

# Bill of Materials

TI DESIGNS

## BMS EM1401 Rev A2 (TIDA-00239)

Item	Quantity	Reference	Value	Part Description	Manufacturer	Manufacturer PartNumber	Alternate Part	PCB Footprint	Note
1	1	BATTERY		.070 SERIES MULTI-LOCK I/O CONN. 20Pos. PCB 90 Horiz	Tyco			175785	
2	17	C1, C10, C12, C16, C35, C37, C52, C53, C54, C56, C65, C68, C71, C72, C76, C158, C164	1uF	CAP, CERM, 1uF, 25V, +/-10%, X7R, 0805	TDK	C2012X7R1E105K	-	0805_HV	
3	1	C4	47pF	CAP, CERM, 47pF, 50V, +/-5%, C0G/NP0, 0603	MuRata	GRM1885C1H470JA01D	-	0603L	
4	2	C5, C251	2200pF	CAP, CERM, 2200pF, 50V, +/-5%, C0G/NP0, 0603	TDK	C1608C0G1H222J	-	0603L	
5	50	C6, C7, C9, C11, C17, C18, C19, C20, C22, C29, C30, C31, C33, C34, C36, C45, C69, C73, C74, C75, C77, C78, C79, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C104, C106, C107, C115, C118, C119, C120, C121, C128, C129, C131, C138, C139, C229, C230, C231	0.1uF	CAP, CERM, 0.1uF, 16V, +/-10%, X7R, 0603	TDK	C1608X7R1C104K	-	0603L	
6	2	C8, C70	0.01uF	CAP, CERM, 0.01uF, 50V, +/-10%, X7R, 0603	TDK	C1608X7R1H103K	-	0603L	
7	2	C13, C80	0.1uF	CAP, CERM, 0.1uF, 16V, +/-5%, X7R, 0603	AVX	0603YC104JAT2A	-	0603L	
8	3	C14, C15, C60	10uF	CAP, CERM, 10uF, 16V, +/-20%, X7R, 1206	TDK	C3216X7R1C106M	-	1206L	
9	30	C23, C26, C108, C109, C110, C152, C171, C172, C173, C174, C175, C176, C177, C178, C179, C180, C181, C182, C183, C184, C185, C186, C187, C188, C189, C190, C191, C192, C193, C194	2.2uF	CAP, CERM, 2.2uF, 6.3V, +/-10%, X5R, 0603	Kemet	C0603C225K9PACTU	-	0603L	
10	4	C24, C25, C27, C28	10pF	CAP, CERM, 10pF, 50V, +/-5%, C0G/NP0, 0603	TDK	C1608C0G1H100D	-	0603L	
11	1	C32	2.2uF	CAP, CERM, 2.2uF, 16V, +/-10%, X7R, 0805	TDK	C2012X7R1C225K	-	0805_HV	
12	1	C38	0.22uF	CAP, CERM, 0.22uF, 16V, +/-10%, X7R, 0603	TDK	C1608X7R1C224K	-	0603L	
13	9	C39, C40, C101, C204, C217, C218, C224, C241, C243	0.01uF	CAP, CERM, 0.01uF, 16V, +/-10%, X7R, 0603	MuRata	GRM188R71C103KA01D	-	0603L	

14	2	C41, C47	2.2uF	CAP, CERM, 2.2uF, 25V, +/-10%, X7R, 1206	MuRata	GRM31MR71E225KA93L	-	1210
15	1	C42	10uF	CAP, CERM, 10uF, 25V, +/-10%, X5R, 1210	MuRata	GRM32DR61E106KA12L	-	1210
16	5	C43, C44, C48, C166, C168	0.01uF	CAP, CERM, 0.01uF, 25V, +/-10%, X7R, 0603	MuRata	GRM188R71E103KA01D	-	0603L
17	7	C46, C49, C51, C55, C61, C62, C113	33pF	CAP, CERM, 33pF, 50V, +/-5%, C0G/NP0, 0603	TDK	C1608C0G1H330J	-	0603L
18	2	C57, C59	22pF	CAP, CERM, 22pF, 50V, +/-5%, C0G/NP0, 0603	AVX	06035A220JAT2A	-	0603L
19	1	C58	0.01uF	CAP, CERM, 0.01uF, 100V, +/-10%, X7R, 0805	MuRata	GRM21BR72A103KA01L	-	0805_HV
20	2	C67, C155	4.7uF	CAP, CERM, 4.7uF, 50V, +/-10%, X7R, 1210	MuRata	GRM32ER71H475KA88L	-	1210L
