This is based on the official Raspberry Pi spec to be able to call an extension board a HAT.
https://github.com/raspberrypi/hats/blob/master/designguide.md

40-Pin HAT Connector

Socket_Strips:Socket_Strip_Straight_2x20

40HAT   J3

P3V3_HAT — 1 P3V3 / P5V 2 — P5V_HAT
3 BCM2 / P5V 4 — P5V_HAT
5 BCM3 / GND 6 — GND
7 BCM4 / BCM14 8
GND — 9 GND / BCM15 10
11 BCM17 / BCM18 12
13 BCM27 / GND 14 — GND
15 BCM22 / BCM23 16
17 P3V3 / BCM24 18
19 BCM10 / GND 20 — GND
21 BCM9 / BCM25 22
23 BCM11 / BCM8 24
GND — 25 GND / BCM7 26
ID_SD_EEPROM — 27 BCM0 / BCM1 28 — ID_SC_EEPROM
29 BCM5 / GND 30 — GND
31 BCM6 / BCM12 32
33 BCM13 / GND 34 — GND
35 BCM19 / BCM16 36
37 BCM26 / BCM20 38
GND — 39 GND / BCM21 40

HAT EEPROM

The HAT spec requires this EEPROM with system information
to be in place in order to be called a HAT. It should be set up as write
protected (WP pin held high), so it may be desirable to either put a
jumper as shown to enable writing, or to hook up a spare IO pin to do so.

P3V3

EEPROM WRITE ENABLE

CAT24C32   U2
1 A0   VCC
2 A1
3 A2
7 WP   SCL 6 — ID_SD_EEPROM_pu
         SDA 5 — ID_SC_EEPROM_pu
         GND
GND

CONN_01X02 J9
DNP R11
R29 10K
GND
P3V3
GND

Pullup Resistors

These are just pullup resistors for the I2C bus on the EEPROM.
The resistor values are per the HAT spec.

ID_SD_EEPROM_pu — 3.9K — P3V3
ID_SD_EEPROM   R6
ID_SC_EEPROM_pu — 3.9K
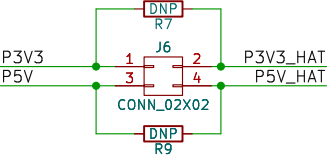ID_SC_EEPROM   R8

5V Powered HAT Protection

This is the recommended 5V rail protection for
a HAT with power going to the Pi.
See https://github.com/raspberrypi/hats/blob/master/designguide.md#back-powering-the-pi-via-the-j8-gpio-header

Q1 DMG2305UX
P5V — D / S — P5V_HAT
G

TO_SOT_Packages_SMD:SOT-23-6   TO_SOT_Packages_SMD:SOT-23-6
DMMT5401 Q2A   DMMT5401 Q2B

GND   GND   GND — GND

GND   GND
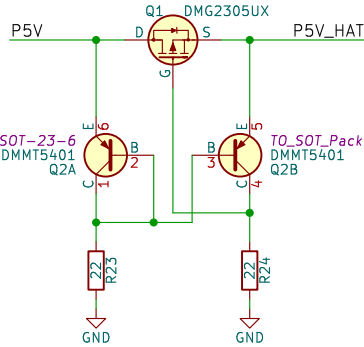
HAT spec indicates to NEVER
power the 3.3V pins on the Raspberry Pi
from the HAT header. Only connect the 3.3V
power from the Pi if the HAT does not have
3.3V on board.

IF you are designing a board that could
either be powered by the Pi or from the HAT
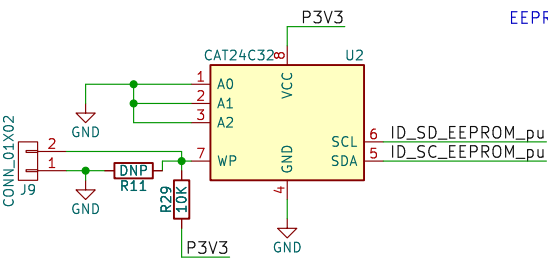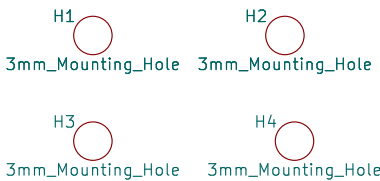the jumpers here can be used.

In most cases, either design the HAT
to provide the 5V to the Pi and use the
protection circuit above OR power the
HAT from the Pi and directly connect
the P3V3 and P5V to the P3V3_HAT and P5V_HAT
pins.

FLEXIBLE POWER SELECTION

DNP R7
P3V3 — 1 / 2 — P3V3_HAT
J6
P5V — 3 / 4 — P5V_HAT
CONN_02X02
DNP R9

Mounting Holes

H1   H2
3mm_Mounting_Hole   3mm_Mounting_Hole

H3   H4
3mm_Mounting_Hole   3mm_Mounting_Hole