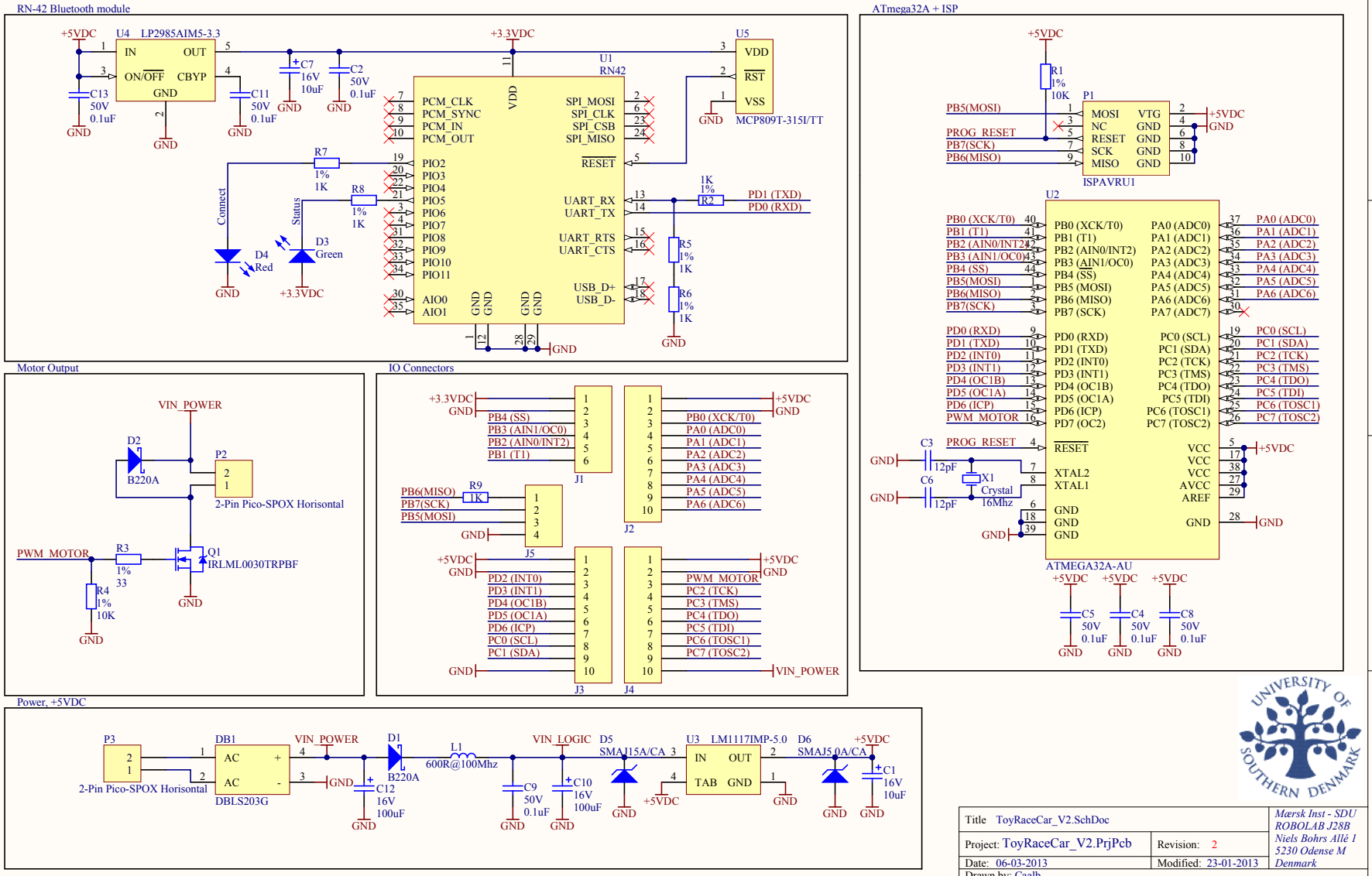
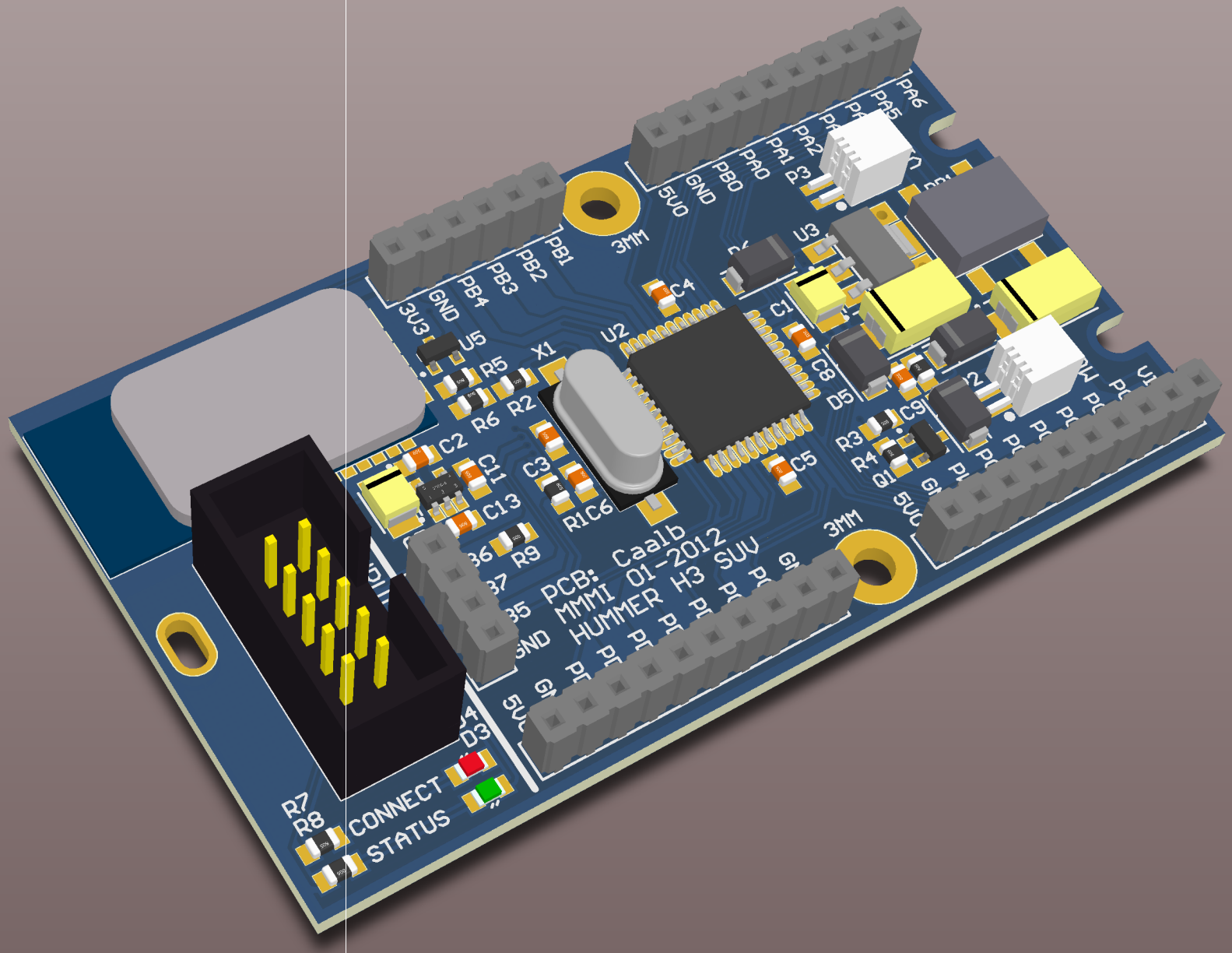