21	1	C92	47uF	CAP, CERM, 47uF, 6.3V, +/-20%, X5R, 0805	Taiyo Yuden	JMK212BJ476MG-T	-	0805_HV
22	1	C93	33uF	CAP, CERM, 33uF, 6.3V, +/-20%, X5R, 1210	MuRata	GRM32DR60J336ME19L	-	1210
23	2	C94, C95	0.012uF	CAP, CERM, 0.012uF, 16V, +/-10%, X7R, 0603	MuRata	GRM188R71C123KA01D	-	0603L
24	2	C96, C97	0.027uF	CAP, CERM, 0.027uF, 25V, +/-10%, X7R, 0603	MuRata	GRM188R71E273KA01D	-	0603L
25	1	C98	4.7uF	CAP, CERM, 4.7uF, 10V, +/-10%, X5R, 0805	Kemet	C0805C475K8PACTU	-	0805_HV
26	13	C99, C105, C201, C202, C203, C214, C227, C236, C237, C242, C244, C249, C250	1uF	CAP, CERM, 1uF, 16V, +/-10%, X7R, 0603	TDK	C1608X7R1C105K	-	0603L
27	1	C114	1000pF	CAP, CERM, 1000pF, 16V, +/-10%, X7R, 0603	MuRata	GRM188R71C102KA01D	-	0603L
28	2	C117, C161	330pF	CAP, CERM, 330pF, 50V, +/-10%, X7R, 0603	Kemet	C0603C331K5RACTU	-	0603L
29	6	C122, C123, C124, C132, C133, C134	2.2uF	CAP, CERM, 2.2uF, 100V, +/-10%, X7R, 1210	MuRata	GRM32ER72A225KA35L	-	1210L
30	2	C125, C135	0.1uF	CAP, CERM, 0.1uF, 100V, +/-10%, X7R, 1206	AVX	12061C104KAT2A	-	1206L
31	4	C126, C127, C136, C137	10uF	CAP, CERM, 10uF, 10V, +/-10%, X5R, 1206	MuRata	GRM319R61A106KE19D	-	1206L
32	6	C130, C140, C219, C220, C221, C222	2.2uF	CAP, CERM, 2.2uF, 16V, +/-10%, X7R, 0805	Kemet	C0805C225K4RACTU	-	0805_HV
33	9	C141, C142, C143, C144, C146, C147, C148, C150, C151	0.1uF	CAP, CERM, 0.1uF, 25V, +/-10%, X7R, 0603	TDK	C1608X7R1E104K	-	0603L
34	1	C145	1uF	CAP, CERM, 1uF, 16V, +/-10%, X7R, 0805	Kemet	C0805C105K4RACTU	-	0805_HV
35	1	C149	1uF	CAP, CERM, 1uF, 10V, +/-10%, X5R, 0603	TDK	C1608X5R1A105K	-	0603L
36	1	C157	0.1uF	CAP, CERM, 0.1uF, 100V, +/-10%, X7R, 1206	TDK	C3216X7R2A104K	-	1206L
37	2	C159, C165	10uF	CAP, CERM, 10uF, 16V, +/-20%, X7R, 1210	TDK	C3225X7R1C106M	-	1210
38	1	C160	0.47uF	CAP, CERM, 0.47uF, 16V, +/-10%, X5R, 0603	MuRata	GRM188R61C474KA93D	-	0603
39	1	C162	22uF	CAP, CERM, 22uF, 16V, +/-20%, X5R, 1210	TDK	C3225X5R1C226M	-	1210L
40	1	C163	470pF	CAP, CERM, 470pF, 50V, +/-5%, C0G/NP0, 0805	Yageo America	CC0805JRN09BN471	-	0805_HV
41	1	C167	1000pF	CAP, CERM, 1000pF, 50V, +/-10%, C0G/NP0, 0603	AVX	06035A102KAT2A	-	0603L
42	1	C169	330pF	CAP, CERM, 330pF, 50V, +/-5%, C0G/NP0, 0603	AVX	06035A331JAT2A	-	0603L
43	1	C170	3900pF	CAP, CERM, 3900pF, 50V, +/-10%, X7R, 0603	MuRata	GRM188R71H392KA01D	-	0603L
44	2	C196, C197	2.2uF	CAP, CERM, 2.2uF, 6.3V, +/-20%, X5R, 0603	TDK	C1608X5R0J225M	-	0603L
45	2	C207, C209	1uF	CAP, CERM, 1uF, 100V, +/-20%, C Series, 1206	TDK	C3216X7R2A105M	-	1206L
46	2	C208, C210	4.7uF	CAP, CERM, 4.7uF, 16V, +/-10%, X5R, 0805	Taiyo Yuden	EMK212BJ475KG-T	-	0805_HV
