CARDINAL COMPONENTS

CPPYC4 Series
CMOS Clock Oscillator

13.2 x 13.2 x 5.6mm
Metal DIP Package

Features

- CMOS Output (will interface with TTL devices)
- Enable/Disable Function (low standby power option)
- Low Jitter
- 1.8V, 2.5V, or 3.3V nominal Supply Voltage
- 1-160 MHz Frequency Range (1-125MHz at 1.8V)
- Configurable Oscillator

Applications

Driving A/Ds, D/As, FPGAs
Digital Video
Ethernet, GbE
Medical
Storage Area Networking
COTS
Broadband Access
SONET/ SDH/ DWDM
Test & Measurement

Electrical Characteristics

Parameter	Min	Typ	Max	Unit	Condition
Frequency Range [2]	1	-	160	MHz	(1.8V frequency range 1-125MHz)
Frequency Stability [2]	±20	-	±50	ppm	For all supply voltages, load changes, aging for 1 year at 25°C ± 2°C, shock, vibration and temperatures.
Operating Temperature Range options [2]	0 -20 -40 -40	- - - -	+70 +70 +85 +105	°C	
Supply Voltage [1, 2] V_{CC}	1.8	-	3.3	V	± 5%, See Part Number options on page 2
Supply Current I_{CC}	-	-	-	mA	See page 2
Output Waveform	CMOS				Cload = 15 pF
Duty Cycle	45	-	55	%	At 50%Vcc level
Output V_{OH}	90	-	-	$\%V_{CC}$	
Output V_{OL}	-	-	10	$\%V_{CC}$	See Load Circuit and waveform page
Output T_{RISE} and T_{FALL}	-	-	2	ns	
Startup Time	-	-	8	ms	Time for output to reach specified frequency
$V_{DISABLE}$	-	-	30	%	Of V_{CC} applied to Pad 1
V_{ENABLE}	70	-			
Enable Time	-	-	100	ns	Time for output to reach a logic state
Disable Time	-	-	100	ns	Time for output to reach a high Z state
Disable Current	- -	- 0.4	- -	mA	Enable/Disable: Pad 1 low, output disabled; See page 2 Standby option: Pad 1 low, output disabled, oscillator shutdown
Jitter	-	1.0	-	ps	12 kHz to 20 MHz @ 110 MHz
Storage Temperature Range	-55	-	+125	°C	

Notes: Specifications with Pad 1 E/D open circuit
[1] Place an appropriate power supply bypass capacitor next to Vcc pin of the device for best performance.
[2] Specified by part number

Input Current

Parameter	Min	Typ	Max	Unit	Condition Vcc = 3.3V	
Supply Current I_{CC}			27 30 35	mA	1MHz ≤ Fo < 75MHz 75MHz ≤ Fo < 125MHz 125MHz ≤ Fo < 160MHz	15pF load

Parameter	Min	Typ	Max	Unit	Condition Vcc = 2.5V	
Supply Current I_{CC}			27 30 35	mA	1MHz ≤ Fo < 75MHz 75MHz ≤ Fo < 125MHz 125MHz ≤ Fo ≤ 160MHz	15pF load

Parameter	Min	Typ	Max	Unit	Condition Vcc = 1.8V	
Supply Current I_{CC}			25	mA	1MHz ≤ Fo ≤ 125MHz	15pF load

Part Number Example: CPPYC4L-A7BP-50.0TS

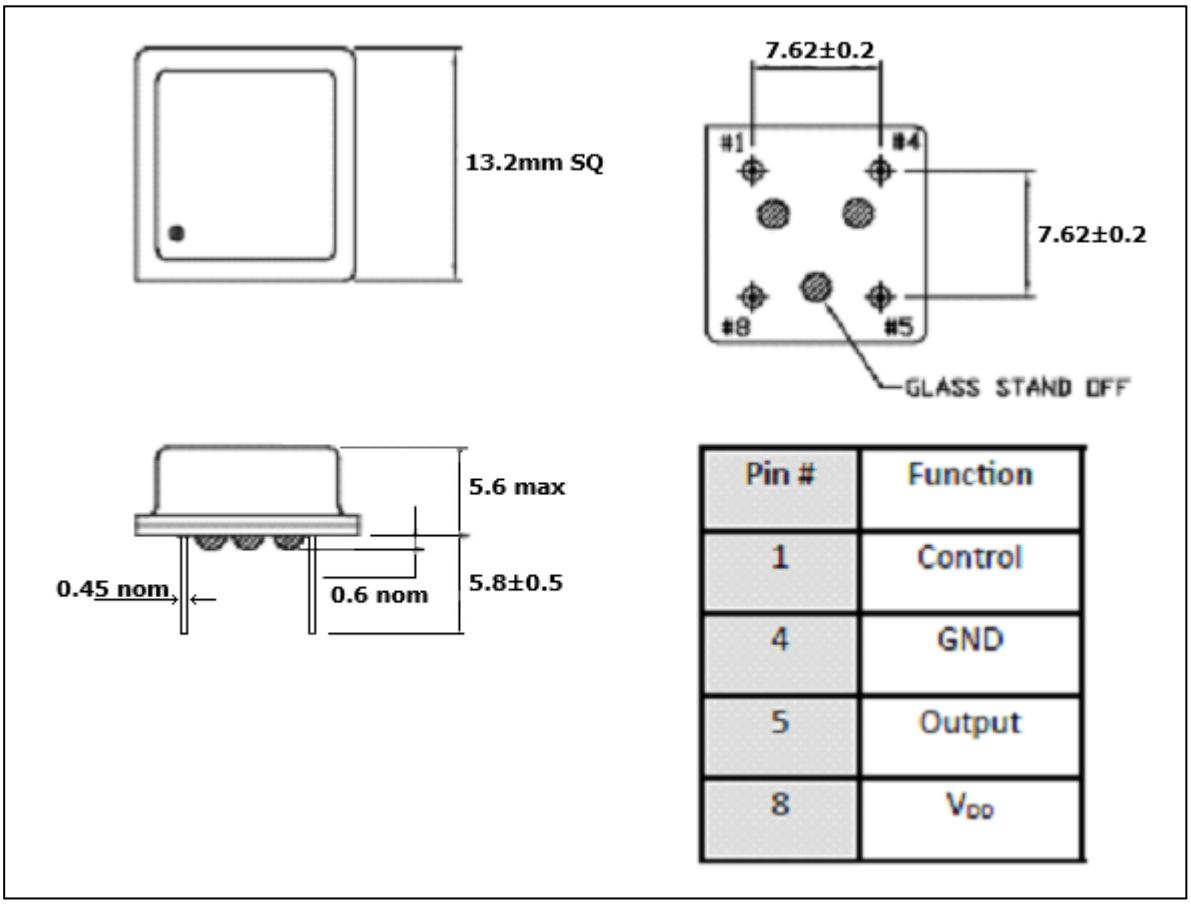
Series Model	Logic	Package Size (mm)	Supply Voltage V_{CC}	Operating Temperature Range	Frequency Stability	Frequency in MHz	Enable/Disable
CPPY	**C**	**4**	**L**	**A7**	**BP**	**- 50.0**	**TS**
	C=CMOS	**4 = DIP8**	K = 1.8V J = 2.5V **L = 3.3V**	Blank = 0 to +70°C A5 = -20 to +70°C **A7 = -40 to +85°C** AJ = -40 to +105°C	BD = ±20 ppm BR = ±25 ppm **BP = ±50 ppm**	1 - 160 MHz (1.8V: 1-125MHz)	**TS = Tristate** PD = Powerdown

