

CJAC7
7.0 x 5.0 x 1.5 mm
Leadless Ceramic Package

Features

- Quartz crystal controlled PLL Based Square Wave Oscillator
- CMOS Output
- Enable/Disable Function on pad 1 (Pad 2 option)
- 2.5V and 3.3V Supply Voltages

Applications

Driving A/Ds, D/As, FPGAs
Fibre Channel
Ethernet, GbE, SynchE
Medical
Storage Area Networking
COTS
Telecom
PON

Electrical Characteristics

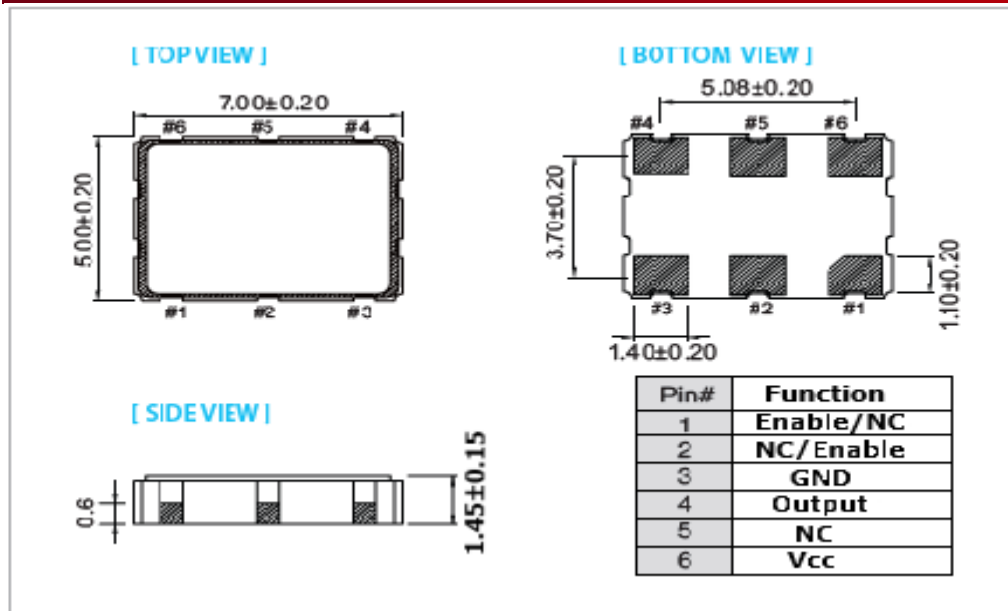
Parameter	Min	Typ	Max	Unit	Condition
Frequency Range	10		250	MHz	
Frequency Stability	±25	-	±50	ppm	Includes Vcc change, load change, 1 year aging at 25°C ± 2°C, shock, vibration, 25°C tolerance and operating temperature
Operating Temperature Range	-20 -40	-	+70 +85	°C	
Storage Temperature Range	-55		+125	°C	
Supply Voltage ¹ V _{CC}	2.375 2.97	2.5 3.3	2.625 3.63	V	TVcc ramp = 100µs min
Supply Current I _{CC}	-	20	40	mA	CL = 15 pF
Disable Current	-	16	-	mA	Pin 1 low
Output Waveform	CMOS				CL = 15 pF
Output High Voltage (V _{OH})	0.9*V _{CC}	-	-	V	
Output Low Voltage (V _{OL})	-	-	0.1*V _{CC}	V	
Output T _{RISE} and T _{FALL}			0.6	ns	Vth is 10% and 90% of Vcc
Startup Time	-	-	10	ms	Time for output to reach specified frequency
Duty Cycle	45	-	55	%	At 50% Vcc level
Enable/Disable Pullup	-	900	-	kΩ	Pin 1 to Vcc
V _{DISABLE}	-	-	0.3*V _{CC}	V	Referenced to Ground
V _{ENABLE}	0.7*V _{CC}	-	-		
Phase Noise	1 kHz 10 kHz 100 kHz 1 MHz 10 MHz 20 MHz	-111 -118 -119 -134 -155 -156	-	dBc/Hz	25°C ± 2°C, 3.3V, 155.52MHz
Phase Jitter	-	0.9	-	ps rms	12 kHz to 20 MHz at 155.52 MHz