47	2	C215, C216	1uF	CAP, CERM, 1uF, 100V, +/-10%, X7R, 1210	MuRata	GRM32ER72A105KA01L	-	1210L
48	2	C225, C226	47pF	CAP, CERM, 47pF, 50V, +/-5%, C0G/NP0, 0603	AVX	06035A470JAT2A	-	0603L
49	1	C248		CAP TANT 47UF 10V 20% SMD	Vishay/Sprague	293D476X0010C	-	6032-28
50	6	C_Vstack1, C_Vstack2, CEXT1, CEXT2, CEXT3, CEXT4	0.1uF	CAP, CERM, 0.1uF, 100V, +/-10%, X7R, 0805	Taiyo Yuden	HMK212B7104KG-T	-	0805_HV
51	2	D1, D8		DIODE 2A 30V SMB	ON Semiconductor	MBRS230LT3G	-	SMB
52	2	D2, D7		H-S switching diode	NXP Semiconductors	BAV99S	-	SOT-363
53	1	D3	30V	Diode, Zener, 30V, 3W, SMB	Micro Commercial Components	3SMBJ5936B-TP	-	SMB
54	1	D5	15V	Diode, Zener, 15V, 225mW, SOT-23	ON Semiconductor	BZX84C15LT1G	-	SOT-23
55	3	D10, D45, D51	15V	Diode, Zener, 15V, 500mW, SOD-123	Vishay-Semiconductor	MMSZ4702-V	-	SOD-123

56	5	D11, D12, D25, D27, D50	1.25V	Diode, Ultrafast, 100V, 0.15A, SOD-123	Diodes Inc.	1N4148W-7-F	-	SOD-123
57	2	D13, D14	1V	Diode, Schottky, 100V, 0.2A, SOD-123	ST Microelectronics	BAT41ZFILM	-	SOD-123
58	4	D15, D24, D44, D49	200V	Diode, Dual, 200V, 350mW, SOT-23	Fairchild Semiconductor	MMD1504A	-	MF03A_L
59	2	D16, D19	6.2V	SMT Zener Diode	ON Semiconductor	BZX84C6V2LT1G	-	MF03A_L
60	2	D17, D20	0.5V	Diode, Schottky, 20V, 1A, SMA	Diodes Inc.	B120-13-F	-	SMA
61	2	D18, D22		1A 1000V Rectifier	Diodes Incorporated	RS1MB-13-F	-	SMB
62	2	D21, D64	0.7V	Diode, Schottky, 30V, 0.2A, SOD-323	Diodes Inc.	BAT54WS-7-F	-	sod-323
63	3	D23, D26, D28	0.79V	Diode, Schottky, 80V, 1A, SMA	Diodes Inc.	B180-13-F	-	SMA
64	14	D29, D30, D31, D32, D33, D34, D35, D36, D37, D38, D39, D40, D41, D43	5.6V	Diode, Zener, 5.6V, 1W, PowerDI123	Diodes Inc.	DFLZ5V6-7	-	powerDI123
65	1	D42	64V	Diode, TVS, Uni, 64V, 400W, SMB	Diodes Inc.	SMAJ64A-13-F	-	SMA
66	1	D46	Green	LED 570NM GREEN DIFF 1206 SMD	Avago Technologies	HSMG-C150	-	HSMG-xxx
67	1	D48	Red	LED 660NM RED DIFF 1206 SMD	Avago Technologies	HSMH-C150	-	HSMH-xxx
68	4	D53, D54, D55, D56	5V	TVS ESD BIDIRECT 5V SOD523	ON Semiconductor	ESD5B5.0ST1G	-	SOD523 TVS
69	2	D62, D63	100V	Diode, Zener, 100V, 550mW, SMB	ON Semiconductor	1SMB5949BT3G	-	SMB
70	2	Dclamp1, Dclamp2	0.45V	Diode, Schottky, 40V, 1A, SOD-123	Diodes Inc.	1N5819HW-7-F	-	SOD-123
71	14	F1, F2, F3, F4, F5, F6, F7, F9, F10, F11, F12, F13, F14, F15	8A	FUSE 8A 125V 6125 FAST SSQ	Bel Fuse Inc	SSQ 8	-	SSQ8A
72	1	F8	12A	FUSE 12A 125V 6125 FAST SSQ	Bel Fuse Inc	SSQ 12	-	SSQ8A
73	1	F17	2A	FUSE 2A 63V FAST ACTING	LittleFuse Inc	0437002.WR	-	1206M
74	2	F18, F19	2A	FUSE 2A 125V FAST ACTING	LittleFuse Inc	0459002.UR	-	0459002.UR
