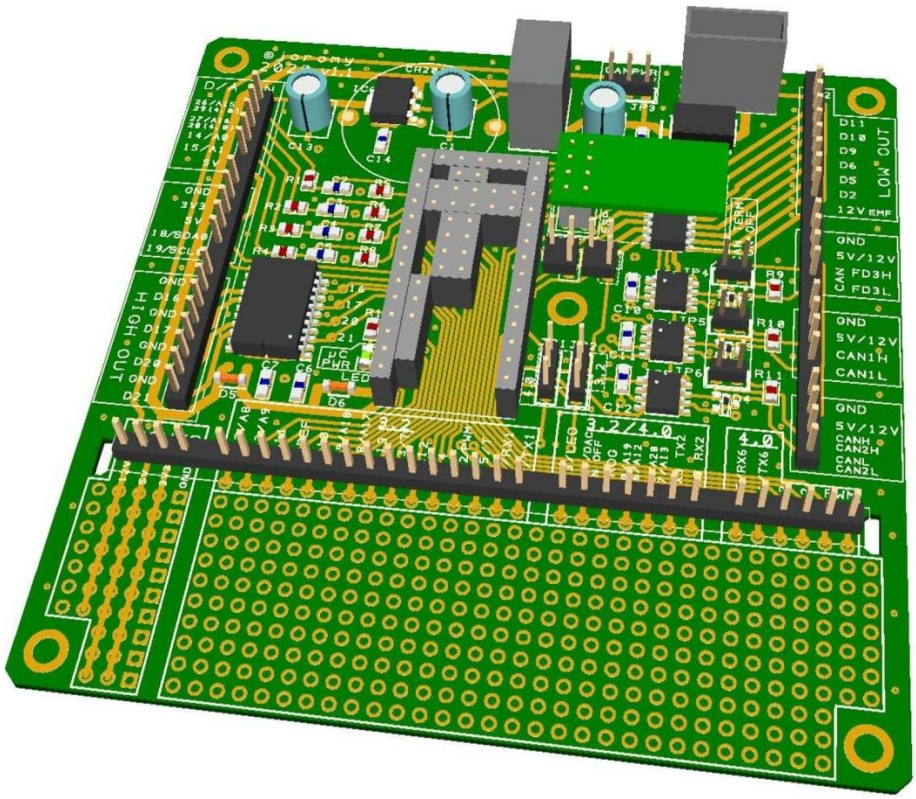
V 1.1

Teensy 3.2/4.0 breakout board



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INTRODUCTION:

This breakout board is a combo board that can be used with Teensy ver. 3.2 and 4.0 microcontroller module.

Through hole connectors are not populated, this way you can choose to use included connectors, or use connectors of your own choice.

The Teensy can be programmed in the popular Arduino IDE.

It has most of the module pins broken out, with connectors around the board.

All pins and connectors are named on the board, easy! No need to look in the manual!

There is also a prototype area where you can add 2.54mm pitch components.

FEATURES:

- Combo socket for the Teensy 3.2 or 4.0
- Two CAN 2.0B and one CAN FD (One CAN 2.0B for Teensy 3.2)
- On board connector for ESP 8266 WiFi module
- I2C connector, with 5V and 3.3V supply output
- Reverse supply voltage protection
- Jumper selectable 120Ω terminator
- RTC CR2032 battery holder (battery not included)
- 2 of the analog inputs have ≈5V to ≈3.3V resistor divider (4.7k/12k)
- 2 of the digital inputs have ≈12V to ≈3.3V resistor divider (4.7k/1.2k)

ELECTRICAL SPECIFICATIONS:

- Voltage input; 7V to 28V DC (NOM. 12V, 24V)
- Switch-mode DC/DC, 5V 500mA
- LDO regulator, 3.3V 300mA
- Low side output; max 7 X 0.6A (3 X 0.6A + 2 X 1.2A)
- High side output; max 4 X 3.3A
- High/Low side outputs can drive resistive, inductive and capacitive loads

HANDLING, PRECAUTION:

The board is packed in anti-static packaging. Good practice for working with static sensitive devices should be applied.

Do not exceed max signal input voltages (5V on Teensy 3.2 and 3.3V on Teensy 4.0)
Do not exceed max power dissipation or max simultaneous current, for the HIGH and LOW SIDE output. (See datasheet for exact specification)

Do not connect USB and external powersupply simultaneous, without cutting the VIN/VUSB, see section USB POWER page 6.

