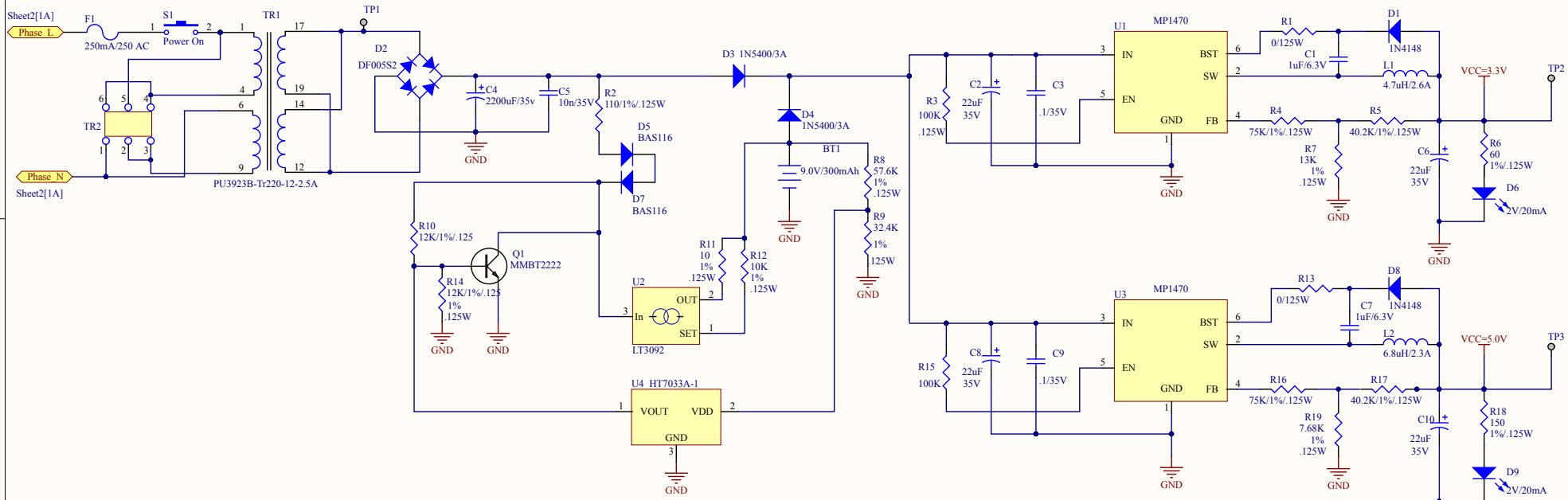
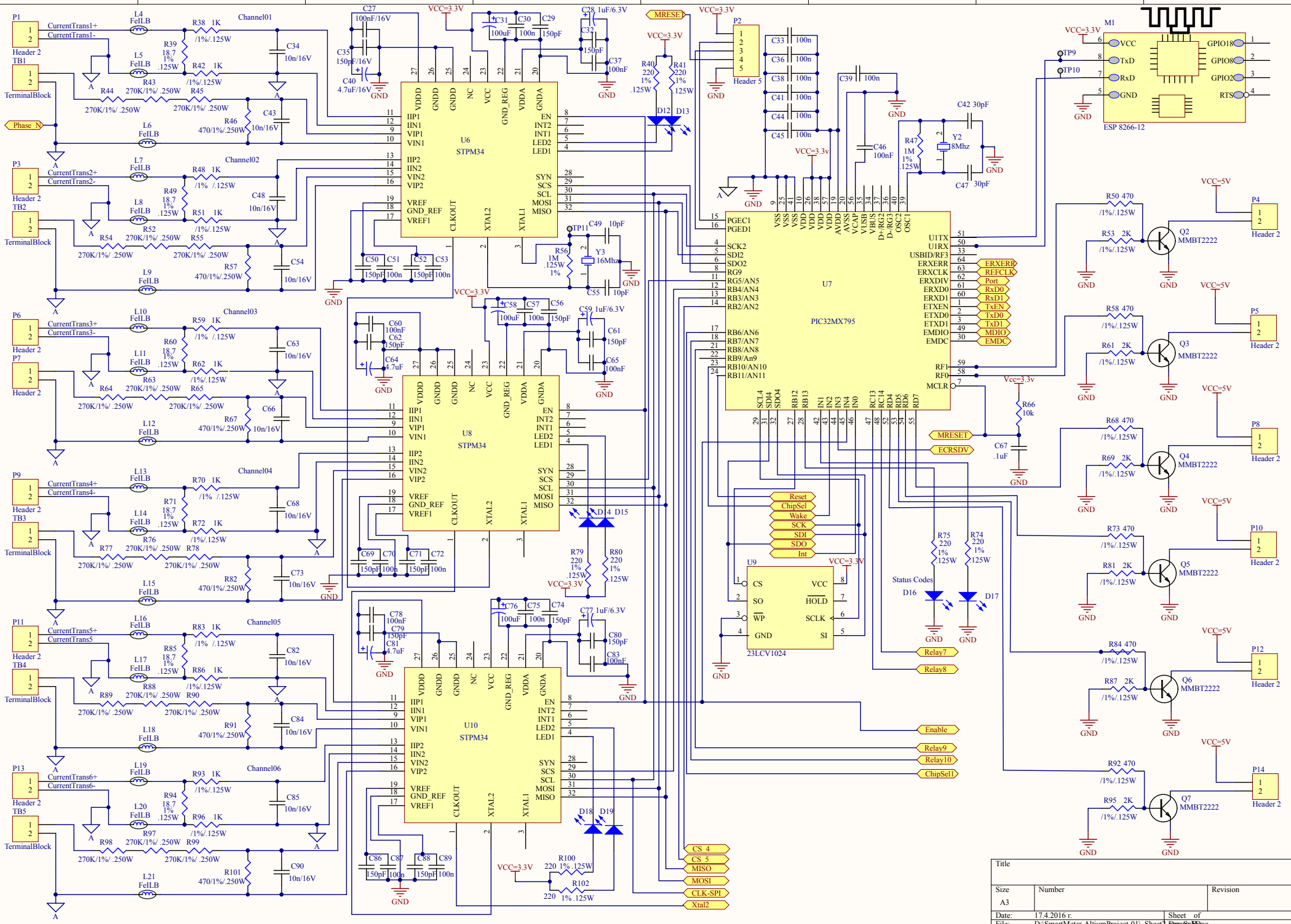
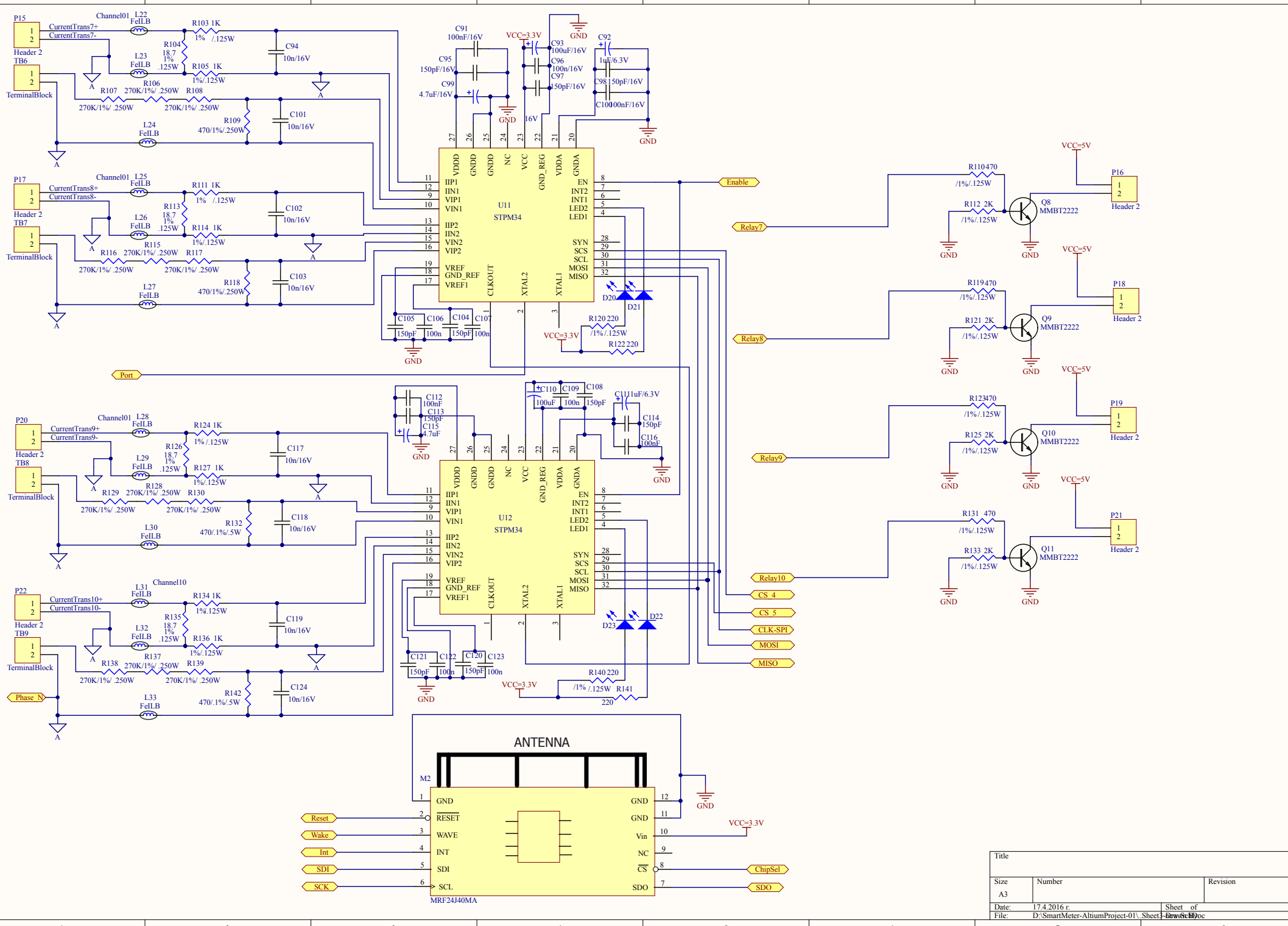
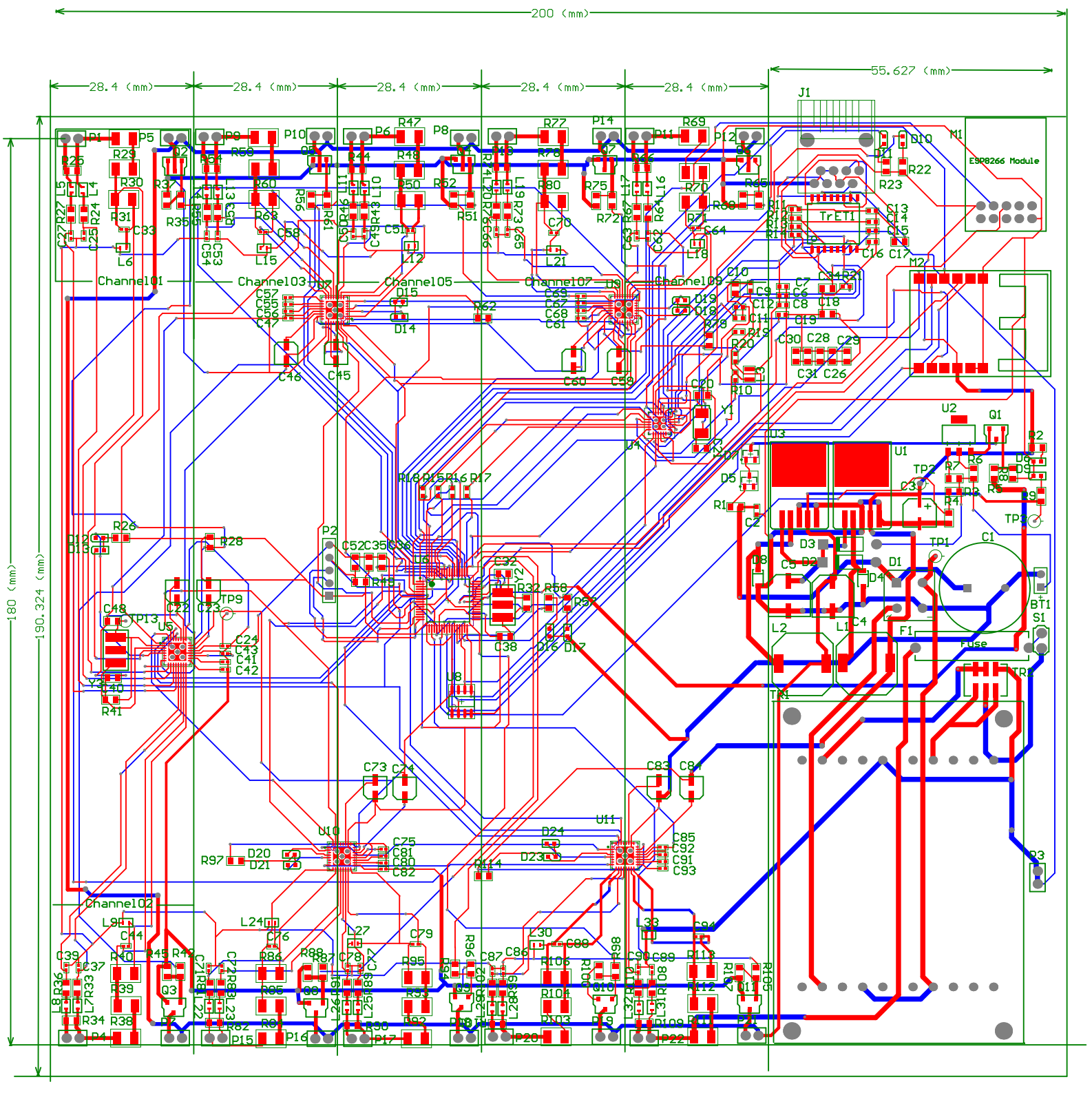


Title		
Size A3	Number	Revision
Date: 17.4.2016 r.		Sheet of
