			1.8	ns
	0.8V–2.0V, 4.5-5.5 Vdd, C_L = 25			1.2	ns
	0.8V–2.0V, 4.5-5.5 Vdd, C_L = 15			0.9	ns
	0.2–0.8Vdd, 4.5-5.5 Vdd, C_L = 50			3.4	ns
	0.2–0.8Vdd, 3.0–3.6 Vdd, C_L = 30			4.0	ns
	0.2–0.8Vdd, 3.0–3.6 Vdd, C_L = 15			2.4	ns
Start Up Time	From power on			2	ms
Power Down Delay Time					
Synchronous	PWR_DWN pin LOW to output Hi-Z		T/2	T+10	ns
Asynchronous			10	15	ns
Output Disable Time					
Synchronous	OE pin LOW to output Hi-Z		T/2	T+10	ns
Asynchronous	T = Frequency oscillator period		10	15	ns
Output Enable Time				100	ns
RMS Period Jitter:	1 – 133 MHz		8	11	ps
Peak to Peak *	≤ 33.000 MHz		65	99	ps
	> 33.000 MHz		65	80	ps

* Jitter tested at > 1,000,000 samples, exceeding JEDEC std JESD65.

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Electrical Characteristics

Description	Test Conditions	Min	Typ	Max	Unit
Input Characteristics (Pin 1):					
V_{IL}, Low–Level Input Voltage	4.5–5.5V Vdd			0.8	V
TO TRI-STATE OR POWER DOWN	3.0–3.6V Vdd			0.2Vdd	V
V_{IH}, High–Level Input Voltage	4.5–5.5V Vdd	2.0			V
TO ENABLE OUTPUT OR open	3.0–3.6V Vdd	0.7VddV			
I_{IL}, Input Low Current	V_{IN} = 0V			10	µA
I_{IH}, Input High Current	V_{IN} =Vdd			5	µA
Output Characteristics:					
V_{OL}, Low–Level Output Voltage	4.5V–5.5V Vdd, 16 mA I_{OL}			0.4	V
	3.0V–3.6V Vdd, 8 mA I_{OL}			0.4	V
V_{OHTTL}, High-level Output Voltage TTL	4.5V–5.5V Vdd, -16 mA I_{OL}	2.4			V
V_{OHCMOS}, High-level CMOS Voltage	4.5V–5.5V Vdd, -16 mA I_{OL}	Vdd-0.4			V
	3.0V–3.6V Vdd, -8 mA I_{OL}	Vdd-0.4			V
Power Supply Current:	4.5–5.5 Vdd, Output Freq ≤ 133 MHz			45	mA
(unloaded)	3.0–3.6 Vdd, Output Freq ≤ 100 MHz			25	mA
Standby Current:			10	50	µA
Tristate pull up	4.5–5.5 Vdd, V_{IN} = 0V	1.1	3.0	8.0	MΩ
	4.5–5.5 Vdd, V_{IN} = 0.7V	50	100	200	KΩ
Tri-State Leakage Current	5.0 Vdd		20		µA
Output Enable Mode:	Output is Tri-Stated				
Power Down Mode:	Output is Tri-Stated.				

"Tristate internal pull up. Output active when high"

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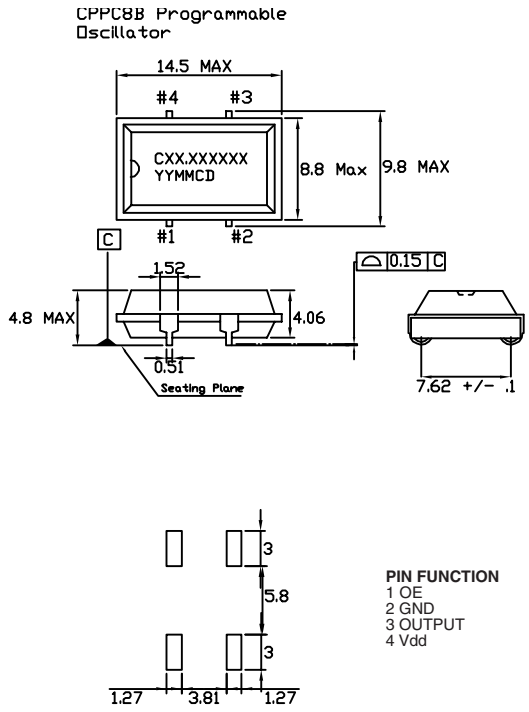
Note: ***Bypass*** Vdd ***to GND with a 0.01 µF capacitor***

Style 8B Plastic SMD



Style 5 3.2x5 Ceramic SMD