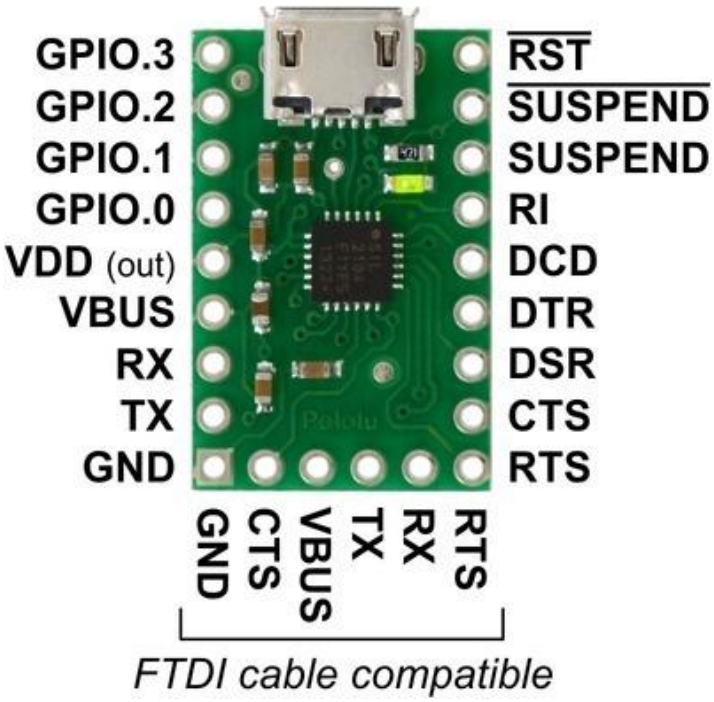
POLOLU CP2104 USB-TO-SERIAL ADAPTER CARRIER

USER'S GUIDE

USING THE ADAPTER

PINOUT

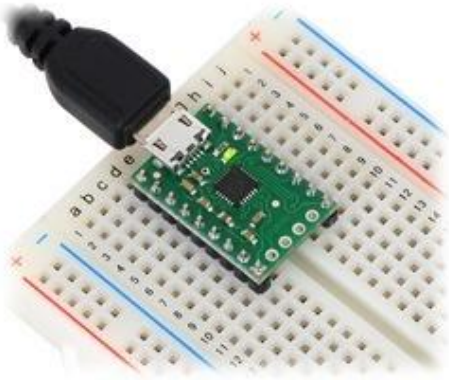


Pin	Type	Function
VDD	Power	3.45 V voltage regulator output
VBUS	Power	USB bus voltage (5 V)
GND	Power	Ground
RST	In	Device reset
TX	Out	Asynchronous serial data transmit (idle high)
RX	In	Asynchronous serial data receive
CTS	In	“Clear to send” control input (often used with RTS)
RTS	Out	“Ready to send” control output (often used with CTS)
DSR	In	"Data set ready" control input (active low) (often used with DTR)
DTR	Out	"Data terminal ready" control output (active low) (often used with DSR)
DCD	In	"Data carrier detect" control input (active low)
RI	In	"Ring indicator" control input (active low)
SUSPEND	Out	Driven high when in USB suspend state
SUSPEND	Out	Driven low when in USB suspend state (connected to green LED)
GPIO.0	I/O	User-configurable inputs or outputs (one-time programmable)
GPIO.1		
GPIO.2		
GPIO.3		

CONNECTIONS

All of the adapter's pins are available in two rows spaced 0.5″ apart along the sides of the board. This allows any pin to be accessed easily while the adapter is plugged into a solderless breadboard, as shown in the left picture below.

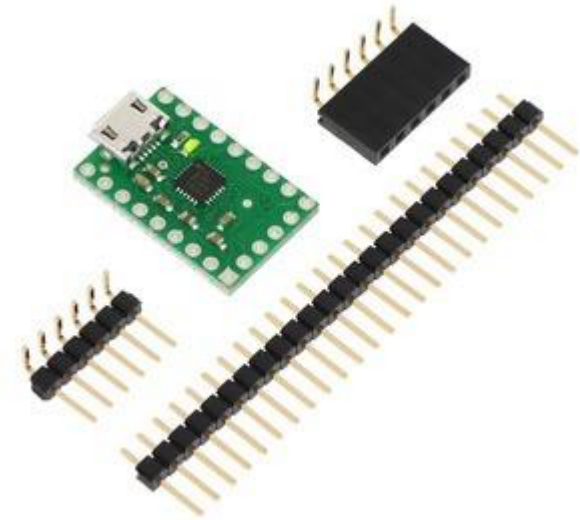
Alternatively, a 1×6 header can be soldered to the end of the board, as shown in the right picture below. This gives access to six signals (RTS, RX, TX, VBUS, CTS, and GND) that are commonly found on FTDI cables and other similar USB-to-serial adapters. As a result, this CP2104 adapter board can be used as a drop-in replacement for an FTDI cable in many applications, such as programming Arduino-compatible boards.



