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This is 5V device without modification! It works for me(tm) but you have been warned

<http://www.eevblog.com/forum/repair/ch341a-serial-memory-programmer-power-supply-fix/>

Just lift pin 28 and put some tape under it to prevent any short circuit. Then solder one wire from this pin to pin 2 of AMS1117 and also to C4. The side of the C4 to connect is the one connected to CH341A pin 9.

[CHM341A-3V3-fix.jpg](#)

## jumper on pins

1-2 SPI flash programmer mode  
2-3 TTL serial mode

supported out-of-box by flashrom, probably better option, but anyway:

<https://github.com/setarcos/ch341prog>

```
dpavlin@nuc:/nuc/ch341a$ git clone https://github.com/setarcos/ch341prog
Cloning into 'ch341prog'...
remote: Counting objects: 104, done.
remote: Total 104 (delta 0), reused 0 (delta 0), pack-reused 104
Receiving objects: 100% (104/104), 34.79 KiB | 0 bytes/s, done.
Resolving deltas: 100% (61/61), done.
Checking connectivity... done.
dpavlin@nuc:/nuc/ch341a$ cd ch341prog/
dpavlin@nuc:/nuc/ch341a/ch341prog$ make
gcc -std=gnu99 -Wall ch341a.c main.c -o ch341prog -lusb-1.0
dpavlin@nuc:/nuc/ch341a/ch341prog$ ./ch341prog
```

Usage:

```
-h, --help           display this message
-i, --info           read the chip ID info
-e, --erase          erase the entire chip
-l, --length <bytes> manually set length
-w, --write <filename> write chip with data from filename
-r, --read <filename> read chip and save data to filename
-t, --turbo          increase the i2c bus speed (-tt to use much faster speed)
-d, --double         double the spi bus speed
```

## I2C in userspace

<https://sourceforge.net/projects/ch341eepromtool/>

```
dpavlin@nuc:/nuc/ch341a/ch341eepromtool_0.5$ gcc -o ch341eeprom ch341eeprom.c ch341funcs.c -lusb-1.0
dpavlin@nuc:/nuc/ch341a/ch341eepromtool_0.5$
dpavlin@nuc:/nuc/ch341a/ch341eepromtool_0.5$ ./ch341eeprom
ch341eeprom - an i2c EEPROM programming tool for the WCH CH341a IC
Version 0.5 copyright (c) 2011 asbokid <ballymunboy@gmail.com>
```

This program comes with absolutely no warranty; This is free software, and you are welcome to redistribute it under certain conditions:  
GNU GPL v3 License: <http://www.gnu.org/licenses/gpl.html>

Usage:

```
-h, --help           display this text
-v, --verbose        verbose output
-d, --debug          debug output
-s, --size           size of EEPROM {24c32|24c64}
-e, --erase          erase EEPROM (fill with 0xff)
-w, --write <filename> write EEPROM with image from filename
-r, --read <filename> read EEPROM and save image to filename
```

Example: `ch341eeprom -v -s 24c64 -w bootrom.bin`

## flashrom SPI

Not needed anymore, included in mainline flashrom

```
git clone https://github.com/urjaman/flashrom/
git checkout -b origin/ch341a origin/ch341a
```

```
dpavlin@nuc:/nuc/flashrom$ sudo apt-get install pciutils-dev
```

# linux kernel spi module

```
dpavlin@nuc:/nuc$ git clone https://github.com/gschorcht/spi-ch341-usb.git
Cloning into 'spi-ch341-usb'...
remote: Counting objects: 63, done.
remote: Total 63 (delta 0), reused 0 (delta 0), pack-reused 63
Unpacking objects: 100% (63/63), done.
dpavlin@nuc:/nuc$ cd spi-ch341-usb
dpavlin@nuc:/nuc/spi-ch341-usb$ make
make -C /usr/src/linux-headers-4.14.0-3-amd64/ M=/nuc/spi-ch341-usb modules
make[1]: Entering directory '/usr/src/linux-headers-4.14.0-3-amd64'
  CC [M] /nuc/spi-ch341-usb/spi-ch341-usb.o
  Building modules, stage 2.
  MODPOST 1 modules
  CC      /nuc/spi-ch341-usb/spi-ch341-usb.mod.o
  LD [M] /nuc/spi-ch341-usb/spi-ch341-usb.ko
make[1]: Leaving directory '/usr/src/linux-headers-4.14.0-3-amd64'
dpavlin@nuc:/nuc/spi-ch341-usb$
dpavlin@nuc:/nuc/spi-ch341-usb$ sudo make install
[sudo] password for dpavlin:

dpavlin@nuc:/nuc/spi-ch341-usb$ sudo modprobe spi-ch341-usb

[525021.048281] spi-ch341-usb 2-2.1.4:1.0: ch341_cfg_probe: output cs0 SPI slave with cs=0
[525021.048285] spi-ch341-usb 2-2.1.4:1.0: ch341_cfg_probe: output cs1 SPI slave with cs=1
[525021.048287] spi-ch341-usb 2-2.1.4:1.0: ch341_cfg_probe: output cs2 SPI slave with cs=2
[525021.048290] spi-ch341-usb 2-2.1.4:1.0: ch341_cfg_probe: input gpio4 gpio=0 irq=0 (hwirq)
[525021.048292] spi-ch341-usb 2-2.1.4:1.0: ch341_cfg_probe: input gpio5 gpio=1 irq=1
[525021.048296] spi-ch341-usb 2-2.1.4:1.0: ch341_spi_probe: SPI master connected to SPI bus 0
[525021.048426] spi-ch341-usb 2-2.1.4:1.0: ch341_spi_probe: SPI device /dev/spidev0.0 created
[525021.048516] spi-ch341-usb 2-2.1.4:1.0: ch341_spi_probe: SPI device /dev/spidev0.1 created
[525021.048596] spi-ch341-usb 2-2.1.4:1.0: ch341_spi_probe: SPI device /dev/spidev0.2 created
[525021.049147] spi-ch341-usb 2-2.1.4:1.0: ch341_usb_probe: connected
[525021.049194] usbcore: registered new interface driver spi-ch341-usb
```

