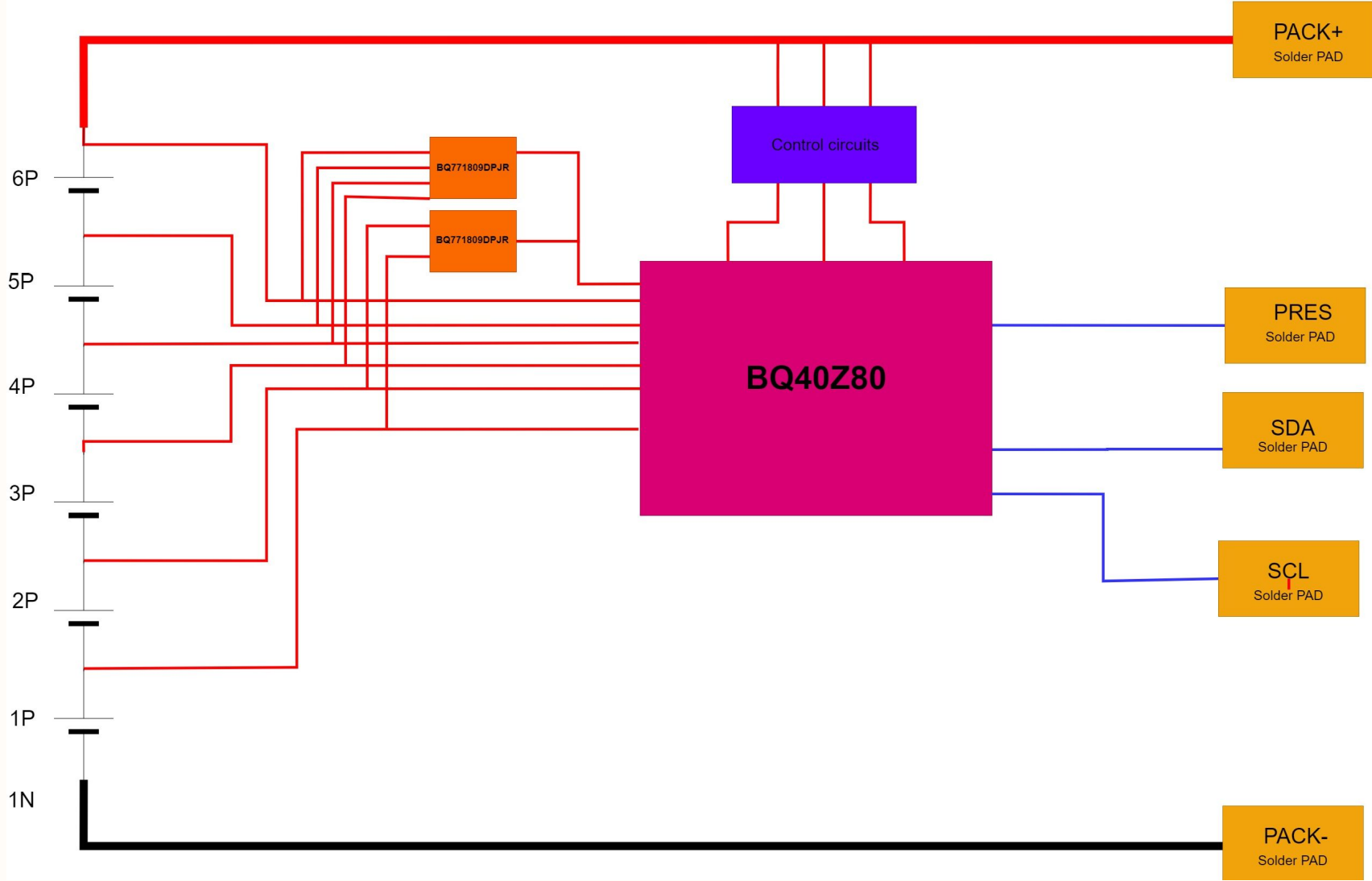
