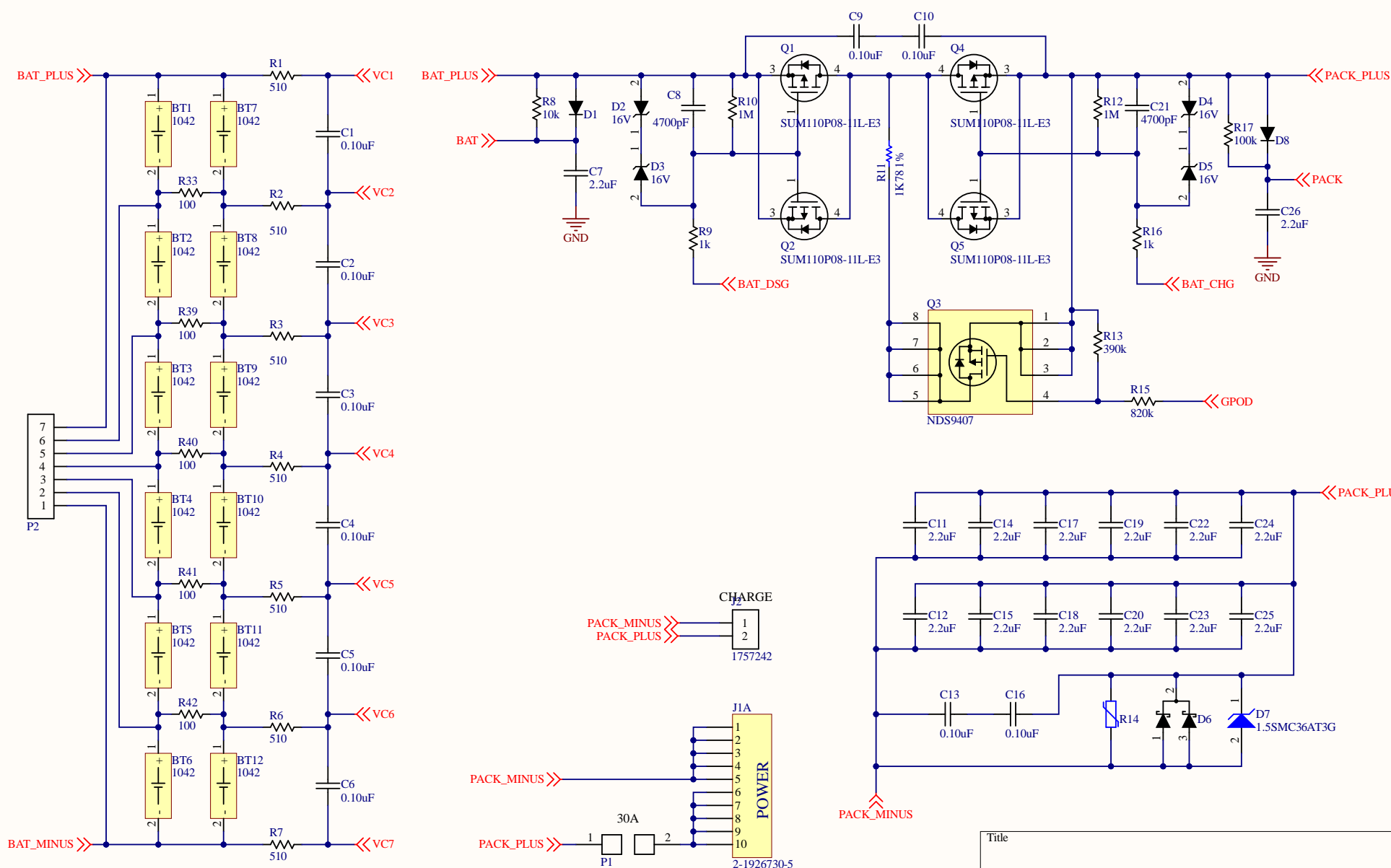