File: D:\SmartMeter-AltiumProject-01\...Sheet1.SchDoc		Drawn By:


P1
CurrentTrans1+
CurrentTrans1-
Header 2
TB1
TerminalBlock
Phase_N
Channel01
P3
CurrentTrans2+
CurrentTrans2-
TB2
Channel02
P6
CurrentTrans3+
CurrentTrans3-
P7
Channel03
P9
CurrentTrans4+
CurrentTrans4-
TB3
Channel04
P11
CurrentTrans5+
CurrentTrans5
TB4
Channel05
P13
CurrentTrans6+
CurrentTrans6-
TB5
Channel06
U6
U8
U10
STPM34
U7
PIC32MX795
U9
23LCV1024
M1
ESP 8266-12
P2
Header 5
Y2
8Mhz
Y3
16Mhz
MRESET
ECRSDV
Reset
ChipSel
Wake
SCK
SDI
SDO
Int
Status Codes
Relay7
Relay8
Enable
Relay9
Relay10
ChipSel1
CS_4
CS_5
MISO
MOSI
CLK-SPI
Xtal2
ERXERR
REFCLK
Port
RxD0
RxD1
TxEN
TxD0
TxD1
MDIO
EMDC
Q2
MMBT2222
Q3
Q4
Q5
Q6
Q7
P4
P5
P8
P10
P12
P14
VCC=3.3V
VCC=5V
GND
Title
Size
A3
Number
Revision
Date:
17.4.2016 r.
