USB to serial chip CH330

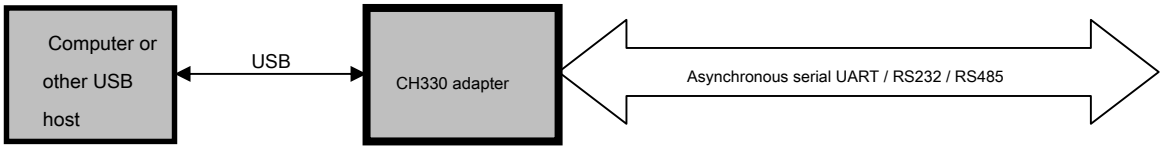
Manual

Version: 1

http://wch.cn

1 Overview

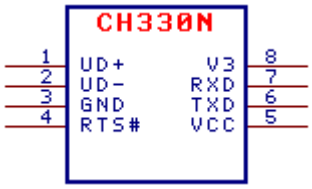
CH330 is a USB serial chip, a computer is used to expand UART common upgrade or serial devices to the USB bus.



2. Features

- Simulate standard serial used to upgrade serial peripheral equipment, or by adding additional USB port.
- Serial application on the computer end of the Windows operating system is fully compatible without modification.
- Full-duplex hardware serial ports, built-in transceiver buffer, supports communication baud rate 50bps ~ 2Mbps.
- Support 5,6,7 or 8 data bits, supporting odd / even parity / logo / blank.
- By adding level conversion device, providing RS232, RS485 interfaces.
- Supports 5V and 3.3V supply voltages.

3, the package



Package	Width of plastic		Lead pitch		Package Description	Ordering
SOP-8	3.9mm	150mil	1.27mm	50mil	Standard 8-pin SMD	CH330N

4 pin

Pin No.	Name	Types of	Pin Description
5	VCC	power supply	The positive power supply input, requires an external power supply decoupling capacitor 0.1uF
3	GND	power supply	Common ground terminal directly connected to ground USB bus
8	V3	power supply	When connected to VCC power supply voltage input 3.3V external power supply voltage of 5V when the capacity of an external decoupling capacitor 0.1uF
1	UD +	USB Signal	Directly to the USB bus data lines D +
2	UD-	USB Signal	D- data lines directly connected to the USB bus
6	TXD	Export	Serial data output, high idle
7	RXD	Serial data input, the pull-up resistor, idles in the high	
4	RTS #	Export	MODEM communication output signal requesting transmission, low effective

5, Function

CH330 chip using 5V operating voltage, the VCC pin external 5V power supply, and capacity V3 pin external power supply decoupling capacitor is 0.1uF. When CH330 chip operates at 3.3V, V3 pin should be connected to VCC and input 3.3V

Power supply, the operating voltage and the other circuit connected CH330 not exceed 3.3V.

CH330 allows the serial baud rate error of the received signal is not less than 2%, the baud rate of the serial signal transmission error is less than 1.2%.

6, parameters

6.1. Absolute maximum (equal to or exceed absolute maximum value will likely cause the chip does not work properly or even damage)

name	Parameter Description	Minimum	Maximum	Unit
TA	Ambient temperature at work	--20	70	℃
TS	The ambient temperature during storage	- 55	100	℃
VCC	Supply voltage (VCC power supply connected, GND Ground)	- 0.5	6.0	V
VIO	Voltage on the input or output pins	- 0.5	VCC + 0.5	V

6.2 Electrical parameters (test conditions: TA = 25 ℃, VCC = 5V, does not include USB bus connector pin)

name	Parameter Description		Min	Typ	Max	Units
VCC	voltage	V3 pin VCC pin is not connected	4.2	5	5.3	V
		V3 connect the VCC pin	3.0	3.3	3.6	
ICC	Work total supply current	VCC = 5V		7	15	mA
		VCC = 3.3V		5	12	mA
VIL	Low level input voltage		- 0.5		0.7	V
VIH	High-level input voltage		2.0		VCC + 0.5	V
VOL	Low-level output voltage (6mA current sinking)				0.5	V
VOH	High level output voltage (output current 4mA)		VCC-0.5			V
IUP	Input current on-chip pull-up resistor input terminal		20	150	300	uA

7, USB to RS232 serial port application

The figure is USB to RS232 serial port by CH330. Level converting circuit U5 (MAX232 / ICL232 / SP232 etc.) for converting the TTL to RS232 serial port.

If only USB to serial TTL, then U5 may be removed and the capacitor of FIG C25 / C26 / C27 / C28 / C29. P1 is the USB port. If the low-power chip and CH330 USB 5V supply products directly by USB bus, may be replaced in FIG protection resistor R1 or short. If the USB products provided by other common power supply, then CH330 should use the common power, FIG R1 may be disconnected, and both directly connected to the ground line.

The capacity of the capacitor C2 V3 pin is 0.1μF, 3.3V for the internal power supply node CH330 decoupling, C1 capacity of 0.1μF, an external power supply decoupling. Decoupling capacitors C1 and C2 should be connected as close as possible CH330 pin.