USB IN

P1
+5
D−
D+
GND
USB−M

F1 .5 A

U2 LP2985−33
VIN VOUT
ON/OFF
BYPASS
GND

R16 1K
C15 10 uF 16V
C14 .01 uF
D44
EXT_PWR
DGND   AGND

INSERT R14 FOR
FOR BATTERY PWR
INSERT R15
FOR EXTERNAL PWR
DO NOT INSERT R14 & R15
SIMULTANEOUSLY!

R15 0
C13 4.7 uF 25V
R14 0
B1 CR_2032

C12 4.7 uF
C11 22 pF
AGND

C10 4.7 uF 25V
C9 4.7 uF 25V

INSERT R10 FOR PWM (DEFAULT)
INSERT R11 FOR SPI INTERFACE
DO NOT INSERT R10 & R11
SIMULTANEOUSLY!

DO NOT EXCEED
3 VOLTS

R11 120   MOSI
R10 120   PWM_11
AREF

TP1 USB_D−
TP2 USB_D+

R17 5V   R18 5V

R13 10K   D45 S01575

C8 .01 uF 16V
R12 0
AGND
AREF

U1 ATMEGA128RFA1

CLKI 33
AREF 62
TST 11
RSTIN 12
RSTON
NC 13

PB0:SSN:PCINT0 36 NC
PB1:SCK:PCINT1 37
PB2:MOSI:PD1:PCINT2 38
PB3:MISO:PDO:PCINT3 39
PB4:OC2A:PCINT4 40
PB5:OC1A:PCINT5 41
PB6:OC1B:PCINT6 42
PB7:OC0A:OC1C:PCINT7 43

PD0:SCL:INT0 25 NC
PD1:SDA:INT1 26 NC
PD2:RXD1:INT2 27 NC
PD3:TXD1:INT3 28 NC
PD4:ICP1 29 NC
PD5:XCK1 30
PD6:T1 31 RXD
PD7:T0 32 TXD

PE0:RXD0:PCINT8 46
PE1:TXD0 47
PE2:XCK0:AIN0 48
PE3:OC3A:AIN1 49
PE4:OC3B:INT4 50
PE5:OC3C:INT5 51
PE6:T3:INT6 52
PE7:ICP3:INT7:CLKO 53

PF0:ADC0 63
PF1:ADC1 64
PF2:ADC2:DIG2 1
PF3:ADC3:DIG4 2
PF4:ADC4:TCK 3
PF5:ADC5:TMS 4
PF6:ADC6:TDO 5
PF7:ADC7:TDI 6

AVSS_RFN 10
RFN 9
RFP 8
AVSS_RFP 7

PG0:DIG3 14
PG1:DIG1 15
PG2:AMR 16 NC
PG3:TOSC2 17
PG4:TOSC1 18
PG5:OC0B 19 NC

XTAL2 56
XTAL1 57

RESET S1
PF1 S2   R19 1K
PF2 S3   R20 1K

INSERT R21 FOR
SHIELD "EXT_PWR"
FEATURE

POWER
R21 0
VIN
GND
GND
VCC
3.3V
RST
J1

RST

Y2 32.768 KHz RTC
C6 12 pF   C5 12 pF

Y1 16.000 MHz CLK
C4 12 pF   C3 12 pF
AGND   AGND

ANALOG
A0 PF0
A1 PF1
A2 PF2
A3 PF3
A4 PF4
A5 PF5
J2

DO NOT EXCEED
3 VOLTS

AGND

R8 1K TxD RxD
R7 1K
D42 D41
R6 10K

TP3 SER_RXD
TP4 SER_TXD

R1 120 ... R5 120
R2 120 R3 120 R4 120

D1 D2 D3 D4 D5
D6 D7 D8 D9 D10
D11 D12 D13 D14 D15
D16 D17 D18 D19 D20
D21 D22 D23 D24 D25
D26 D27 D28 D29 D30
D31 D32 D33 D34 D35
D36 D37 D38 D39 D40

DIGITAL_1
AREF
GND
D13
D12
D11
D10
D9
D8
J4

+3.3V
P2
MISO VCC
SCK   MOSI
RST   GND
AVR−ISP−6A
ICSP

R9 1K
D43 SCK

RXD_IN
TXD_IN
D0+RX
D1+TX
D3
D4
D5
D6
D7
DIGITAL_0
J3

DO NOT EXCEED
3 VOLTS

ANTENNA
Z3

C1 22 pF 0402
C2 22 pF 0402

AVSS:ASVSS
AVSS
PADDLE
DVSS:DSVSS
DVSS
DVSS
DVSS
AGND

NOTES:

1. Capacitor values in pF, 5%, 25V min., unless noted.

2. Resistors 0603 SMD 5% 1/10 W unless noted.

3. Resistors 8 and 9 are mutually exclusive.
   Default is R8, to provide "PWM" ouput.

4. Unused: C7 Last used C15, D45, F1, J4, J4,
   P2, R21, S3, TP2, U2, Y2, Z2.

WORKSHOP 88

Proj. Mgr: R. Ristich
Drawn: P. Reich
Designed: P. Reich
Workshop 88

Thotcon 0x04

File: thotcon_badge_dig.sch
Sheet: 1/1
Title: BOARD, PC, THOTCON−0x04
Size: B   Date: 10 feb 2013   Rev: T2a
KiCad E.D.A.   Id: 1/1