U1 MCP23017_SO

- 13 SDA
- 12 SCK
- 9 VDD
- 19 INTB
- 20 INTA
- 18 RESET
- 17 A2
- 16 A1
- 15 A0
- 10 VSS
- GPB0 1 — USB_SWITCH_CMD_0
- GPB1 2 — USB_SWITCH_CMD_1
- GPB2 3 — USB_SWITCH_CMD_2
- GPB3 4
- GPB4 5
- GPB5 6
- GPB6 7
- GPB7 8
- GPA0 21 — PWR_RELAY_CMD_0
- GPA1 22 — PWR_RELAY_CMD_1
- GPA2 23 — PWR_RELAY_CMD_2
- GPA3 24 — SIGNAL_RELAY_CMD_0
- GPA4 25 — SIGNAL_RELAY_CMD_1
- GPA5 26 — SIGNAL_RELAY_CMD_2
- GPA6 27
- GPA7 28

+3V3

C1 100nF
GND

+3V3

DNP
R4 10K   R5 10K

R2 0
R3 0

TP1
TP2

RPI_SDA
RPI_SCL

R4 an R5 can be placed when stacking up multiple boards

RPI_PIN15
RPI_PIN16

R1 10k

TP3
TP4

+3V3   +3V3

JP1
JP2
JP3

GND

A0: GND
A1: GND
A2: GND
0b0100_A2A1A0 = 0b0100_000
Default Address: 0X20 (8bit)

GND

+5V_RPI   +5V

+5V

Q1 AO4407
Q2 AO4407

+5V_EXT

R10 100k

LED D3

U4 LTC4412xS6
- 1 VIN
- 3 CTL
- GATE
- 2 GND
- SENSE 6
- STAT 4

R13 330
C3 100uF

GND

J3 HAT_Power_Supply
- VBUS A9 — +5V_EXT
- SHIELD S1
- CC1 A5
- CC2 B5
- GND A12

R7 5.1K
R8 5.1K
GND

GND

D1 Status LED
R6 330
GND

J1 RPi_40pi_Hat
- 32 GPIO12/PWM0
- 33 GPIO13/PWM1
- 8 GPIO14/UART_TXD
- 10 GPIO15/UART_RXD
- 36 GPIO16/SPI1_CE2
- 11 GPIO17/SPI1_CE1
- 12 GPIO18/SPI1_CE0/PCM_CLK/PWM0
- 35 GPIO19/SPI1_MISO/PCM_FS
- 38 GPIO20/SPI1_MOSI/PCM_DIN/PWM1
- 40 GPIO21/SPI1_SCLK/PCM_DOUT
- 15 GPIO22/SDIO_CLK
- 16 GPIO23/SDIO_CMD
- 18 GPIO24/SDIO_DAT0
- 22 GPIO25/SDIO_DAT1
- 37 GPIO26/SDIO_DAT2
- 13 GPIO27/SDIO_DAT3
- 5V 2
- 3V3 1
- ID_SD_I2C0/GPIO00 27
- ID_SC_I2C0/GPIO01 28
- SDA_I2C1/GPIO02 3 — RPI_SDA
- SCL_I2C1/GPIO03 5 — RPI_SCL
- GPCLK0/GPIO04 7
- GPCLK1/GPIO05 29
- GPCLK2/GPIO06 31
- CE1_SPI0/GPIO07 26
- CE0_SPI0/GPIO08 24
- MISO_SPI0/GPIO09 21
- MOSI_SPI0/GPIO10 19
- SCLK_SPI0/GPIO11 23
- GND 6

+5V_RPI   +3V3

RPI_UART_TX
RPI_UART_RX

RPI_PIN15
RPI_PIN16

J2 Debug UART
- RPI_UART_TX 3
- RPI_UART_RX 2
- 1
GND

J5 Inter-board connector
+5V   +3V3
- 8
- 7
- 6
- 5
- 4
- RPI_SDA 3
- RPI_SCL 2
- 1
GND

K1
G5LE-1
R9
0
PWR_RELAY_DRV_0_N
+5V
Power Relay 0
J6

K2
G5LE-1
R11
0
PWR_RELAY_DRV_1_N
+5V
Power Relay 1
J7

K3
G5LE-1
R14
0
PWR_RELAY_DRV_2_N
+5V
Power Relay 2
J8

K4
G6K-2
R12
0
SIGNAL_RELAY_DRV_0_N
+5V
J9
Signal Relay A/B 0

K5
G6K-2
R18
0
SIGNAL_RELAY_DRV_1_N
+5V
J10
Signal Relay A/B 1

K6
G6K-2
R21
0
SIGNAL_RELAY_DRV_2_N
+5V
J11
Signal Relay A/B 2

U2
ULN2803A
PWR_RELAY_CMD_0
PWR_RELAY_CMD_1
PWR_RELAY_CMD_2
SIGNAL_RELAY_CMD_0
SIGNAL_RELAY_CMD_1
SIGNAL_RELAY_CMD_2
COM
+5V
I1   O1
I2   O2
I3   O3
I4   O4
I5   O5
I6   O6
I7   O7
I8   O8
GND
PWR_RELAY_DRV_0_N
PWR_RELAY_DRV_1_N
PWR_RELAY_DRV_2_N
SIGNAL_RELAY_DRV_0_N
SIGNAL_RELAY_DRV_1_N
SIGNAL_RELAY_DRV_2_N
GND

Sheet: /relay/
File: relay.kicad_sch

Title:

Size: A4   Date:
KiCad E.D.A. 9.0.7

Rev:

Id: 2/2