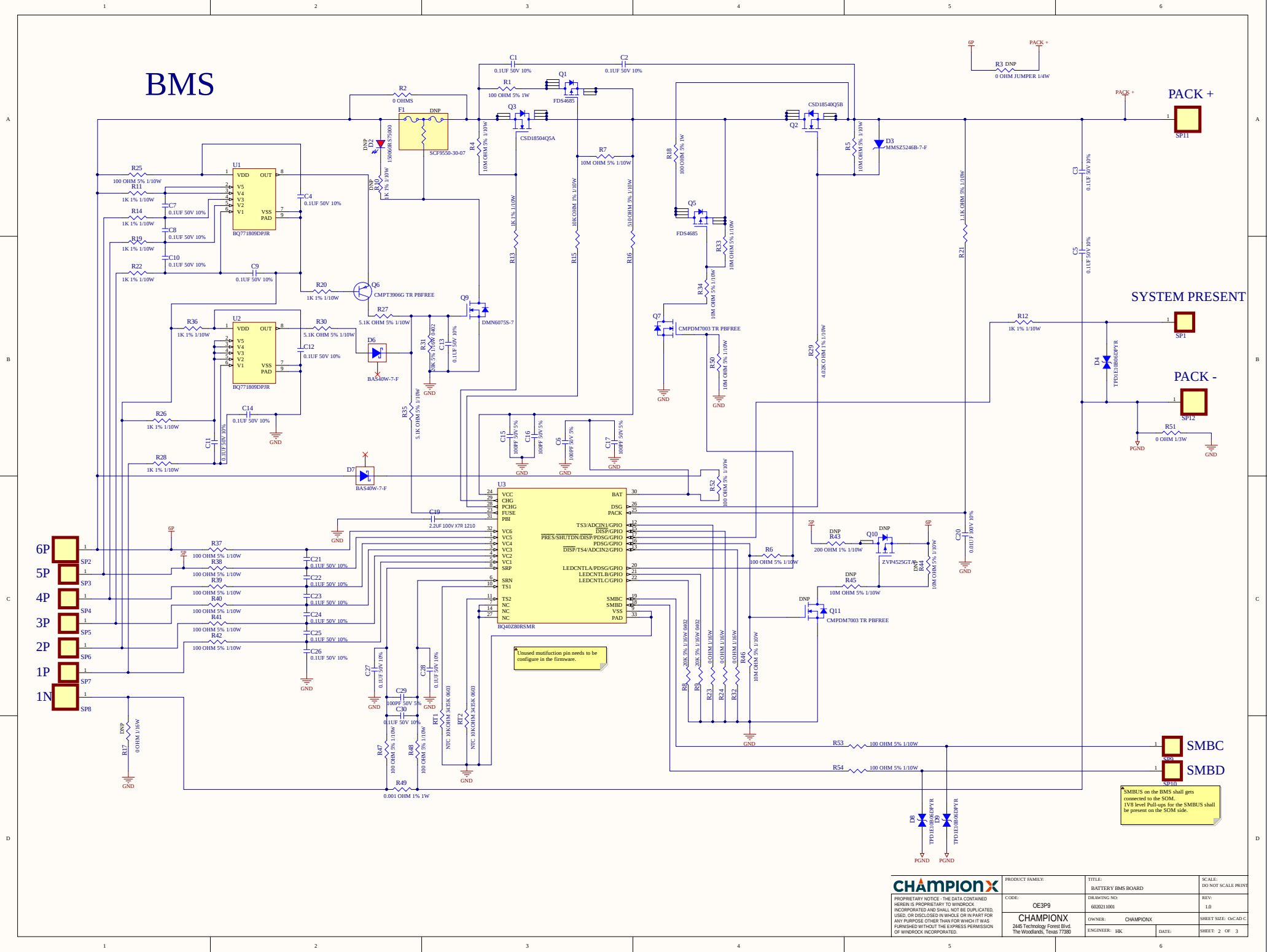