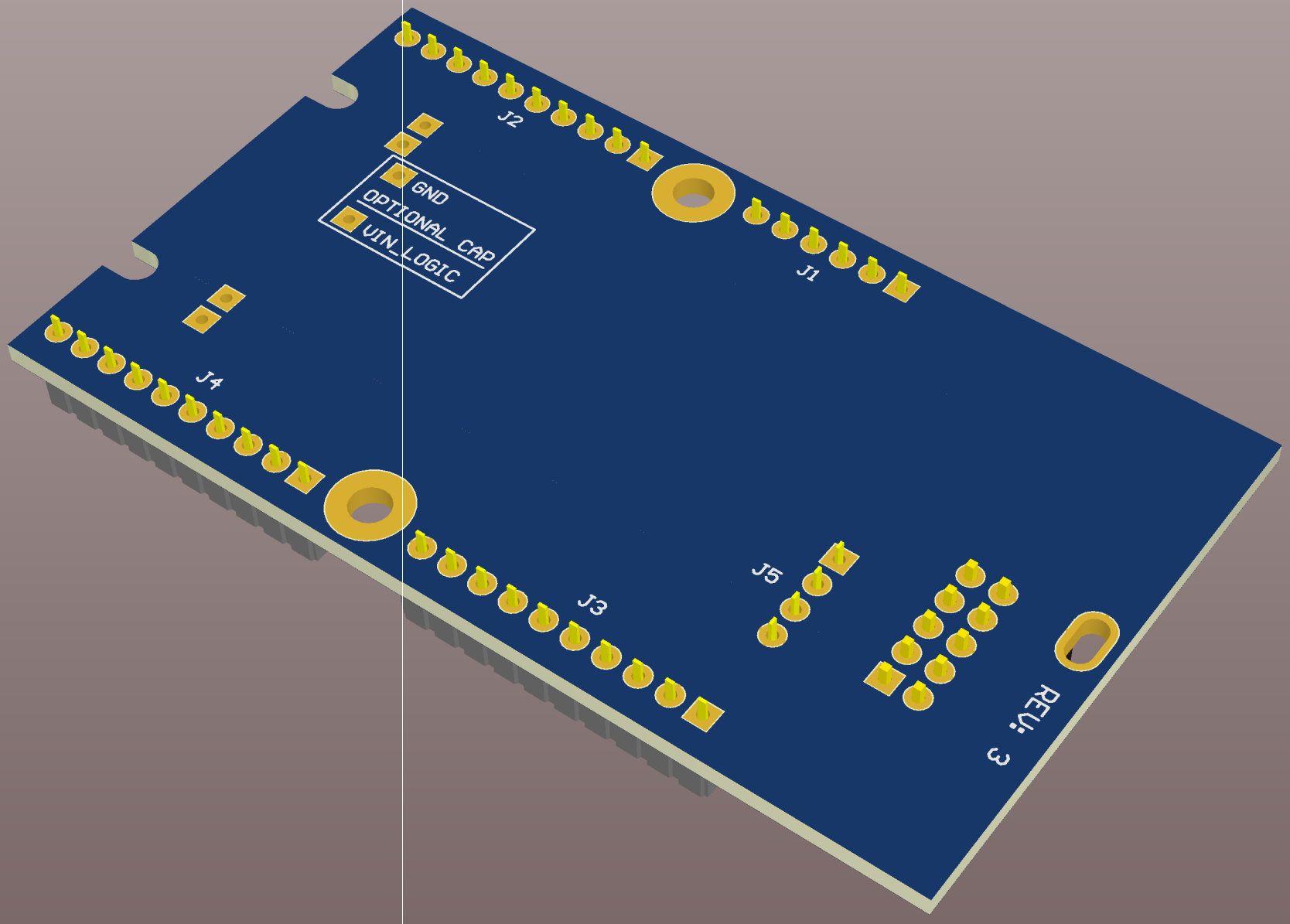