75	1	J3		TC2050 plug of nails cable	Tag-Connect	TC2050-IDC-NL-10	-	TC2050-IDC-NL-10
76	1	J7		GREY CONN SHROUDED 2x10 HEADER SMT 100mil pitch	Assman Electronics	AWHW20-G-SMD-R	-	2X10 Shrouded Surface Mount HDR 0603
77	6	L1, L3, L4, L6, L8, L9		Ferrite bead, 120mOhm, 2A, 0603	Steward	MI0603M121R-10	-	0603
78	2	L5, L7	6.8uH	Würth 6.8uH Power Inductor	Würth Elektronik	7443320680	-	Würth 7443320680
79	1	L10	10uH	Inductor, Shielded Drum Core, Ferrite, 10uH, 1.7A, 0.065 ohm, SMD	Sumida	CDRH6D28NP-100NC	-	CDRH6D28
80	1	L11	5uH	Inductor, Shielded Drum Core, Ferrite, 5uH, 2.4A, 0.031 ohm, SMD	Sumida	CDRH6D28NP-5R0NC	-	CDRH6D28
81	1	P2		Tyco .64 Series GET Connector 2 position	Tyco	1452625-1	-	1452625-1
82	1	P3		RJ45 2X1 8 Position Jack	EDAC	A00-216-262-450	-	A00-216-262-450
83	1	PING_IN1		Tyco 025 Series Multi-Lock Connector 4 position	Tyco	1565749-1	-	1565749-1
84	1	PING_OFF		CONN 1X2 HEADER 100mil pitch	3M	961102-6404-AR	-	1X2 100MIL PITCH
85	1	PING_OUT1		Tyco 025 Series Multi-Lock Connector 8 position	Tyco	1376350-2	-	1376350-2
86	20	Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q9, Q10, Q14, Q15, Q16, Q17, Q18, Q19, Q20, Q21, Q22, Q23		DUAL N CHANNEL MOSFET, 40V, 60A	Vishay	SI7938DP	-	POWERPAK SO-8 -Dual
87	8	Q11, Q13, Q24, Q35, Q38, Q41, Q45, Q47	60V	MOSFET N-CH 60V 115MA SOT323	Vishay-Siliconix	2N7002W-7-F	-	SOT-323
88	2	Q12, Q44	80V	MOSFET P-CH 80V 2.2A SOT23-3	Vishay/Siliconix	SI2337DS-T1-E3	-	MF03A_N
89	2	Q25, Q48	0.075V	Transistor, PNP, 65V, 0.1A, SOT-23	Diodes Inc.	BC856B-7-F	-	SOT-23
90	2	Q26, Q32	-150V	MOSFET, P-CH, -150V, -3A, PowerPAK SO-8	Vishay-Siliconix	SI7439DP-T1-E3	-	PowerPAK_SO-8

91	4	Q27, Q29, Q31, Q34	30V	45A, 27nC, rDS(on) @ 4.5V =0.0028 ohm	Renesas	RJK0330DPB		LFPKAL
92	2	Q28, Q33	150V	100A, 47nC, rDS(on) @ 4.5V =0.0021 Ohm	Vishay/Siliconix	SI7846DP-T1-E3		PowerPAK_SO-8
93	1	Q36	150V	MOSFET, N-CH, 150V, 3A, PowerPAK SO-8	Vishay-Siliconix	SI7898DP-E3	-	PowerPAK_SO-8
94	1	Q37	-20V	MOSFET, P-CH, -20V, -3.7A, SOT-23	Vishay-Siliconix	SI2323DS	-	SOT-23
95	1	Q40	100V	MOSFET P-CH 100V 700MA SOT23-3	Diodes/Zetex	ZXMP10A13FTA		MF03A_N
96	1	Q46	-80V	MOSFET, P-CH, -80V, -23.5A, DDPKAK	Vishay-Siliconix	SUM110P08-11L		DDPKAK
97	1	Q49	0.7V	Transistor, NPN, 65V, 0.1A, SOT-23	ON Semiconductor	BC846BLT1G	-	SOT-23
98	1	Q52	-80V	MOSFET, P-CH, -80V, -1.2A, SOT-23	Vishay-Siliconix	SI2337DS-T1-E3	-	SOT-23
99	4	Q53, Q54, Q55, Q57	0.2V	PNP, 1.4A, 100V	Diodes Inc	FMMT596TA		SOT-23
100	1	Q56	0.2V	NPN, 1A, 150V	Diodes Inc.	FMMT495TA		SOT-23