Sheet of
File:
D:\SmartMeter-AltiumProject-01\..Sheet2.SchDoc
Drawn By:


P15
CurrentTrans7+
CurrentTrans7-
Header 2
TB6
TerminalBlock
Channel01
L22 FeILB
L23 FeILB
L24 FeILB
R103 1K 1% /.125W
R104 18.7 1% .125W
R105 1K 1%/.125W
R106 270K/1%/.250W
R107 270K/1%/.250W
R108 270K/1%/.250W
R109 470/1%/.250W
C94 10n/16V
C101 10n/16V
P17
CurrentTrans8+
CurrentTrans8-
TB7
L25 FeILB
L26 FeILB
L27 FeILB
R111 1K 1% /.125W
R113 18.7 1% .125W
R114 1K 1%/.125W
R115 270K/1%/.250W
R116 270K/1%/.250W
R117 270K/1%/.250W
R118 470/1%/.250W
C102 10n/16V
C103 10n/16V
C91 100nF/16V
C95 150pF/16V
C99 4.7uF/16V
VCC=3.3V
C93 100uF/16V
C96 100n/16V
C97 150pF/16V
C92 1uF/6.3V
C98 150pF/16V
C100 100nF/16V
16V
GND
U11
STPM34
VDDD GNDD GNDD NC VCC GND_REG VDDA GNDA
IIP1 IIN1 VIP1 VIN1 IIP2 IIN2 VIN2 VIP2 VREF GND_REF VREF1 CLKOUT XTAL2 XTAL1
EN INT2 INT1 LED2 LED1 SYN SCS SCL MOSI MISO
C105 150pF C106 100n C104 150pF C107 100n
R120 220 /1%/.125W
R122 220
D20 D21
Enable
Relay7
Relay8
Relay9
Relay10
CS_4
CS_5
CLK-SPI
MOSI
MISO
Port
R110 470 /1%/.125W
R112 2K /1%/.125W
Q8 MMBT2222
P16
R119 470 /1%/.125W
R121 2K /1%/.125W
Q9 MMBT2222
P18
R123 470 /1%/.125W
R125 2K /1%/.125W
Q10 MMBT2222
P19
R131 470 /1%/.125W
R133 2K /1%/.125W
Q11 MMBT2222
P21
VCC=5V
P20
CurrentTrans9+
CurrentTrans9-
TB8
L28 FeILB
L29 FeILB
L30 FeILB
R124 1K 1%/.125W
R126 18.7 1% .125W
R127 1K 1%/.125W
R128 270K/1%/.250W
R129 270K/1%/.250W
R130 270K/1%/.250W
R132 470/.1%/.5W
C117 10n/16V
C118 10n/16V
C112 100nF
C113 150pF
C115 4.7uF
C110 100uF
C109 100n
C108 150pF
C111 1uF/6.3V
C114 150pF
C116 100nF
U12
STPM34
C121 150pF C122 100n C120 150pF C123 100n
R140 220 /1%/.125W
R141 220
D22 D23
P22
CurrentTrans10+
CurrentTrans10-
TB9
Phase N
Channel10
L31 FeILB
L32 FeILB
L33 FeILB
R134 1K 1%.125W
R135 18.7 1% .125W
R136 1K 1%/.125W
R137 270K/1%/.250W
R138 270K/1%/.250W
R139 270K/1%/.250W
R142 470/.1%/.5W
C119 10n/16V
C124 10n/16V
ANTENNA
M2
GND RESET WAVE INT SDI SCL GND GND Vin NC CS SDO
Reset
Wake
Int
SDI
SCK
ChipSel
SDO
MRF24J40MA
Title
Size A3
Number
Revision
Date: 17.4.2016 r.