RN-42 Bluetooth module
+5VDC
U4 LP2985AIM5-3.3
IN
OUT
ON/OFF
CBYP
GND
C13 50V 0.1uF
C11 50V 0.1uF
C7 16V 10uF
C2 50V 0.1uF
+3.3VDC
U1 RN42
PCM_CLK
PCM_SYNC
PCM_IN
PCM_OUT
VDD
SPI_MOSI
SPI_CLK
SPI_CSB
SPI_MISO
RESET
UART_RX
UART_TX
UART_RTS
UART_CTS
USB_D+
USB_D-
PIO2
PIO3
PIO4
PIO5
PIO6
PIO7
PIO8
PIO9
PIO10
PIO11
AIO0
AIO1
U5
VDD
RST
VSS
MCP809T-315I/TT
R7 1% 1K
R8 1% 1K
Connect
Status
D4 Red
D3 Green
R2 1K 1%
R5 1% 1K
R6 1% 1K
PD1 (TXD)
PD0 (RXD)
ATmega32A + ISP
R1 1% 10K
P1
ISPAVRU1
MOSI
NC
RESET
SCK
MISO
VTG
PB5(MOSI)
PROG_RESET
PB7(SCK)
PB6(MISO)
U2
ATMEGA32A-AU
PB0 (XCK/T0)
PB1 (T1)
PB2 (AIN0/INT2)
PB3 (AIN1/OC0)
PB4 (SS)
PB5(MOSI)
PB6(MISO)
PB7(SCK)
PD0 (RXD)
PD1 (TXD)
PD2 (INT0)
PD3 (INT1)
PD4 (OC1B)
PD5 (OC1A)
PD6 (ICP)
PWM_MOTOR
PA0 (ADC0)
PA1 (ADC1)
PA2 (ADC2)
PA3 (ADC3)
PA4 (ADC4)
PA5 (ADC5)
PA6 (ADC6)
PA7 (ADC7)
PC0 (SCL)
PC1 (SDA)
PC2 (TCK)
PC3 (TMS)
PC4 (TDO)
PC5 (TDI)
PC6 (TOSC1)
PC7 (TOSC2)
C3 12pF
C6 12pF
X1 Crystal 16Mhz
XTAL2
XTAL1
VCC
AVCC
AREF
C5 50V 0.1uF
C4 50V 0.1uF
C8 50V 0.1uF
Motor Output
VIN_POWER
D2 B220A
P2 2-Pin Pico-SPOX Horisontal
PWM_MOTOR
R3 1% 33
Q1 IRLML0030TRPBF
R4 1% 10K
IO Connectors
J1
J2
J3
J4
J5
R9 1K
Power, +5VDC
P3 2-Pin Pico-SPOX Horisontal
DB1 DBLS203G
AC
VIN_POWER
D1 B220A
L1 600R@100Mhz
C12 16V 100uF
VIN_LOGIC
C9 50V 0.1uF
C10 16V 100uF
D5 SMAJ15A/CA
U3 LM1117IMP-5.0
IN
OUT
TAB
GND
D6 SMAJ5.0A/CA
C1 16V 10uF
Title ToyRaceCar_V2.SchDoc
Project: ToyRaceCar_V2.PrjPcb
Revision: 2
Date: 06-03-2013
Modified: 23-01-2013
Drawn by: Caalb
Mærsk Inst - SDU
ROBOLAB J28B
Niels Bohrs Allé 1
5230 Odense M
Denmark
UNIVERSITY OF SOUTHERN DENMARK

