CH330

USB to UART IC

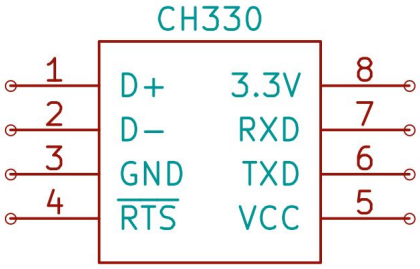
NiftyParts

Supplemental Datasheet

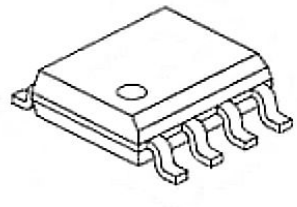
Summary

- Convenient USB to UART bridge utilizing only a few parts
- USB device fully supported under Windows, Linux, and Mac OS X using built-in drivers
- Supports full-duplex serial communication with built-in send and receive buffers
- Baud rates from 50 bps to 2 Mbps
- Support for 5, 6, 7, or 8 data bits; odd parity, even parity, flag verification, or blank verification
- Pair with additional level shifting devices to support RS232, RS485 and other interfaces
- 3.3V or 5V supply voltage
- 8-pin SOP package

The CH330 is a USB to UART chip that can be used to add USB functionality to a device or to convert a serial device to USB with a small footprint and low part count.



Schematic Symbol



SOP-8 Package

Pinout

Pin #	Name	Type	Description
5	VCC	Power Input	Power supply input. 3.3V or 5V. Decouple with a 0.1uF ceramic capacitor to ground.
3	GND	Power Input	Power supply ground. Directly connect to USB bus ground.
8	3.3V	Power Input	Internal 3.3V regulator. Do not use to power external devices. If VCC is 5V, decouple with a 0.1uF ceramic capacitor to ground. If VCC is 3.3V, connect this pin to 3.3V.
1	D+	Input/Output	USB positive data line. Built-in termination resistor.
2	D-	Input/Output	USB negative data line. Built-in termination resistor.
6	TXD	Output	UART transmit output. Built-in pull-up resistor.
7	RXD	Input	UART receive input. Built-in pull-up resistor.
4	RTS#	Output	Request to send. Required for some serial devices. Active low.

Absolute Maximum Values

Note: Exceeding the absolute maximum values may cause abnormal operation or permanent damage to chip.

Name	Description	Minimum	Maximum	Units
T_A	Ambient operating temperature	-20	70	°C
T_S	Ambient storage temperature	-55	100	°C
V_{SUPPLY}	Power supply voltage (VCC to GND)	-0.5	6.0	V
V_{IO}	I/O voltage (all other pins)	-0.5	VCC + 0.5	V

Electrical Characteristics

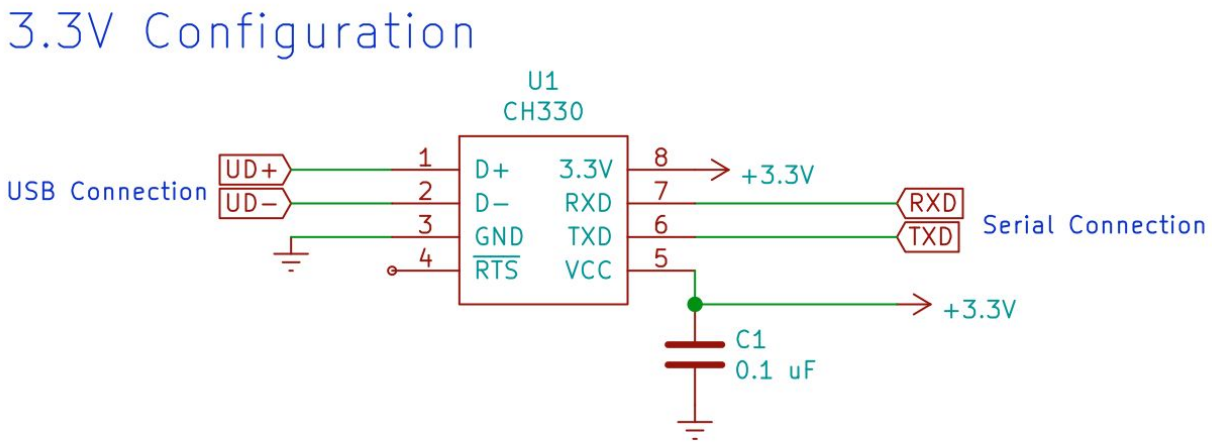
Name	Description		Minimum	Nominal	Maximum	Units
V_{CC}	Power supply voltage	VCC = 5V	4.2	5	5.3	V
		VCC = 3.3V	3.0	3.3	3.6	
I_{CC}	Power supply current	VCC = 5V		7	15	mA
		VCC = 3.3V		5	12	
V_{IL}	Input logic low voltage range		-0.5		0.7	V
V_{IH}	Input logic high voltage range		2.0		VCC + 0.5	V
V_{OL}	Output logic low voltage range		0		0.5	V
V_{OH}	Output logic high voltage range		VCC - 0.5		VCC	V
I_{UP}	Input pull-up current		20	150	300	uA

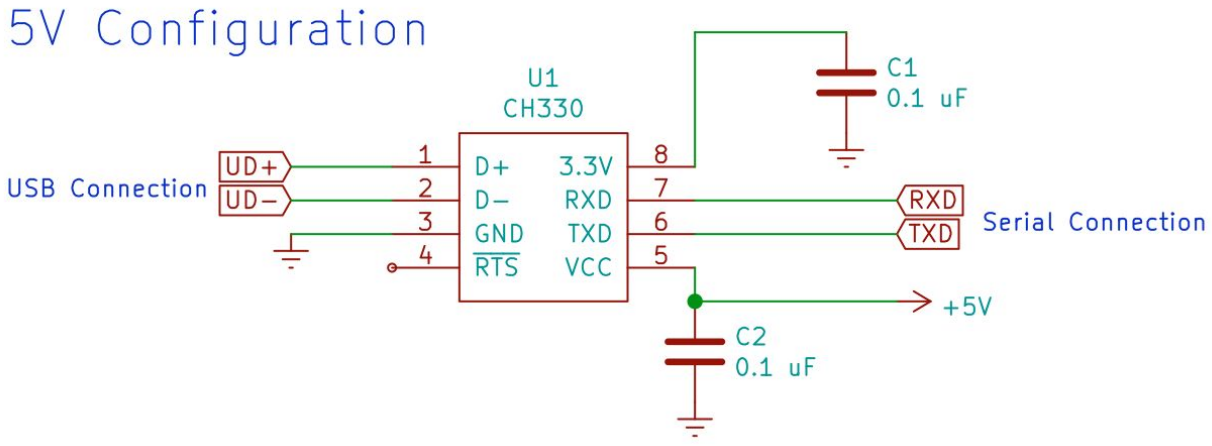
Baud Rate Error

The maximum allowable baud rate error of the CH330 serial port receiving signal is 2%. The baud rate error of the serial port transmitting signal is less than 1.2%.

Example Schematic

Note: Place decoupling capacitors close to CH330 chip for optimal voltage stability.





Package Drawing

Standard SOP-8 package (3.9x4.9mm Body, 1.27mm Pitch)