Part Number
Example: CJAC7LZ-A7BP-100.0TS

Series Model	Output	Package Size	Supply Voltage	Packaging	Operating Temperature Range	Frequency Stability	Frequency (MHz)	Output Control
CJA	C	7	L	Z	A7	BP	100.0	TS
	C = CMOS	7 = 7.0x5.0mm	S = 2.5V L = 3.3V	Blank = Tape only Z = Tape/Reel	A5 = -20 to +70°C A7 = -40 to +85°C	BR = ±25ppm BP = ±50ppm		TS=TRISTATE

Notes: Specifications with Pad 1 E/D open circuit

Mechanical Dimensions (mm)

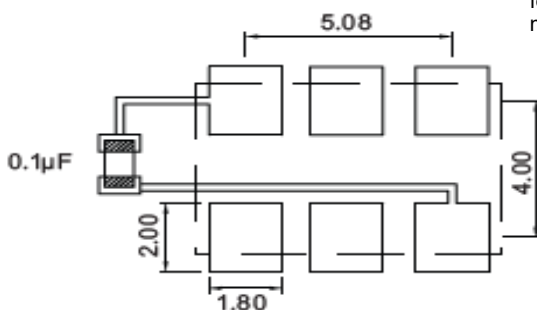


Enable/Disable	
Pin 1 (Pin2 option)	Output
Open	Active
Logic '1'	Active
Ground/Logic '0'	Tri-state

Contacts (pads): Gold (0.3 to 1.0 μm) over Nickel (1.27 to 8.89 μm)

Pad Layout

Disclaimer: Recommended layout shown. Adjust layout as needed for individual process requirements.



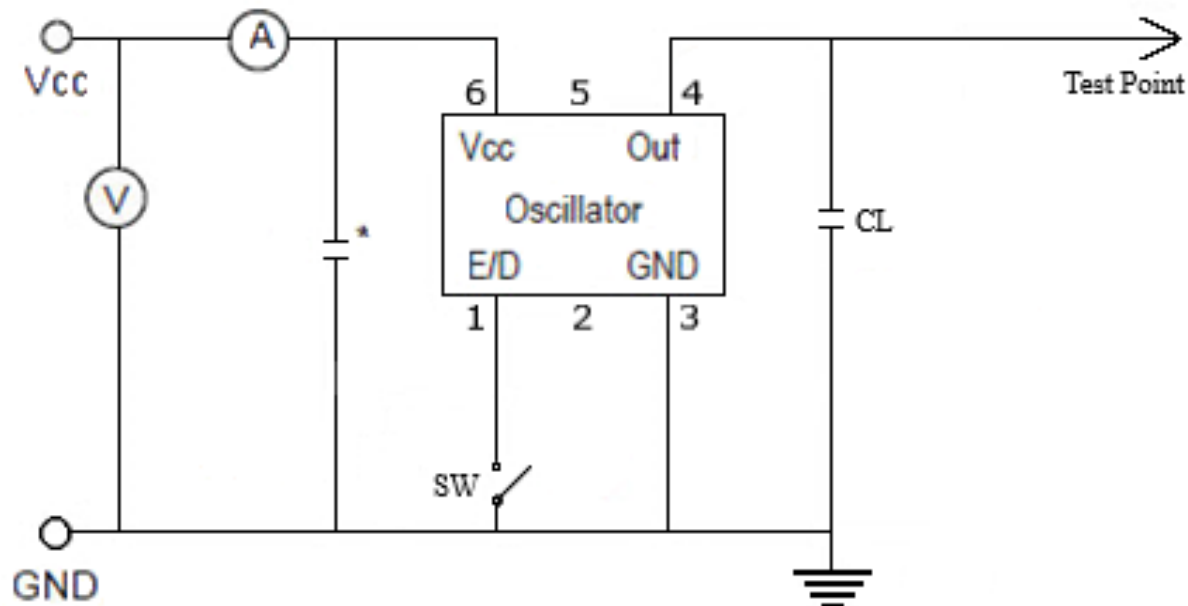
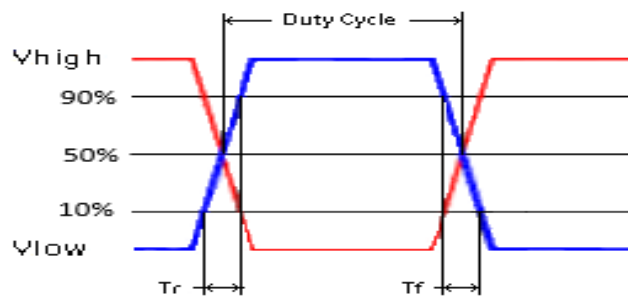
To ensure optimal oscillator performance, place a by-pass capacitor of 0.1 μF as close to the part as possible between Vdd and GND pads.