Sheet of
File: D:\SmartMeter-AltiumProject-01\...Sheet3.SchDoc
Drawn By:


200 (mm)
28.4 (mm)
28.4 (mm)
28.4 (mm)
28.4 (mm)
28.4 (mm)
55.627 (mm)
180 (mm)
190.324 (mm)
ESP8266 Module
Channel01
Channel02
Channel03
Channel05
Channel07
Channel09
TrET1
Fuse

Comment	Designator	Footprint	Price	Quantity
Component_1	*1			1
AGND	1	HC49/4H_SMX		1
9.0V/300mAh	BT1	BAT-2	1	1
1uF/6.3V	C1, C7	0603C-GENERIC	.049	2
22uF	C2, C6, C8, C10	300uF-6.3V Vishay	1.5	4
1/35V	C3, C9	0402C-GENERIC	.049	2
2200uF/35v	C4	2200uF-Nichicon	0.385	1
10n/35V	C5	0402C-GENERIC	.049	1
100nF	C11, C12, C14	0603C-GENERIC	0.1	3
10uF/6.3V	C13	0603C-GENERIC	.036	1
10uF/6.3V	C15	C0805	.036	1
1uF	C16	0603C-GENERIC	.036	1
470pF	C17	0603C-GENERIC	0.1	1
18pF/6.3V	C18, C19, C20, C21	0603C-GENERIC	.03	4
1000pF/3kV	C22	1808	.0096	1
22nF/16V	C23	0805C-TBD	.0096	1
100nF/6.3V	C24	0603C-GENERIC	0.1	1
18pF/6.3V	C25, C26	0805C-TBD	.03	2
100nF/16V	C27, C91, C100	0402C-GENERIC	.002	3
1uF/6.3V	C28, C59, C77, C92, C111	0402C-GENERIC	.05	5
150pF	C29, C32, C50, C52, C56, C61, C62, C69, C71, C74, C79, C80, C86, C88, C104, C105, C108, C113, C114, C120, C121	0402C-GENERIC	.002	21
100n	C30, C51, C53, C57, C70, C72, C75, C87, C89, C106, C107, C109, C122, C123	0402C-GENERIC	.002	14
100uF	C31, C58, C76, C110	4.7uF-Nichicon	.065	4
100n	C33, C36, C38, C39, C41, C44, C45	0805C-TBD		7
10n/16V	C34, C43, C48, C54, C63, C66, C68, C73, C82, C84, C85, C90, C94, C101, C102, C103, C117, C118, C119, C124	0402C-GENERIC	.002	20
150pF/16V	C35, C95, C96, C98	0402C-GENERIC	.002	4
100nF	C37, C60, C65, C78, C83, C112, C116	0402C-GENERIC	.002	7
4.7uF/16V	C40, C99	4.7uF-Nichicon	.065	2
30pF	C42, C47	0805C-TBD		2
100nF	C46	0805C-TBD		1
10pF	C49, C55	0805C-TBD	.00987	2
4.7uF	C64, C81, C115	4.7uF-Nichicon	.065	3
.1uF	C67	0805C-TBD	.00206	1
100n/16V	C93	0402C-GENERIC	.002	1
100uF/16V	C97	4.7uF-Nichicon	.065	1
1N4148	D1, D8	sod-123	.142	2
DF005S2	D2	D-38	0.24	1
1N5400/3A	D3, D4	DO-41	.142	2
BAS116	D5, D7	SOT-23_N	.06	2
2V/20mA	D6, D9, D10, D11	LED-SM	.04	4
LED2	D12, D13, D14, D15, D16, D17, D18, D19, D20, D21, D22, D23	LED-SM	.04	12
250mA/250 AC	F1	FuseHolder - duplicate	.25	1
RJ45-GENERIC	J1	RJ45-8/8		1
4.7uH/2.6A	L1	Inductor 4.7/6.8	.82	1
6.8uH/2.3A	L2	Inductor 4.7/6.8	.82	1
FB1	L3	0603C-2U2	.288	1
FeiLB	L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, L17, L18, L19, L20, L21, L22, L23, L24, L25, L26, L27, L28, L29, L30, L31, L32, L33	FerriteBead-0603	.027	30
ESP 8266-12	M1	ESP_1		1