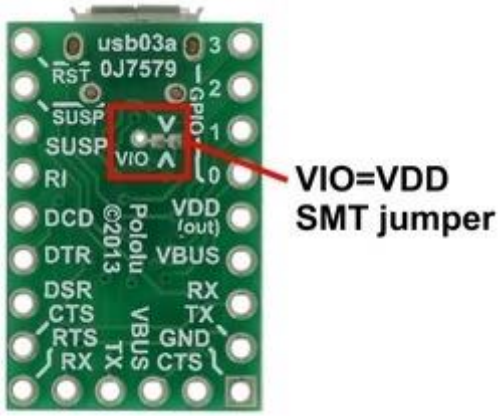
CP2104 USB-to-serial adapter carrier in a breadboard with included 0.1″ male headers installed.

CP2104 USB-to-serial adapter carrier with included 6-pin 0.1″ right-angle female header installed.

The carrier board ships with a 1×25 straight male header strip, a 1×6 right-angle male header strip, and a 1×6 right-angle female header as shown below. You can also solder wires directly to the pads for the smallest installation.

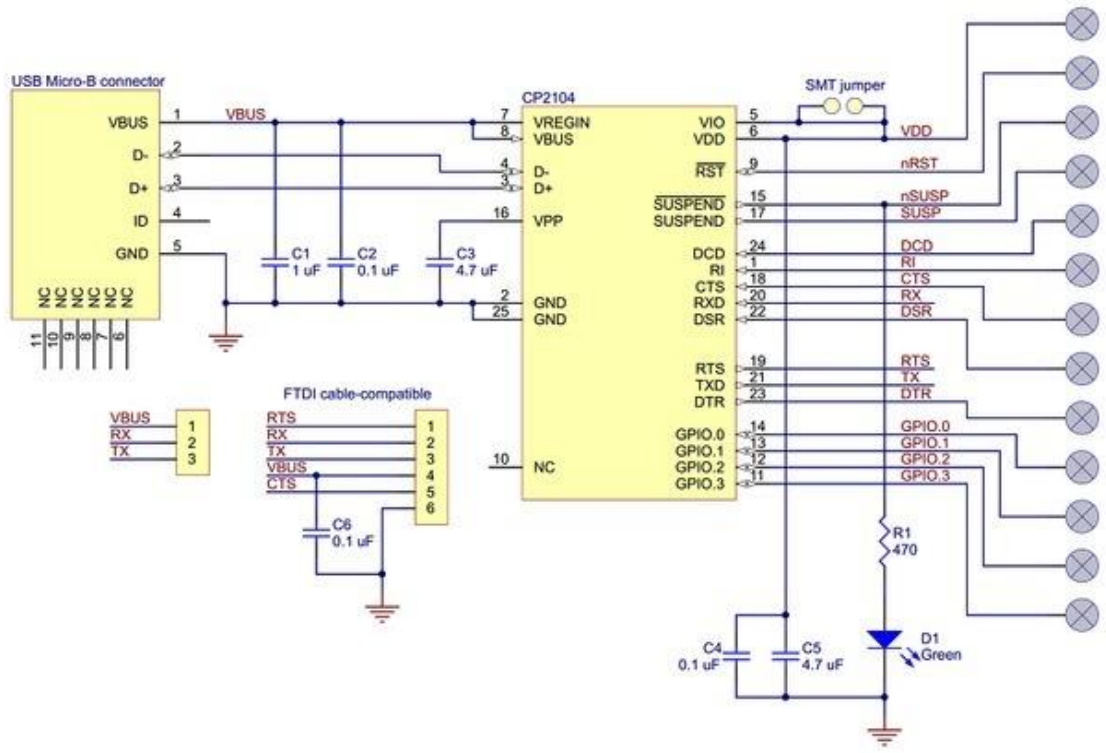


USING A DIFFERENT VIO



This carrier board connects the VIO pin of the CP2104 to VDD by default, setting its logic voltage level to the 3.45 V provided by the IC's built-in voltage regulator. If you want to use a lower logic voltage, you can disconnect VIO from VDD by cutting the thin trace between the two pads of the surface-mount jumper shown to the right. You can then solder a thin wire to the exposed via labeled "VIO" and connect it to a separate voltage supply (as low as 1.8 V).

SCHEMATIC DIAGRAM



This schematic is also available as a downloadable PDF (188k pdf).

ADVANCED FEATURES

You do not need to be familiar with details of the CP2104 to use this board as a basic USB-to-serial adapter, but the CP2104 also has specialized features including four general-purpose I/O (GPIO) pins and the ability to be customized via its one-time programmable ROM. For advanced users interested in these features, we recommend careful reading of the CP2104 datasheet (224k pdf). Additional resources, including application notes referenced by the datasheet, can also be found on the CP21xx product page of the Silicon Labs website.