Cardinal Components 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: 0.16 grams
 Moisture Sensitivity Level: 1 As defined in J-STD-020D

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

Test Waveform

Environmental / ESD
Reliability: Environmental Test

Parameter	Reference Standard	Test Condition
Vibration	MIL-STD-883 2007 Condition A	10-2000Hz, 1.52mm, 20g, each axis for 4hrs
Thermal Shock	MIL-STD-883 1010 Condition B	-55°C, 125°C, soak time is 10 mins, with total 200 cycles
Mechanical Shock	MIL-STD-883 2002 Condition B	1500g, half-sine, 0.5ms, each axis for 3 times

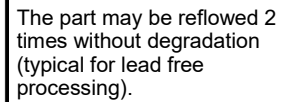
Absolute Maximum Ratings

Parameter	Unit
V _{cc} Supply Voltage	-0.5V to +4.2V
V _i Input Voltage	-0.5V to V _{cc} + 0.5V
V _o Output Voltage	-0.5V to V _{cc} + 0.5V
Max Junction Temperature	125°C

ESD Rating

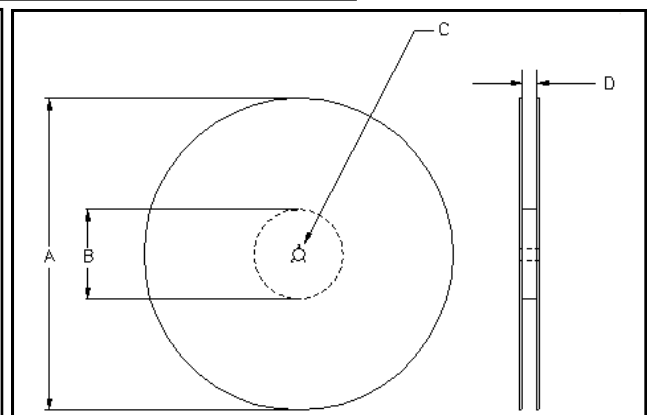
Model	Min. Voltage	Condition
Human Body Model	2000V	JESD22-A114
Charged Device Model	1000V	JESD22-C101
Machine Model	120V	JESD22-A115

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



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	$T_{to-peak}$	8 minutes max	min
Preheat			
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
Soldering above liquidus			
Temperature liquidus	T_L	217	°C
Time above liquidus	t_L	60 – 150	sec
Peak temperature			
Peak Temperature	T_P	260	°C
Time within 5°C of peak temperature	t_P	20 – 40	sec

Tape and Reel available for quantities of 250 to 1000 per reel, cut tape for < 250. 16mm tape, 8mm pitch.



Reel Dimensions (may vary) Table 3

	A		B		C	D
Reel Size	Inches	mm	Inches	mm	mm	mm
7	7.0	177.8	2.50	63.5	13.0 +0.5 -0.2	Tape size +0.4 +2.0 -0.0
10	10.0	254.0	4.00	101.6		
13	13.0	330.2	3.75	95.3		

Note 1: Embossed cavity to conform to EIA-481-B

Tap Size	Do	D1 typ	E1	Po	P2	S1 min	T max	T1 max
16mm	1.5 +0.1 -0.0	1.5	1.75 ±0.1	4.0 ±0.1	2.0 ±0.1	0.6	0.3	0.1

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Contacting Cardinal Components

Cardinal Components
19013 36th Ave. West
Lynnwood, WA 98036-5761
U.S.A.

Tel: 973-785-1333
Fax: 425.776.2760
email: sales@cardinalxtal.com

URL: www.cardinalxtal.com