101	30	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R106, R107, R108, R109, R110, R111, R112, R114, R116, R118, R120, R122, R123, R124, R130	732	RES, 732 ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW0603732RFKEA	-	0603L
102	4	R16, R131, R134, R221	100	RES, 100 ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW0603100RFKEA	-	0603L
103	1	R17	60.4k	RES, 60.4k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW060360K4FKEA	-	0603L
104	11	R18, R47, R51, R52, R59, R60, R247, R248, R251, R259, R262	1.00k	RES, 1.00k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW06031K00FKEA	-	0603L
105	2	R19, R30	2.74k	RES, 2.74k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW06032K74FKEA	-	0603L
106	41	R20, R21, R25, R27, R28, R38, R56, R62, R86, R95, R102, R103, R104, R105, R125, R141, R142, R143, R155, R157, R160, R163, R164, R165, R170, R171, R175, R178, R188, R189, R194, R196, R229, R230, R231, R232, R233, R235, R245, R271, R279	0	RES, 0 ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW06030000Z0EA	-	0603L
107	2	R23, R29	499	RES, 499 ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW0603499RFKEA	-	0603L
108	9	R24, R64, R113, R115, R128, R215, R255, R256, R257	49.9k	RES, 49.9k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW060349K9FKEA	-	0603L
109	1	R35	787k	RES, 787k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW0603787KFKEA	-	0603L
110	4	R37, R93, R137, R145	200k	RES, 200k ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW0603200KJNEA	-	0603L
111	4	R39, R58, R82, R146	49.9	RES, 49.9 ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW060349R9FKEA	-	0603L

112	12	R42, R43, R45, R55, R68, R69, R70, R71, R72, R73, R74, R75	10.0	RES, 10.0 ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-0710RL	-	0603L
113	3	R44, R46, R186	47k	RES, 47k ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW060347K0JNEA	-	0603L
114	4	R53, R54, R172, R190	10.0k	RES, 10.0k ohm, 0.1%, 0.1W, 0603	Yageo America	RT0603BRD0710KL	-	0603L
115	2	R57, R243	66.5k	RES, 66.5k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW060366K5FKEA	-	0603L
116	1	R63	10.0	RES, 10.0 ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW060310R0FKEA	-	0603L
117	13	R65, R167, R168, R169, R173, R177, R180, R191, R195, R198, R261, R264, R273	100k	RES, 100k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW0603100KFKEA	-	0603L
118	10	R66, R67, R94, R98, R216, R223, R241, R242, R244, R250	100k	0.5%, 0.1W, 0.5%, 0.1W, 0.5%, 0.1W, 0.5%, 0.1W, 0.5%, 0.1W, 0.5%, 0.1W, RES, 100k ohm, 0.5%, 0.1W, 0603, RES, 100k ohm, 0.5%, 0.1W, 0603, 0.5%, 0.1W, 0.5%, 0.1W	Yageo America	RT0603DRE07100KL	-	0603L
