J1
STRIP_20x2
STRIP_17+STRIP_9
STRIP_20X2
STRIP_3X2
OPTIONAL ID EEPROM
RN11
100K_R-SIL_8
RN12
100K_R-SIL_4
RN1
1K_R-SIL_4
RN2
1K_R-SIL_4
RN3
1K_R-SIL_4
SW1
SW2
SW3
SW4
SW_PUSH
10K
RN7A
RN7B
RN7C
RN7D
STRIP_2
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10
P11
P12
P13
P14
P15
P16
P17
P18
P19
P20
P21
P22
P23
P24
LD1
LD2
LD3
LD4
LD5
LD6
LD7
LD8
LD9
LD10
LD11
LD12
LED 3mm
RN4A
RN4B
RN4C
RN4D
RN5A
RN5B
RN5C
RN5D
RN6A
RN6B
RN6C
RN6D
10K
U3
U4
U5
74HC244
C8
C9
C10
100nF 63V
RN8
RN9
RN10
100K_R-SIL_4
STRIP_8
J2
J3
J4
J5
J10A1
J10B1
J11
J12
J40
J53
J55
J56
J57
J58
J59
J60
J61
J62
J63
J64
STRIP_12
STRIP_2
STRIP_4
STRIP_2x2
STRIP_5
STRIP_7
STRIP_8
BUF1
BUF2
BUF3
BUF4
BUF5
BUF6
BUF7
BUF8
BUF9
BUF10
BUF11
BUF12
RELAY_1
RELAY_2
RELAY_3
RELAY_4
RELAY_5
RELAY_6
RELAY_7
RELAY_8
MOTOR_A
MOTOR_B
SCLK
MOSI
MISO
nCSA
nCSB
R1
R2
10K
MC_RX
MC_TX
MC_MISO
MC_MOSI
MC_SCK
PC6/DBG/RESETn
GPIO2(0)
GPIO3(1)
GPIO4
GPIO7
GPIO8
GPIO9
GPIO10
GPIO11
GPIO14
GPIO15
GPIO17
GPIO18
GPIO22
GPIO23
GPIO24
GPIO27(21)
GPIO5
GPIO6
GPIO12
GPIO13
GPIO16
GPIO19
GPIO20
GPIO21
GPIO25
GPIO26
3V3_RASP
ID_SD
ID_SC
PC0
PC1
PC2
PC3
PC4
PC5
PD0
PD1
PD2
PD3
PD4
PD5
PD6
PD7
PB0
PB1
PB2
U6
MCP3008
STRIP_8X2
P25
J28
C20
SCLK
MISO
MOSI
nCSA
CLK
DOUT
DIN
CS/SHDN
U9
CAT24C32
R30
R31
R32
3K3
IDWRT
P27
C21
U10
MCP4802-DIP
C19
STRIP_2x2
P29
DA0
DA1
U8
ATMEGA328P-DIP
PD7_(AIN1/PCINT23)
PD6_(AIN0/OC0A/PCINT22)
PD5_(T1/OC0B/PCINT21)
PD4_(T0/XCK/PCINT20)
PD3_(INT1/OC2B/PCINT19)
PD2_(INT0/PCINT18)
PD1_(TXD/PCINT17)
PD0_(RXD/PCINT16)
PB0_(ICP1/CLKO/PCINT0)
PB1_(OC1A/PCINT1)
PB2_(SS/OC1B/PCINT2)
PB3_(MOSI/OC2A/PCINT3)
PB4_(MISO/PCINT4)
PB5_(SCK/PCINT5)
PB6_(TOSC1/XTAL1/PCINT6)
PB7_(TOSC2/XTAL2/PCINT7)
PC6_(RESET/PCINT14)
PC5_(ADC5/SCL/PCINT13)
PC4_(ADC4/SDA/PCINT12)
PC3_(ADC3/PCINT11)
PC2_(ADC2/PCINT10)
PC1_(ADC1/PCINT9)
PC0_(ADC0/PCINT8)
AVCC
AREF
C15
C16
C17
R24
0R
X1
12MHz_resonator
XTAL1
XTAL2
D18
1N4004
R34
10K
STRIP_2
J71
U12
ULN2803AN/TD62783AP
COM
GND
STRIP_2x2
P26
RPWR
RCOM
RGND
STRIP_5x2
J13
Low side / High side selection
IF Vx IS NOT USED, Vin MUST BE (>=6V) AND (<=24V)
LEAVE SPACE FOR
Aavid 5772 HEATSINK
D21
1N4004
U1
78M33
VIN
VOUT
REF
3V3
10uF 16V
C1
C3
100nF 63V
J7
STRIP_3
3V3_RASP
HIGHLY
RECOMMENDED
U2
MC34167
COMP/STBY
SW
VFB
LEAVE SPACE FOR Aavid 5772
HEATSINK ONBOARD
PLUS Aavid 5903 OUTSIDE BOARD
D22
1N5822
L1
470uH 3A
R37
6K8 1%
R35
68K
C7
100nF 63V
R36
1K
R38
2K2
C5
27uF 35V low ESR
J8
Vx
OPTIONAL
MORS_2P
J9
D20
2KBP01M
VAR1
25Vac 250A
330uF 35V
C4
C6
100nF 63V
Vx Rx
5V —NO—
6V 36.5K
7V 17.8K
8V 11.5K
9V 8.66K
10V 6.81K
11V 5.76K
12V 4.87K
13V 4.32K
14V 3.83K
15V 3.40K
16V 3.16K
17V 2.87K
18V 2.61K
19V 2.43K
20V 2.32K
Vin MUST BE (>= Vx+2V) AND (>=8.5V) AND (<=24V)
R38 MUST BE ALWAYS USED WITH A VARIABLE R36
TO PREVENT Rx FROM GOING TOO LOW, AND SHOULD
BE SELECTED ACCORDING TO Vin AND SUBSEQUENT
Vx MAX (ex: with Vin=12V, R38>=6.81K)
DO NOT INSTALL R36+R38 FOR Vx=5V
PLACE WITH SLUG TOWARDS BOARD EDGE
TO ALLOW INSTALLATION OF HEATSINK
U7
L6203
VREF
ENABLE
IN1
IN2
VS
BOOT1
BOOT2
OUT1
OUT2
GND
SENSE
ISNS
C11
220nF 63V
C12
22nF 63V
C13
22nF 63V
R23
0R1 3W
J20
J19
MORS_4P
MOTA
MOTB
F1
20x5
MOT+F
MOT+
J6
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Based on Gertboard by G.J. Van Loo
Walter Lain
Sheet: /
File: pioboard.sch
Title: PiOBoard
Size: A3
Date: 21 mar 2015
Rev: 2.0
KiCad E.D.A. kicad (2015-03-14 BZR 5511)-product
Id: 1/1