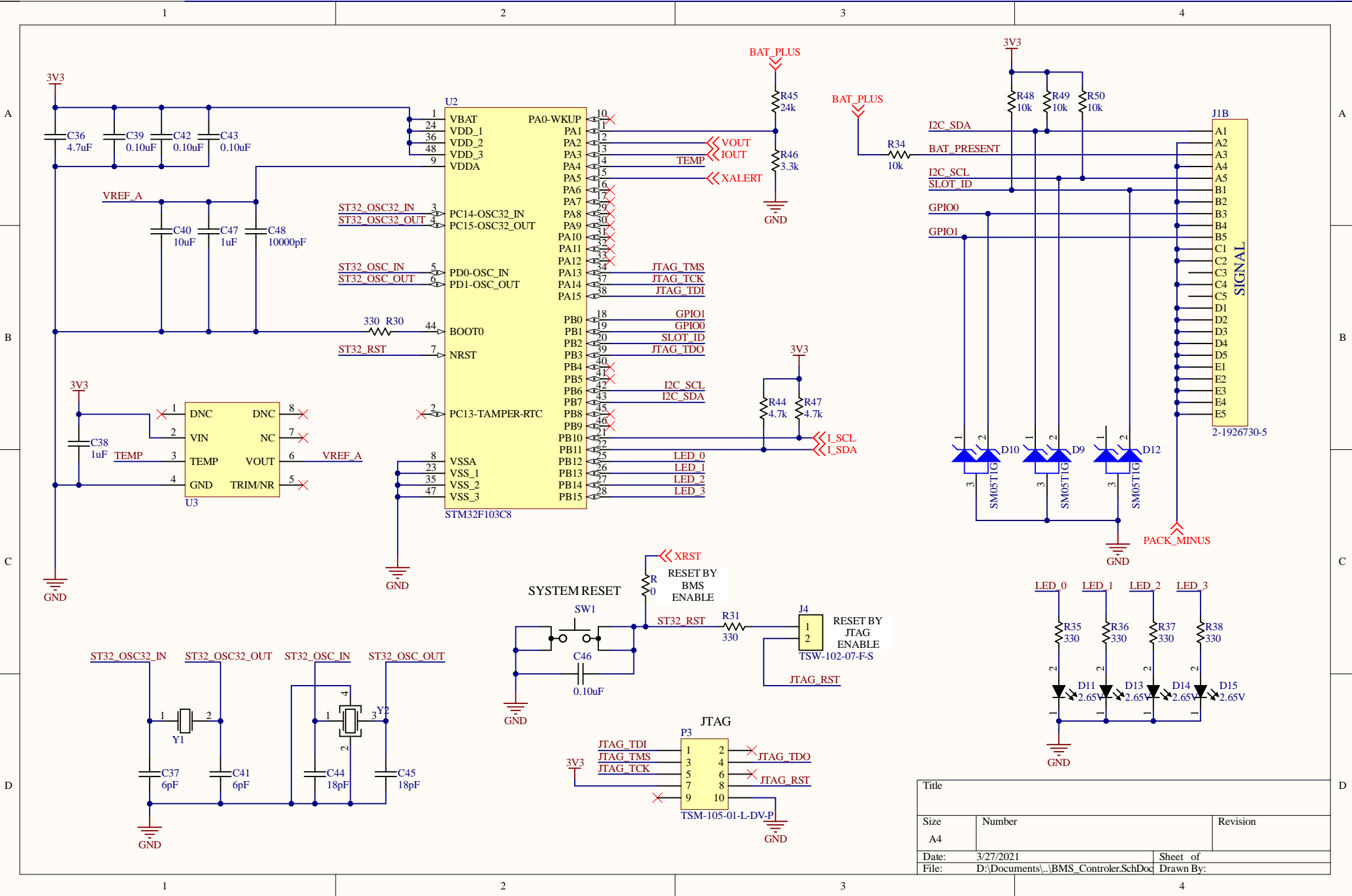