119	4	R76, R80, R88, R286	33	RES, 33 ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW060333R0JNEA	-	0603L
120	10	R77, R78, R79, R89, R159, R183, R185, R219, R246, R249	10.0k	RES, 10.0k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW060310K0FKEA	-	0603L
121	1	R83	249k	RES, 249k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW0603249KFKEA	-	0603L
122	2	R90, R91	1.00k	RES, 1.00k ohm, 1%, 0.063W, 0402	Vishay-Dale	CRCW04021K00FKED	-	0402
123	1	R96	316k	RES, 316k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW0603316KFKEA	-	0603L
124	1	R126	133k	RES, 133k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW0603133KFKEA	-	0603L
125	1	R127	402k	RES, 402k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW0603402KFKEA	-	0603L
126	1	R129	10.0	RES, 10.0 ohm, 1%, 0.125W, 0805	Vishay-Dale	CRCW080510R0FKEA	-	0805_HV
127	1	R132	8.2k	RES, 8.2k ohm, 5%, 0.1W, 0603	Yageo America	RC0603JR-078K2L	-	0603L
128	1	R133	10.2k	RES, 10.2k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW060310K2FKEA	-	0603L
129	1	R135	51k	RES, 51k ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW060351K0JNEA	-	0603L
130	1	R136	10.7k	RES, 10.7k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW060310K7FKEA	-	0603L
131	1	R138	54.9k	RES, 54.9k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW060354K9FKEA	-	0603L
132	1	R139	15.0k	RES, 15.0k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-0715KL	-	0603
133	1	R140	3.01k	RES, 3.01k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW06033K01FKEA	-	0603
134	2	R148, R176	442k	RES, 442k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW0603442KFKEA	-	0603L
135	1	R150	174k	RES, 174k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW0603174KFKEA	-	0603L
136	1	R152	26.7k	RES, 26.7k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW060326K7FKEA	-	0603L
137	2	R153, R187	5.90k	RES, 5.90k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW06035K90FKEA	-	0603L
138	4	R161, R162, R181, R182	560	RES, 560 ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW0603560RJNEA	-	0603L
139	1	R166	22	22 Ohm 1%, 1W	Panasonic	ERJ-1TYJ220U	-	2512M
140	2	R174, R192	0.01	RES, 0.01 ohm, 1%, 1W, 2010	Vishay-Dale	WSL2010R0100FEA18	-	2010M
141	2	R179, R197	0.033	RES, 0.033 ohm, 1%, 0.5W, 1812	Panasonic	ERJ-L12KF33MU	-	1812
142	1	R184	1.10k	RES, 1.10k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW06031K10FKEA	-	0603L
143	13	R201, R202, R203, R204, R205, R206, R207, R208, R260, R263, R265, R269, R278	20.0k	RES, 20.0k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW060320K0FKEA	-	0603L