BOARD LAYOUT:

Mounting; 4X 3mm screws, with CC 91mm (mounting holes are connected to GND)

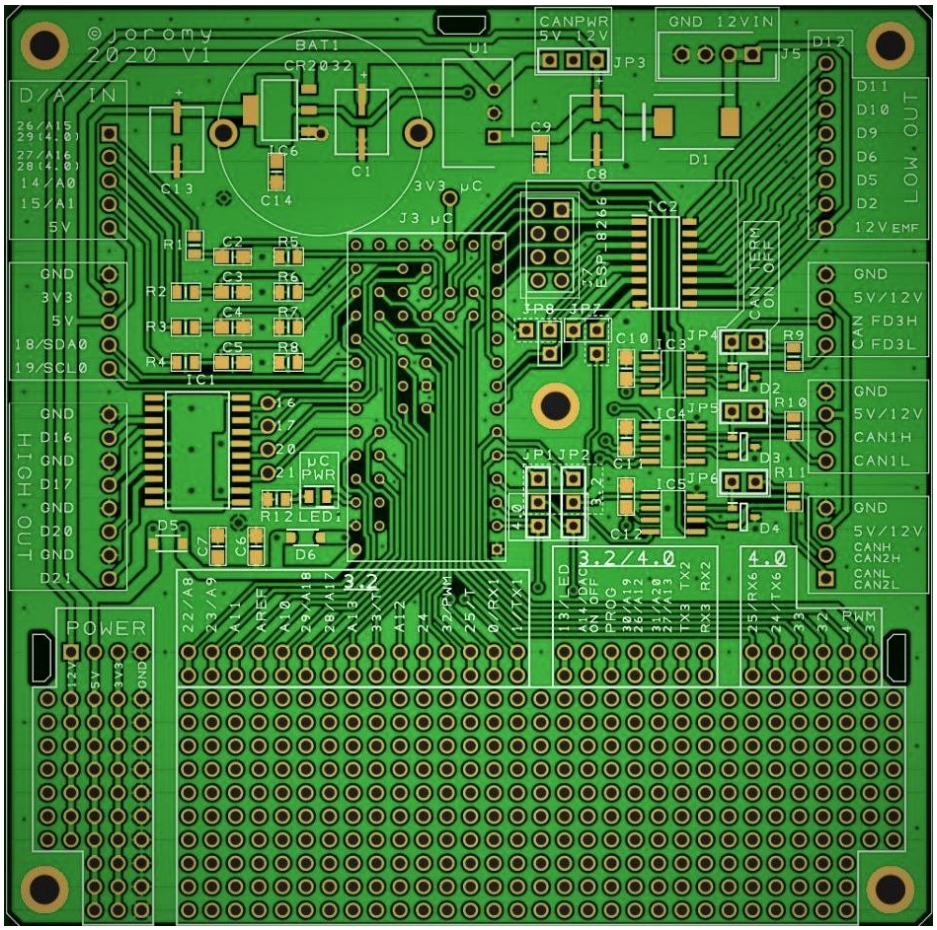


Illustration only, actual board is with tinned pads.

JUMPER SETTINGS:

JP 1,2: Select Teensy module 3.2 or 4.0 (CAN RX,TX)

JP 3: CAN connector voltage output; 5V, 12V/24V or applied input voltage.

JP 4,5,6: CAN bus 120Ω terminator; ON/OFF

JP 7: Place vertical to get Low Side darlington Transistor 6-7 separate.
*Place horizontal (dotted line) to short input 6-7 (1000mA)

JP 8: Place vertical to get Low Side darlington Transistor 4-5 separate.
*Place horizontal (dotted line) to short input 4-5 (1000mA)

*If you short input pin 6-7 or 4-5, then D2 or D6 is available on the “free” pin on JP7 or JP8.

CONNECTOR, PIN DESCRIPTION:

POWER INPUT (J5)

PIN #:	NAME:
1.	VIN, 7V to 28V
2.	VIN, 7V to 28V
3.	GND
4.	GND

Connect both VIN pins and GND pins for better current transfer.

D/A INPUT

PIN #:	NAME:
1.	*D26/A15 *D29
2.	*D27/A16 *D28
3.	D14/A0
4.	D15/A1
5.	5V

*Pin description with two lines; first line is for Teensy 3.2 and second line is for Teensy 4.0

HIGH OUT

PIN #:	NAME:
1.	GND
2.	D16
3.	GND
4.	D17
5.	GND
6.	D20
7.	GND
8.	D21

CAN BUS, 1-3

PIN #:	NAME:
1.	CAN LO
2.	CAN HI
3.	*5V/12V (VIN)
4.	GND

*Set JP3 to select 5V/12V (VIN)

LOW OUT

PIN #:	NAME:
1.	12V (VIN, EMF)
2.	*D2
3.	*D5
4.	*D6
5.	*D9
6.	D10
7.	D11
8.	D12

*Pin 2,3 can be combined for higher current (1000mA) JP7 must be set horizontal!
*Pin 4,5 can be combined for higher current (1000mA) JP8 must be set horizontal!

Remaining available pins from the Teensy, are broken out in a 2.54mm pitch row, along the proto area.

USB POWER:

The Teensy can be powered from USB when inserted in the breakout board.