BMS



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	CODE: OE3P9	DRAWING NO: 605211001	REV: 1.0
	CHAMPIONX 2445 Technology Forest Blvd. The Woodlands, Texas 77380		SHEET SIZE: CHAD C
	OWNER: CHAMPIONX	ENGINEER: HK	DATE: SHEET 1 OF 3



1

2

3

4

5

6

A

B

C

D

Rev 0.1

First Release

Rev 0.2

F1 fuse SFK-3030 is changed to SCF9550-30-07

Rev 1.0

J1 connector removed from the board.
R17 0-ohm resistor added.

CHAMPIONX

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PRODUCT FAMILY:

BATTERY BMS BOARD

CODE:

OE3P9

CHAMPIONX

2445 Technology Forest Blvd.
The Woodlands, Texas 77380

DRAWING NO:

6020211001

OWNER:

CHAMPIONX

ENGINEER:

HK

DATE:

SCALE:

DO NOT SCALE PRINT

REV:

1.0

SHEET SIZE:

3 OF 3

1

2

3

4

5

6

Comment	Description	Designator	Footprint	LibRef	Quantity
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C1	CAPC1608X10N	0603SC104K424A	1
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C2	CAPC1608X10N	0603SC104K424A	1
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C3	CAPC1608X10N	0603SC104K424A	1
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C4	CAPC1608X10N	0603SC104K424A	1
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C5	CAPC1608X10N	0603SC104K424A	1
100PF 50V 5%	CAP CER 100PF 50V X	C6	CAPC1608X10N	V0603A101J9A4C	1
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C7	CAPC1608X10N	0603SC104K424A	1
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C8	CAPC1608X10N	0603SC104K424A	1
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C9	CAPC1608X10N	0603SC104K424A	1
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C10	CAPC1608X10N	0603SC104K424A	1
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C11	CAPC1608X10N	0603SC104K424A	1
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C12	CAPC1608X10N	0603SC104K424A	1
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C13	CAPC1608X10N	0603SC104K424A	1
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C14	CAPC1608X10N	0603SC104K424A	1
100PF 50V 5%	CAP CER 100PF 50V X	C15	CAPC1608X10N	V0603A101J9A4C	1
100PF 50V 5%	CAP CER 100PF 50V X	C16	CAPC1608X10N	V0603A101J9A4C	1
100PF 50V 5%	CAP CER 100PF 50V X	C17	CAPC1608X10N	V0603A101J9A4C	1
2.2UF 100V X7R 12%	CAP CER 2.2UF 100V	C19	CAPC3225X30N	C1328225KJ50NNE	1
0.01UF 100V 10%	CAP CER 0.0100PF 100	C20	CAPC1608X10N	SCM18812A10X4A	1
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C21	CAPC1608X10N	0603SC104K424A	1
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C22	CAPC1608X10N	0603SC104K424A	1
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C23	CAPC1608X10N	0603SC104K424A	1
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C24	CAPC1608X10N	0603SC104K424A	1
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C25	CAPC1608X10N	0603SC104K424A	1
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C26	CAPC1608X10N	0603SC104K424A	1
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C27	CAPC1608X10N	0603SC104K424A	1
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C28	CAPC1608X10N	0603SC104K424A	1
100PF 50V 5%	CAP CER 100PF 50V X	C29	CAPC1608X10N	V0603A101J9A4C	1