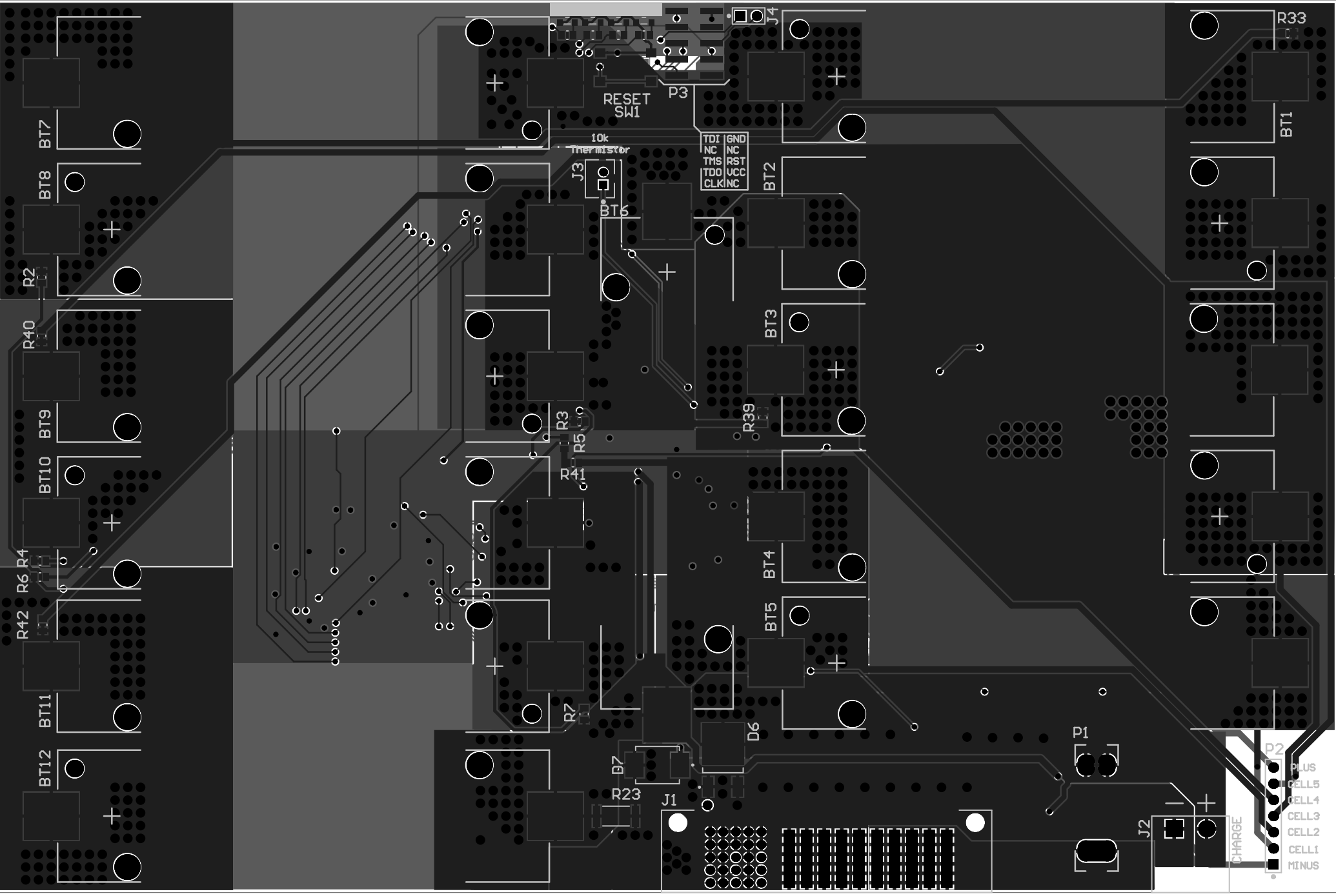
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Size	Number	Revision
A4		
Date:	3/27/2021	Sheet of
File:	D:\Documents\...\BMS_Balancer.SchDoc	Drawn By:



Title		
Size	Number	Revision
A4		
Date:	3/27/2021	Sheet of
File:	D:\Documents\BMS_Battery_Connections	Doc No:



Title		
Size	Number	Revision
A4		
Date:	3/27/2021	Sheet of
File:	D:\Documents\...\BMS_Controller.SchDoc	Drawn By:



R33

BT1

P2

- PLUS
- CELL5
- CELL4
- CELL3
- CELL2
- CELL1
- MINUS

CHARGE

J2

P1

D6

J1

R23

B7

R7

BT5

BT4

BT3

BT2

BT2

BT6

TDI GND
NC NC
TMS RST
TDO UCC
CLKINC

P3

RESET
SW1

10k
Thermistor

J3

R3

R4

R5

R6

R7

R8

R9

R10

R11

R12

R13

R14

R15

R16

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R301

R302

R303

Comment	Description	Designator	Footprint	LibRef	Quantity
1042	Battery Holder, 18650 SMD	BT1, BT2, BT3, BT4, BT5, BT6, BT7, BT8, BT9, BT10, BT11, BT12	KEYSTONE_1042	CONN-00077	12
0.10uF	CAP, 0.10uF, 10%, 50V, X7R, 0805	C1, C2, C3, C4, C5, C6, C9, C10, C13, C16, C27, C28, C29, C39, C42, C43, C46, C7, C11, C12, C14, C15, C17, C18, C19, C20, C22, C23, C24, C25, C26, C33, C35	chip_0805	CAP-00072	17
2.2uF	CAP, 2.2uF, ±20%, 100V, X7R, 0603		chip_1210	CAP-00536	16
4700pF	CAP, 4700pF, 10%, 100V, X7R, 0805	C8, C21	chip_0805	CAP-00032	2
1uF	CAP, 1uF, 10%, 50V, X7R, 0805	C30, C31, C38, C47	chip_0805	CAP-00109	4
4.7uF	CAP, 4.7uF, 10%, 25V, X7R, 0805	C32, C36	chip_0805	CAP-00128	2
10000pF	CAP, 10000pF, 10%, 25V, X7R, 0805	C34, C48	chip_0805	CAP-00045	2
4pF	CAP, 4pF, ±10%, 50V, C0G, 0603	C37, C41	chip_0603	CAP-00538	2
10uF	CAP, 10uF, 10%, 10V, X7R, 0805	C40	chip_0805	CAP-00131	1
18pF	CAP, 18pF, ±1%, 50V, C0G, 0603	C44, C45	chip_0603	CAP-00417	2
diode_0	Dio, Silicon, 200mA, 1V, 100V, SOD-123	D1, D8	sod123_0	DIO-00060	2
16V	Dio, Zener, 16V, 300mW, SOD-523	D2, D3, D4, D5	sod523_0	DIO-00082	4
V40PWM10C-M3/I	Dio, Schottky Array, Dual, Common Cathode, 100V 20A, SLM, DPAK	D6	DPAK_SLIM	DIO-00081	1
1.5SMC36AT3G	1500 W Peak Power Zener Transient Voltage Suppressor, Unidirectional, 2-Pin SMC, Pb-Free, Tape and Reel	D7	ONSC-SMC-2-403-03_V	CMP-1061-00497-1	1
SM05T1G	Transient Voltage Suppressor Diode Array, Dual Common Anode Diodes for ESD Protection, 3-Pin SOT-23, Pb-Free, Tape and Reel	D9, D10, D12	ONSC-SOT-23-3-318-08_V	CMP-1061-00666-1	3
2.65V	LED, Green, SMD Right Angle, Low-Current, Kingbright HEL12 Series	D11, D13, D14, D15	APA2107	DIO-00083	4
2-1926730-5	Backplane Header, Blades and Pins, Edge Mount Right Angle, 10 Power, 25 Signal	J1	TE_CONN_2-1926730-5	CONN-00093	1