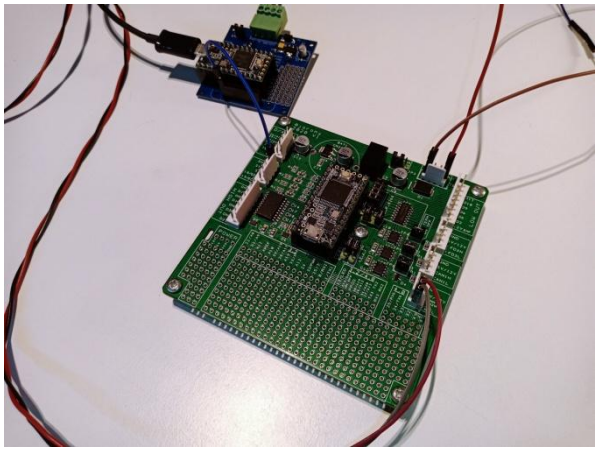
Two diodes are separating the USB power and the breakout board powersupply, so you can safely have USB cable and external power connected *simultaneous.

*IMPORTANT!
Cut the pad going from VIN pin to VUSB pin on the back of the Teensy for this feature!

PROGRAM EXAMPLE:

Reading an analog input value from one board, and send it to another via CAN bus.

https://github.com/jomy-tech/Teensy-breakout-board

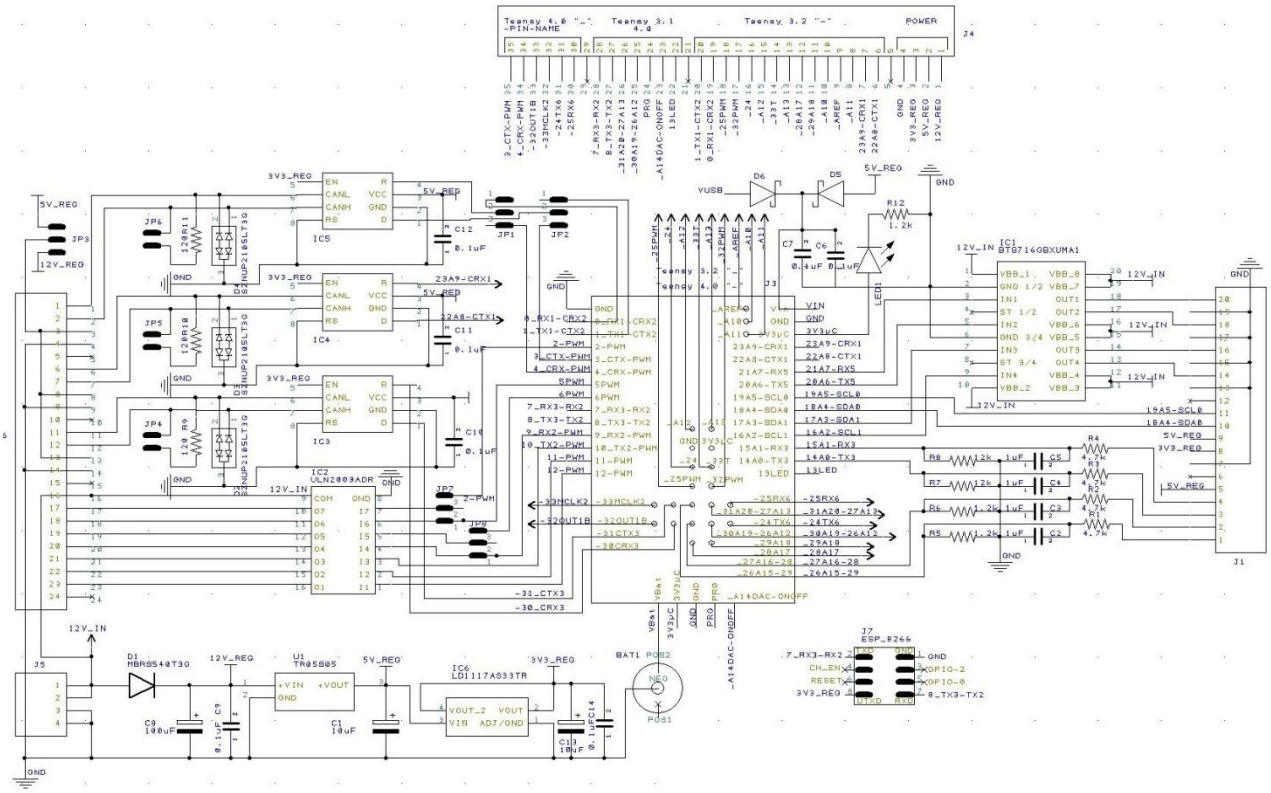


RESOURCES:

For information on Teensy, how to use Arduino IDE, program examples and more, visit:

https://www.pjrc.com/

SCHEMATIC:



REVISION HISTORY:

Board:

Ver. 1.0; Preliminary

Ver. 1.1; Production, Fixed PCB, CAN TX/RX layout error, changed/swapped JP7-JP8 pins

Documentation:

Ver. 1.0; Preliminary

Ver. 1.0a; Preliminary, fixed some grammar and spelling, changed JP7-JP8 description, added USB POWER section.

Ver. 1.0b; Preliminary, added index.

DISCLAIMER:

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All information in this document is given by jomy-tech in good faith.

The Teensy breakout board is intended for education, lab and hobby use, and does not have FCC or CE certification, but has gone through rigorous testing, and following good practice for electronic engineering.

Our products are subject to continuous development and improvements, changes may be done without prior notice.

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