# linux kernel i2c module

- <https://github.com/gschorcht/i2c-ch341-usb>

```
root@nuc:/nuc# git clone https://github.com/gschorcht/i2c-ch341-usb.git
Cloning into 'i2c-ch341-usb'...
remote: Counting objects: 39, done.
remote: Total 39 (delta 0), reused 0 (delta 0), pack-reused 39
Unpacking objects: 100% (39/39), done.
root@nuc:/nuc# cd i2c-ch341-usb
root@nuc:/nuc/i2c-ch341-usb# make
make -C /usr/src/linux-headers-4.14.0-3-amd64/ M=/nuc/i2c-ch341-usb modules
make[1]: Entering directory '/usr/src/linux-headers-4.14.0-3-amd64'
  CC [M] /nuc/i2c-ch341-usb/i2c-ch341-usb.o
  Building modules, stage 2.
  MODPOST 1 modules
  CC      /nuc/i2c-ch341-usb/i2c-ch341-usb.mod.o
  LD [M] /nuc/i2c-ch341-usb/i2c-ch341-usb.ko
```

```
make[1]: Leaving directory '/usr/src/linux-headers-4.14.0-3-amd64'
```

```
root@nuc:/nuc/i2c-ch341-usb#
```

```
root@nuc:/nuc/i2c-ch341-usb# sudo make install
```

```
root@nuc:/nuc/i2c-ch341-usb# modprobe i2c-ch341-usb
```

```
[Wed Feb 7 16:37:00 2018] i2c-ch341-usb 2-2.1.4:1.0: ch341_cfg_probe: output gpio0 gpio=0 irq=0
[Wed Feb 7 16:37:00 2018] i2c-ch341-usb 2-2.1.4:1.0: ch341_cfg_probe: output gpio1 gpio=1 irq=1
[Wed Feb 7 16:37:00 2018] i2c-ch341-usb 2-2.1.4:1.0: ch341_cfg_probe: output gpio2 gpio=2 irq=2
[Wed Feb 7 16:37:00 2018] i2c-ch341-usb 2-2.1.4:1.0: ch341_cfg_probe: output gpio3 gpio=3 irq=3
[Wed Feb 7 16:37:00 2018] i2c-ch341-usb 2-2.1.4:1.0: ch341_cfg_probe: input  gpio4 gpio=4 irq=4
[Wed Feb 7 16:37:00 2018] i2c-ch341-usb 2-2.1.4:1.0: ch341_cfg_probe: input  gpio5 gpio=5 irq=5
[Wed Feb 7 16:37:00 2018] i2c-ch341-usb 2-2.1.4:1.0: ch341_cfg_probe: input  gpio6 gpio=6 irq=6
[Wed Feb 7 16:37:00 2018] i2c-ch341-usb 2-2.1.4:1.0: ch341_cfg_probe: input  gpio7 gpio=7 irq=7
[Wed Feb 7 16:37:00 2018] i2c-ch341-usb 2-2.1.4:1.0: ch341_i2c_probe: created i2c device /dev/i2c-0
[Wed Feb 7 16:37:00 2018] i2c-ch341-usb 2-2.1.4:1.0: ch341_i2c_set_speed: Change i2c bus speed to 100kHz
[Wed Feb 7 16:37:00 2018] i2c-ch341-usb 2-2.1.4:1.0: ch341_usb_probe: connected
[Wed Feb 7 16:37:00 2018] usbcore: registered new interface driver i2c-ch341-usb
```