35,09mm
30,00mm
2,07mm
2,95mm
44,00mm
38,1mm
7,62mm
3,75
2,07mm
35,09mm
77,00mm
U1
3V3
GND
PB4
PB3
PB2
PB1
3MM
5V0
GND
PB0
PA0
PA1
PA2
PA3
PA4
PA5
PA6
VIN
U5
R5
R6
R2
P3
C4
D6
C2
C7
U4
C11
C13
C3
R1
C6
X1
U2
C8
C1
U3
AC
AC
DB1
+
-
C10
P1
ISPAVRU1
PB6
R9
PB7
PB5
GND
PCB: Caalb
MMMI 01-2012
HUMMER H3 SUV
D5
C9
L1
D1
C12
C5
R3
R4
Q1
D2
P2
MOTOR
3MM
5V0
GND
PD2
PD3
PD4
PD5
PD6
PC0
PC1
GND
5V0
GND
PWM
PC2
PC3
PC4
PC5
PC6
PC7
VIN
R7
CONNECT
D4
R8
STATUS
D3


PCB: Caalb
MMMI 01-2012
HUMMER H3 SUV
CONNECT
STATUS
3MM
3MM
5V0
GND
PB0
PA0
PA1
PA2
PA5
PA6
PB1
PB2
PB3
PB4
3V3
GND
U2
U3
U5
X1
C1
C2
C3
C4
C5
C8
C9
C11
C13
D3
D5
R1
R2
R3
R4
R5
R6
R7
R8
R9
Q1