144	1	R210	910k	RES, 910k ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW0603910KJNEA	-	0603L
145	1	R211	150k	RES, 150k ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW0603150KJNEA	-	0603L
146	1	R212	100	RES, 100 ohm, 1%, 0.25W, 1206	Vishay-Dale	CRCW1206100RFKEA	-	1206L
147	2	R214, R220	5.1k	RES, 5.1k ohm, 5%, 0.125W, 0805	Vishay-Dale	CRCW08055K10JNEA	-	0805_HV
148	1	R217	10.0	RES, 10.0 ohm, 1%, 0.25W, 1206	Vishay-Dale	CRCW120610R0FKEA	-	1206L
149	1	R222	75.0k	RES, 75.0k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW060375K0FKEA	-	0603L
150	1	R224	0.27	RES, 0.27 ohm, 1%, 0.5W, 1210	Rohm	MCR25JHFLR270	-	1210M
151	1	R226	115k	RES, 115k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW0603115KFKEA	-	0603L
152	1	R227	10.5k	RES, 10.5k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW060310K5FKEA	-	0603L

153	1	R228	1.15k	RES, 1.15k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW06031K15FKEA	-	0603L
154	2	R266, R270	680k	RES, 680k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-07680KL	-	0603L
155	1	R272	39.0k	RES, 39.0k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-0739KL	-	0603L
156	1	R274	82.0k	RES, 82.0k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-0782KL	-	0603L
157	2	R275, R277	25.5k	RES, 25.5k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW060325K5FKEA	-	0603L
158	1	R276	1.50k	RES, 1.50k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW06031K50FKEA	-	0603L
159	1	RT1	100k ohm	Thermistor NTC, 100k ohm, 1%, 0603	TDK	NTCG164KF104F	-	0603
160	1	SW1		Switch, Normally open, 2.3N force, 200k operations, SMD	C and K Components	KSR221GLFS	-	KSR
161	1	T1		Würth 749196111 flyback transformer	Würth Elektronik	749196111	-	749196111
162	2	T2, T3		Forward Transformer	Würth Elektronik	750311492	-	WE EFD20-SMD Transformer
163	1	T5		CHOKO COMM MODE 1000 OHM .5A SMD	TDK	ZJYS81R5-2PL51T-G01	-	TDK Choke
164	1	TEMP_SENSE		Tyco 025 Series Multi-Lock Connector 16 position	Tyco	1318382-2	-	1318382-2
165	1	TEST_PORT		20Pin AMP Connector VERT HEADER	AMP Incorporated	5-104068-1	-	5-104068-1
166	1	U2		14 channel AFE	Texas Instruments	EMB1432QSQ	-	SQA48B
167	1	U3		14-Bit, 50 kSPS to 250 kSPS, Differential Input, Micro Power A/D Converter	Texas Instruments	EMB1426QMM	-	MUB10A_N
168	1	U4		Low Power 3-Channel Digital Isolator	Texas Instruments	ISO7521CDWR	-	SOIC16 Wide
169	1	U5		CAN transceiver	Texas Instruments	SN65HVDA1040AQDRQ1	-	M08A_M
170	2	U6, U26		12 channel Gate Controller	Texas Instruments	EMB1428QSQ	-	sqa48a