MRF24J40MA	M2	MRF24J40MA-zigBEE module	6.08	1
Header 2	P1, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19, P20, P21, P22	BG090-header		21
Header 5	P2	HDR1X5		1
MMBT2222	Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q9, Q10	MMBT2222	.03	10
MMBT2222	Q11	SOT23-BCE	.03	1
0/125W	R1, R13	0805R-0R1	.0035	2
110/1%/.125W	R2	0805R-10		1
100K	R3, R15	0805R-0R1	.0035	2
75K/1%/.125W	R4, R16	0805R-0R1	.0035	2
40.2K/1%/.125W	R5, R17	0805R-0R1	.0035	2
60	R6, R36, R37	0805R-68		3
13K	R7	0805R-0R1	.0035	1
57.6K	R8	0805R-0R1	.0035	1
32.4K	R9	0805R-0R1	.0035	1
12K/1%/.125	R10, R14	0805R-10	.0035	2
10	R11	0805R-12	.0035	1
10K	R12	0805R-10K	.0035	1
150	R18	0805R-68		1
7.68K	R19	0805R-0R1	.0035	1
1.5K	R20	0603R-0R	.00266	1
49.9	R21, R22, R23, R24	0603R-0R	.0026	4
75/1%/.125W	R25, R26, R31, R32	0603R-0R	.0026	4
100	R27, R28, R29, R30	0603R-0R	.1	4
33	R33	0603R-0R	.1	1
4.7k	R34	0603R-0R	.1	1
12.1k	R35	0603R-0R	.1	1
1K	R38, R42, R48, R51, R59, R62, R70, R72, R83, R86, R93, R96, R103, R105, R111, R114, R124, R127, R134, R136	0805C-GENERIC	.00266	20
18.7	R39, R49, R60, R71, R85, R94, R104, R113, R126, R135	0805R-10	.05	10
220	R40, R41, R120, R122, R140, R141	0805C-GENERIC	.0027	6
270K/1%/ .250W	R43, R44, R45, R52, R54, R55, R63, R64, R65, R76, R77, R78, R88, R89, R90, R97, R98, R99, R106, R107, R108, R115, R116, R117, R128, R129, R130, R137, R138, R139	1210R-GENERIC	.055	30
470/1%/.250W	R46, R57, R67, R82, R91, R101, R109, R118	1206FB-GENERIC	.02	8
1M	R47	0805R-12	.0027	1
470	R50, R58, R68, R73, R84, R92, R110, R119, R123, R131	0805R-39	.003	10
2K	R53, R61, R69, R81, R87, R95, R112, R121, R125, R133	0805R-180	.033	10
1M	R56	0805FB-GENERIC	.0027	1
10k	R66	0805R-27		1
220	R74	0805R-120	.0027	1
220	R75	0805R-12	.0027	1
220	R79, R80, R100, R102	0805R-10	.0027	4
470/.1%/.5W	R132, R142	1210C-GENERIC	.02	2
Power On	S1	PowerSwitch220v/5A		1
TerminalBlock	TB1, TB2, TB3, TB4, TB5, TB6, TB7, TB8, TB9	Terminal Block 2x5mm		9
TESTPOINT	TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP8, TP9, TP10, TP11	TESTPOINT		11
PU3923B-Tr220-12-2.5A	TR1	Transform220/110-12/3		1
Tr-Switch	TR2	6-pins Molex2x3-5Ahm		1
SS58-5999-U7-F	TrET1	SS58-5999-Ethtransf		1
MP1470	U1, U3	MP1470		2
LT3092	U2	LT3092	2.36	1
HT7033A-1	U4	SOT89-BCE		1
LAN8720	U5	QFN24_4X4_N	.76	1
STPM34	U6, U8, U10, U11	32M1-A_M	1.16	4
PIC32MX795	U7	TQFP-PT64_N	5.16	1
23LCV1024	U9	SO8_L		1
STPM34	U12	32M1-A_L	1.16	1
25 MHz	Y1	25Mhz-oscl	.4288	1
8Mhz	Y2	CeramicResonator 8-16MHZ	.137	1
16Mhz	Y3	R3B	.288	1