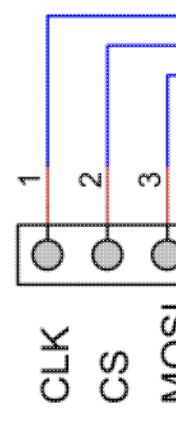
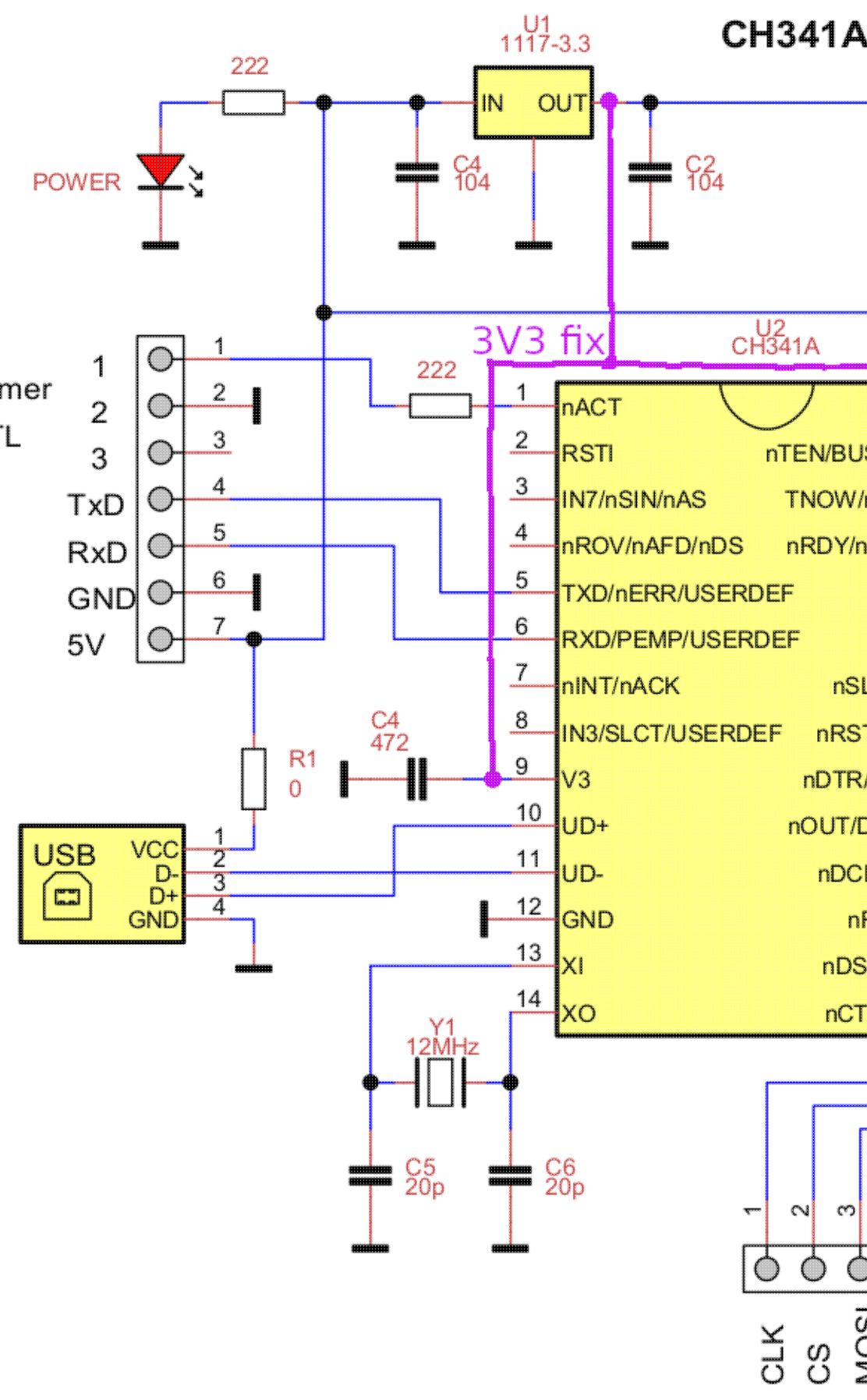
## schematics and info

- <http://onetransistor.blogspot.hr/2017/08/ch341a-mini-programmer-schematic.html>
- <http://www.zoobab.com/ch341-usb-spi-i2c-uart-isp-dongle>

I added soic 8 pinout over zif socket, because position of pin 1 is not obvious (or clearly marked anywhere on top). I suggest that you fix that with silver sharpy.

# CH341A

1-2: Programmer  
2-3: Serial TTL



# alternative schematics

<https://github.com/Upcycle-Electronics/CH341A-Pro>

[ch341Apro\\_schematicV01.pdf](#)