Frequency Stability selection chart

	±20	±25	±50
0 - +70°C	•	•	•
-20 - +70°C	•	•	•
-40 - +85°C	△	•	•
-40 - +105°C		△	•

• - Available △ - Check with Cardinal

Mechanical Dimensions



Pin #	Function
1	Control
4	GND
5	Output
8	V_{DD}

Termination coating: SnAgCu (SAC305): 2 ~ 7µm

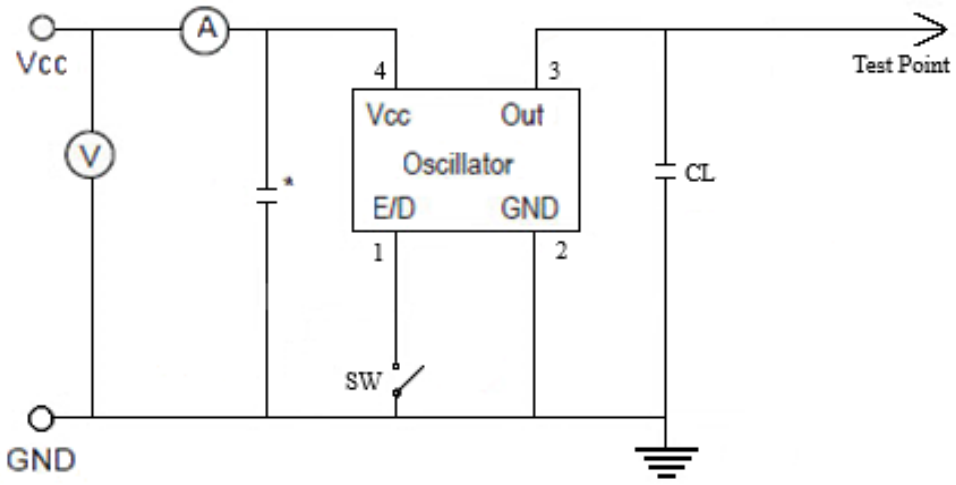
Cardinal Components Inc. certifies this device is in accordance with the RoHS and REACH directives.

Cardinal Components guarantees the device does not contain the following: Cadmium, Hexavalent Chromium, Lead, Mercury, PBB's, PBDE's
Weight of the Device: 2.2 grams
Moisture Sensitivity Level: 1 As defined in J-STD-020D
Second Level Interconnect code: e1

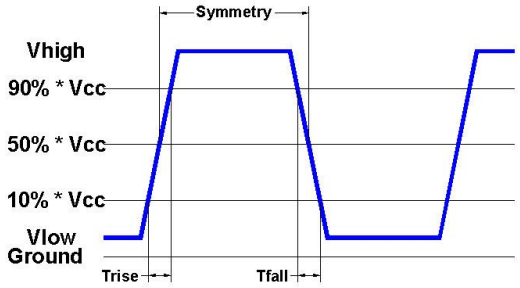
For Optimum Jitter Performance, Cardinal recommends:

- 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



Notes:
CL: 15pF Includes the input capacitance of oscilloscope
* 0.01~0.1µF external by-pass filter is recommended



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

Thermal Characteristics:
The maximum die or junction temperature is 125°C

ESD Rating

Model	Min. Voltage	Condition
Human Body Model	2000V	MIL-STD-883 3015.7
Machine Model	200V	EIAJ ED-4701/304

Absolute Maximum Ratings

Parameter	Unit
V_{CC} Supply Voltage	-0.5V to +7.0V
Vi Input Voltage	-0.5V to V_{CC} + 0.5V
Vo Output Voltage	-0.5V to V_{CC} + 0.5V

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