1757242	Terminal Block Header, 2 Pos, 5.08mm, 12A, Right-Angle	J2	PHOENIX_1757242	CONN-00102	1
B2B-PH-K	JST PH 2x1, 1HT, 2.00mm Pitch	J3	JST_PHR_2_0	CONN-00048	1
TSW-102-07-F-S	Header, 2x1, 0.1"	J4	HDDR_2x1_0	CONN-00055	1
conn-fuse-holder_0	Fuse Holder, 30A, 500V, UL-Mini 697, ATOF 257	P1	FUSE_HOLDER_KEYST ONE_3557-2	CONN-00015	1
conn-7x1_0	Header, 7x1, 0.1"	P2	HDDR_7x1_0	CONN-00105	1
TSM-105-01-L-DV-P	Header, 5x2, 0.1", SMD	P3	SAMTEC_SMD_HDDR_5x2	CONN-00071	1
SUM110P08-11L-E3	KSTR, MOSFET P-Channel, 80V 110A, D2PAK	Q1, Q2, Q4, Q5	D2PAK_3_1	KSTR-00050	4
ND59407	KSTR PHET, 3A, 60V, 2.5W, SOD-8	Q3	SO-8	KSTR-00036	1
510	RES SMD 510 OHM 1% 1/8W 0805	R1, R2, R3, R4, R5, R6, R7	chip_0805	RES-00240	7
10k	RES SMD 10K OHM 1% 1/8W 0805	R8, R27, R34, R48, R49, R50	chip_0805	RES-00307	6
1k	RES SMD 1K OHM 1% 1/8W 0805	R9, R16, R26	chip_0805	RES-00361	3
1M	RES SMD 1M OHM 1% 1/8W 0805	R10, R12	chip_0805	RES-00363	2
1K78 1%	1K78 1W 1% 2512 (6432 Metric) SMD	R11	RESC2512(6432)_L	CMP-1018-00536-1	1
390k	RES SMD 390K OHM 1% 1/8W 0805	R13	chip_0805	RES-00455	1
MOV_0	Varistor, Ceramic, 47V 300A 2J, 1210	R14	chip_1210	MSC-00057	1
820k	RES SMD 820K OHM 1% 1/8W 0805	R15	chip_0805	RES-00567	1
100k	RES SMD 100K OHM 1% 1/8W 0805	R17, R20	chip_0805	RES-00302	2
0	RES SMD 0 OHM 1% 1/8W 0805 Thick Film	R18, R19, R22, R25, R43	chip_0805	RES-00720	5
200	RES SMD 200 OHM 1% 1/8W 0805	R21, R24	chip_0805	RES-00197	2
0.001	RES, 0.001, 1%, 1W, 2512	R23	chip_2512	RES-00002	1
CRCW08056K98KEA		R28	RESC2013X50K30ML2 0T20	CMP-2001-04091-1	1
ERJ-6ENF6192V		R29	RESC2013X70K40ML2 0T20	CMP-2001-00256-1	1
330	RES SMD 330 OHM 1% 1/8W 0805	R30, R31, R35, R36, R37, R38	chip_0805	RES-00222	6
100	RES SMD 100 OHM 1% 1/8W 0805	R33, R39, R40, R41, R42	chip_0805	RES-00179	5
4.7k	RES SMD 4.7K OHM 1% 1/8W 0805	R44, R47	chip_0805	RES-00471	2
24k	RES SMD 24K OHM 1% 1/8W 0805	R45	chip_0805	RES-00400	1
3.3k	RES SMD 3.3K OHM 1% 1/8W 0805	R46	chip_0805	RES-00420	1
SW_1P1T_2	Switch, SPST-NO, Tactile, 6.3x6.0mm, SMD, 50mA, 24VDC	SW1	R3FS-1000	MSC-00042	1
BQ77PL900	Batt Manager, Li-Ion, 5-10 cells, bq77PL900	U1	SSOP-48_0	PAWREG-00024	1
STM32F103C8	STM32 M3, LQFP-48	U2	LQFP48_0	UC1RL-00008	1
REF50xx	IC, Voltage Reference, 2.5V, 3ppm/C, REF500	U3	SO-8_1	ANLG-00055	1
osc_xtal_3p_0	XTAL, 32.768kHz, 4pf, 20ppm	V1	ABS25_OSC	OSC-00003	1
osc_xtal_4p_1-3	XTAL, 8MHz, 10pf, 10ppm	V2	ECX-538	OSC-00006	1