0.1UF 50V 10%	CAP CER 0.1UF 50V X	C30	CAPC1608X10N	0603SC104K424A	1
1500G08575000	LED RED CLEAR D603	D2	LED-D603	1500G08575000	1
MM54248B-7-F	DIODE 2.1WV 1.1V V8 D3	D3	SOD-123	MM54248B-7-F	1
TP011108060PVR	TVS DIODE 5.5VWM 1A	D4	2-X1SON	TP011108060PVR	1
BA549W-7-F	DIODE SCHOTTKY 40V	D6	SOT59210X200-3N	BA549W-7-F	1
BA549W-7-F	DIODE SCHOTTKY 40V	D7	SOT59210X200-3N	BA549W-7-F	1
TP011108060PVR	TVS DIODE 5.5VWM 1A	D8	2-X1SON	TP011108060PVR	1
TP011108060PVR	TVS DIODE 5.5VWM 1A	D9	2-X1SON	TP011108060PVR	1
SC9950-30-07	FUSE TRIGGERABLE 31	F1	SPK-303	SC9950-30-07	1
MS4548S	MOSFET P-CH 40V 4V C1	Q1	SON-127P02K175	MS4548S	1
CS018540050B	MOSFET N-CH 60V 1A Q2	Q2	8-VSON	CS018540050B	1
CS018540050A	MOSFET N-CH 40V 1A Q3	Q3	8-VSON	CS018540050A	1
MS4548S	MOSFET P-CH 40V 4V C1	Q4	SON-127P02K175	MS4548S	1
CMP17306G TR P8F8V	TRANS PNP 40V 0.2A Q6	Q6	SOT-23-3	CMP17306G TR P8F8V	1
CMP0MT003 TR P8F8V	MOSFET N-CH 50V 2A Q7	Q7	SOT-23-3	CMP0MT003 TR P8F8V	1
CHMM07515-7	MOSFET N-CH 40V 4V C9	Q9	SOT-23-3	CHMM07515-7	1
ZV4P4525GTA	MOSFET P-CH 250V 2	Q10	SOT230P700K650-4N	ZV4P4525GTA	1
CMP0MT003 TR P8F8V	MOSFET N-CH 50V 2A Q11	Q11	SOT-23-3	CMP0MT003 TR P8F8V	1
100 OHM 5% 1/10W	RES SMD 100 OHM 1% R1	R1	RES-6331370N	RCWV2512100RNEG	1
0 OHM5	RES SMD 0 OHM 2% R2	R2	RES-240180N	RC111250000G	1
0 OHM JUMPER 3/4W	RES 0 OHM JUMPER R3	R3	RES-8216307N	RMCF1206270R00	1
10M OHM 5% 1/20W	RES SMD 10M OHM R4	R4	RES-1608X50N	CRCW060310M09NEA	1
10M OHM 5% 1/20W	RES SMD 10M OHM R5	R5	RES-1608X50N	CRCW060310M09NEA	1
100 OHM 5% 1/10W	RES SMD 100 OHM S1 R6	R6	RES-1608X50N	CRCW0603100R1NEA	1
10M OHM 5% 1/20W	RES SMD 10M OHM R7	R7	RES-1608X50N	CRCW060310M09NEA	1
20K 5% 1/16W 0402	RES SMD 20K OHM S1 R8	R8	RES-1005X40N	CRCW040220K09NEA	1
20K 5% 1/16W 0402	RES SMD 20K OHM S1 R9	R9	RES-1005X40N	CRCW040220K09NEA	1
1K 1% 1/20W	RES SMD 1K OHM 1% R10	R10	RES-1608X50N	CRCW06031K00FKEA	1
1K 1% 1/20W	RES SMD 1K OHM 1% R11	R11	RES-1608X50N	CRCW06031K00FKEA	1
1K 1% 1/20W	RES SMD 1K OHM 1% R12	R12	RES-1608X50N	CRCW06031K00FKEA	1
1K 1% 1/20W	RES SMD 1K OHM 1% R13	R13	RES-1608X50N	CRCW06031K00FKEA	1
1K 1% 1/20W	RES SMD 1K OHM 1% R14	R14	RES-1608X50N	CRCW06031K00FKEA	1
10K OHM 5% 1/20W	RES SMD 10K OHM 1% R15	R15	RES-1608X50N	RCG060310K05KEA	1
510 OHM 5% 1/20W	RES SMD 510 OHM S1 R16	R16	RES-1608X50N	CRCW0603510R1NEA	1
0 OHM 1/16W	RES SMD 0 OHM JUM R17	R17	RES-1005X40N	RC0402F8-0708L	1
100 OHM 5% 1/10W	RES SMD 100 OHM S1 R18	R18	RES-6331370N	RCRW2512100RNEG	1
1K 1% 1/20W	RES SMD 1K OHM 1% R19	R19	RES-1608X50N	CRCW06031K00FKEA	1
1K 1% 1/20W	RES SMD 1K OHM 1% R20	R20	RES-1608X50N	CRCW06031K00FKEA	1
1.1K OHM 5% 1/20W	RES SMD 1.1K OHM 1% R21	R21	RES-1608X50N	CRCW06031K109NEA	1
1K 1% 1/20W	RES SMD 1K OHM 1% R22	R22	RES-1608X50N	CRCW06031K00FKEA	1
0 OHM 1/16W	RES SMD 0 OHM JUM R23	R23	RES-1005X40N	RC0402F8-0708L	1
0 OHM 1/16W	RES SMD 0 OHM JUM R24	R24	RES-1005X40N	RC0402F8-0708L	1
100 OHM 5% 1/10W	RES SMD 100 OHM S1 R25	R25	RES-1608X50N	CRCW0603100R1NEA	1
1K 1% 1/20W	RES SMD 1K OHM 1% R26	R26	RES-1608X50N	CRCW06031K00FKEA	1
1.1K OHM 5% 1/20W	RES SMD 1.1K OHM 1% R27	R27	RES-1608X50N	CRCW06031K109NEA	1