171	1	U7		IGLOO Low-Power Flash 1.2/1.5V FPGA with Flash*Freeze, 34 User IOs, 30K System Gates, 1Kbit Flash ROM, 48-Pin QFN, Commercial Grade	Actel	AGLN030V5-ZQNG48	-	QN48_N
172	1	U8		5-Pin Microprocessor Reset Circuits	Texas Instruments	EMB1424MF	-	MF05A_N
173	1	U9		Dual 150mA Ultra Low-Dropout Regulator	Texas Instruments	EMB1466MM	-	MUA08A_N
174	1	U10		VREG, LDO, ADJ, 50mA, MSOP8	Texas Instruments	TPS7A4001DGN	-	MUY08A_N
175	1	U11		Dual 2A, 500kHz Wide Input Range Buck Regulator, 16-pin TSSOP-EP, Pb-Free	Texas Instruments	LM26400YMH/NOPB	-	MXA16A_N
176	2	U12, U30		Dual 5A Compound Gate Driver	Texas Instruments	EMB1412MY	-	MUY08A_N
177	1	U13		Low Noise Regulated Switched Capacitor Voltage Inverter	Texas Instruments	EMB1487MM	-	MUA08A_N
178	1	U14		Stellaris ARM Cortex-M3 Microcontroller	Texas Instruments	LM355R31-IQC-C5	-	QFP50P1600X16 00X160-100N
179	1	U15	5V	TVS ESD BIDIRECT 5V SOT-666	SemTech	UCLAMP0506A.TCT	-	SC-89
180	1	U16		Adjustable Precision Zener Shunt Regulator, 3-pin SOT-23	Texas Instruments	LM431AIM3	-	MF03A_L
181	2	U17, U38	6.1V	DIODE ARRAY ESD 6.1V Breakdown	STMicroelectronics	ESDA6V1SC5	-	MF05A_M
182	1	U18		Battery Stack Protection WCOMP	Texas Instruments	EMB1433QSQ	-	sqa48b
183	1	U19		Oscillator, 8.000MHz, 3.3V, SMD	Abracon	ASE-8.000MHZ-LC-T	-	ASE-xxxMHz-x-x-x
184	1	U20		Low Power 3-Channel Digital Isolator	Texas Instruments	ISO7520CDWR	-	SOIC16 Wide
185	1	U21	LMV112SD	40MHz Dual Clock Buffer	Texas Instruments	LMV112SD	-	SDA08A
186	2	U24, U28		IC INVERTER WITH SCHMITT TRIGGER SINGLE	Rohm Semiconductor	BU4S584G2-TR	-	MF05A_M
187	2	U27, U29		PWM Controller	Texas Instruments	EMB1499QMH	-	MXA28A_M
188	1	U31		8-Channel, 500 kSPS to 1 MSPS, 12-Bit A/D Converter	Texas Instruments	EMB1402MT	-	MTC16_N
189	2	U33, U35		500 mA Low Dropout Regulator	Texas Instruments	EMB1437MP	-	MP04A_N
190	1	U34		100V Current Mode PWM Controller	Texas Instruments	EMB1420MM	-	MUB10A_N
191	1	U41		IC PREC VREF 2.5V SOIC8	Texas Instruments	REF5025AID	-	M08A_L
192	1	U43		Micropower 150 mA Low-Noise Ultra Low-Dropout Regulator, 5-pin SOT-23	Texas Instruments	LP2985AIM5-1.5	-	MF05A_N
193	1	U44		IC EEPROM 512KBIT 20MHZ	Microchip Technology	25LC512T-I/SN	-	M08A_L
194	1	Y1	4.194304MHz	SMD Low Profile Crystal	Abracon Corporation	ABLSG-4.194304MHZ-D-2-Y-T	-	HC-49US crystal
195	1	Y2	8MHz	SMD Low Profile Crystal	Abracon Corporation	ABLS2-8.000MHZ-D4Y-T	-	HC-49US crystal
196	2	Zener1, Zener2	30V	Diode, Zener, 30V, 550mW, SMB	ON Semiconductor	1SMB5936BT3G	-	SMB

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