J2
GND
OPTIONAL_CAP
VIN_LOGIC
J1
J4
J3
J5
REV: 3

Bill of Materials

Project: ToyRaceCar_V2.PrjPcb
Variant: None

Creation Date: 06-03-2013 09:57:27
Print Date: 06-03-2013 06-03-2013 09:57
Drawn By: Caalb

Address:
Mærsk Inst - SDU
ROBOLAB J28B
Niels Bohrs Allé 1
5230 Odense M
Denmark

Value	Comment	Description	Designator	Footprint	PN Digikey	PN Farnell	PN RS	Lager	Quantity
330R@100Mhz	600R@100Mhz	Ferrite bead 1.5A, 90mOhm, 330R@100Mhz	L1	0805L_H		1515663	724-1545	No	1
100uF	16V	Tantal, SMD, CaseD	C10, C12	TANTAL SIZE D			684-4477	No	2
33	1%	Resistor, SMD, 0805, 0.1W	R3	0805R_H				Yes	1
16Mhz	Crystal	Standard 2-pin Crystal	X1	Crystal SMD			478-9505	No	1
12pF	50V	Capacitor, SMD, 0805	C3, C6	0805C_H			211-3120	No	2
10uF	16V	Tantal, SMD, CaseB	C1, C7	Tantal size B				Yes	2
10K	1%	Resistor, SMD, 0805, 0.1W	R1, R4	0805R_H				Yes	2
1K	1%	Resistor, SMD, 0805, 0.1W	R2, R5, R6, R7, R8, R9	0805R_H				Yes	6
0.1uF	50V	Capacitor, SMD, 0805, X7R	C2, C4, C5, C8, C9, C11, C13	0805C_H				Yes	7
	1x10 Header	Header Male 1x10	J2, J3, J4	HDR1X10_CES				No	3
	1x4 Header	Header Male 1x4	J5	HDR1X4_CES				No	1
	1x6 Header	Header Male 1x6	J1	HDR1X6_CES				No	1
	2-Pin Pico-SPOX Horisontal	2-Pin, 1.5 mm, Horisontal, Pico-SPOX serie	P2, P3	Molex Pico-Spox Horisontal 2			670-6492	No	2
	ATMEGA32A-AU	8-Bit AVR Microcontroller with 32K Bytes of In-System Programmable Flash Memory	U2	TQFP44	ATMEGA32A-AU-ND		696-3477	No	1
	B220A	Diode Schottky 20V 2A SMA	D1, D2	DO-214AC	B220A-FDICT-ND	1858604	700-9956	No	2
	DBLS203G	Surface Mount Bridge Rectifier, 2A, 200V	DB1	DBLS20X		1299298	652-6356	No	1
	Green	LED,SMD,Green	D3	LED0805G_H				Yes	1
	IRLML0030TRPBF	HEXFET Power MOSFET, 30V, 5.3A	Q1	SOT23	IRLML0030TRPBFCT-ND	1791366		No	1
	ISPAVRU1	ISPAVRU1 conncetor	P1	HDR2X5 FLAD				Yes	1
	LM1117IMP-5.0	800mA Low-Dropout Linear Regulator	U3	SOT-223			535-8641	No	1
	LP2985AIM5-3.3	Micropower 150 mA Low-Noise Ultra Low-Dropout Regulator in SOT-23 and micro SMD Packages	U4	SOT23-5		1053672	652-0033	No	1
	MCP809T-315I/TT	Microcontroller Supervisory Circuit with Push-Pull Output, 3-Pin SOT-23, Industrial Temperature, Tape and Reel	U5	sot23		1084257		No	1
	Red	LED,SMD,Red	D4	LED0805R_H				Yes	1
	RN42	Class 2 Bluetooth® Module	U1	RN42				No	1
	SMAJ15A/CA	TRANSIL 400W 15V	D5	do-214ac			687-3154	No	1
	SMAJ5.0A/CA	TRANSIL 400W 5.0V	D6	do-214ac			767-3759	No	1
								Total:	**45**