1K 1% 1/20W	RES SMD 1K OHM 1% R28	R28	RES-1608X50N	CRCW06031K00FKEA	1
4.02K OHM 1% 1/20W	RES SMD 4.02K OHM R29	R29	RES-1608X50N	CRCW06034K02FKEA	1
1.1K OHM 5% 1/20W	RES SMD 1.1K OHM 1% R30	R30	RES-1608X50N	CRCW06031K109NEA	1
20K 5% 1/16W 0402	RES SMD 20K OHM S1 R31	R31	RES-1005X40N	CRCW040220K09NEA	1
0 OHM 1/16W	RES SMD 0 OHM JUM R32	R32	RES-1005X40N	RC0402F8-0708L	1
10M OHM 5% 1/20W	RES SMD 10M OHM R33	R33	RES-1608X50N	CRCW060310M09NEA	1
10M OHM 5% 1/20W	RES SMD 10M OHM R34	R34	RES-1608X50N	CRCW060310M09NEA	1
1.1K OHM 5% 1/20W	RES SMD 1.1K OHM 1% R35	R35	RES-1608X50N	CRCW06031K109NEA	1
1K 1% 1/20W	RES SMD 1K OHM 1% R36	R36	RES-1608X50N	CRCW06031K00FKEA	1
100 OHM 5% 1/20W	RES SMD 100 OHM S1 R37	R37	RES-1608X50N	CRCW0603100R1NEA	1
100 OHM 5% 1/20W	RES SMD 100 OHM S1 R38	R38	RES-1608X50N	CRCW0603100R1NEA	1
100 OHM 5% 1/20W	RES SMD 100 OHM S1 R39	R39	RES-1608X50N	CRCW0603100R1NEA	1
100 OHM 5% 1/20W	RES SMD 100 OHM S1 R40	R40	RES-1608X50N	CRCW0603100R1NEA	1
100 OHM 5% 1/20W	RES SMD 100 OHM S1 R41	R41	RES-1608X50N	CRCW0603100R1NEA	1
100 OHM 5% 1/20W	RES SMD 100 OHM S1 R42	R42	RES-1608X50N	CRCW0603100R1NEA	1
100 OHM 1% 1/20W	RES SMD 100 OHM 1% R43	R43	RES-1608X50N	CRCW0603100R1NEA	1
10M OHM 5% 1/20W	RES SMD 10M OHM R44	R44	RES-1608X50N	CRCW060310M09NEA	1
10M OHM 5% 1/20W	RES SMD 10M OHM R45	R45	RES-1608X50N	CRCW060310M09NEA	1
10M OHM 5% 1/20W	RES SMD 10M OHM R46	R46	RES-1608X50N	CRCW060310M09NEA	1
100 OHM 5% 1/20W	RES SMD 100 OHM S1 R47	R47	RES-1608X50N	CRCW0603100R1NEA	1
100 OHM 5% 1/20W	RES SMD 100 OHM S1 R48	R48	RES-1608X50N	CRCW0603100R1NEA	1
100 OHM 5% 1/20W	RES SMD 10M OHM R49	R49	RES-1608X50N	CRCW060310M09NEA	1
10M OHM 5% 1/20W	RES SMD 10M OHM R50	R50	RES-1608X50N	CRCW060310M09NEA	1
0 OHM 1/16W	RES SMD 0 OHM JUM R51	R51	RES-1608X50N	CRCW06030000D02A	1
100 OHM 5% 1/20W	RES SMD 100 OHM S1 R52	R52	RES-1608X50N	CRCW0603100R1NEA	1
100 OHM 5% 1/20W	RES SMD 100 OHM S1 R53	R53	RES-1608X50N	CRCW0603100R1NEA	1
100 OHM 5% 1/20W	RES SMD 100 OHM S1 R54	R54	RES-1608X50N	CRCW0603100R1NEA	1
NTC 100OHM 4A34X	THERMISTOR NTC 100 RT1	RT1	THERM-NTCS100B3	NTCS0603B1100F1	1
NTC 100OHM 4A34X	THERMISTOR NTC 100 RT2	RT2	THERM-NTCS100B3	NTCS0603B1100F1	1
Solder PAD	Solder Pad	SP1	SMD-SQUARE PADS	Solder PAD	1
Large solder PAD	Large solder PAD	SP2	SMD-SQUARE PADS	Large solder PAD	1
Solder PAD	Solder Pad	SP3	SMD-SQUARE PADS	Solder PAD	1
Solder PAD	Solder Pad	SP4	SMD-SQUARE PADS	Solder PAD	1
Solder PAD	Solder Pad	SP5	SMD-SQUARE PADS	Solder PAD	1
Solder PAD	Solder Pad	SP6	SMD-SQUARE PADS	Solder PAD	1
Solder PAD	Solder Pad	SP7	SMD-SQUARE PADS	Solder PAD	1
Large solder PAD	Large solder PAD	SP8	SMD-SQUARE PADS	Large solder PAD	1
Solder PAD	Solder Pad	SP9	SMD-SQUARE PADS	Solder PAD	1
Solder PAD	Solder Pad	SP10	SMD-SQUARE PADS	Solder PAD	1
Large solder PAD	Large solder PAD	SP11	SMD-SQUARE PADS	Large solder PAD	1
Large solder PAD	Large solder PAD	SP12	SMD-SQUARE PADS	Large solder PAD	1
BC771809DPJR	IC BATT PROT L-I-ON U1	U1	8-WSOIN-4X3	BC771809DPJR	1
BC771809DPJR	IC BATT PROT L-I-ON U2	U2	8-WSOIN-4X3	BC771809DPJR	1
BC420B09DSMR	IC BATT MPUNG L-I-CH U3	U3	VQFN-32	BC420B09DSMR	1