

# Bill of Materials

TI DESIGNS TIDA-00355 REV C  
 230V, 400W, High efficiency, 36V-Battery charger with PFC and LLC

Qty	Reference	Part Description	Manufacturer	Manufacturer Part Number	Note
1	PCB1	Printed Circuit Board	Any	TIDA-00355	Fitted
2	C1, C51	CAP, Film, 0.1uF, 630V, +/-10%, TH	Kemet	R46K1310040M1K1	Fitted
3	C2, C3, C16	CAP, Film, 0.47uF, 630V, +/-10%, TH	Kemet	R4631347000NOM	Fitted
1	C4	CAP, AL, 220uF, 450V, +/-20%, TH	Nichicon	LGU2W221MELB	Fitted
2	C5, C6	CAP, CERM, 1000pF, 300VAC, +/-20%, X1Y2, 7mm dia.	Kemet	C901U102MZWD8A7317	Fitted
1	C46	CAP, CERM, 2200pF, 440VAC, +/-20%, X1Y1, 9mm dia.	Kemet	C921U222MVD8A7317	Fitted
1	C9	CAP, CERM, 1000 pF, 50 V, +/- 10%, X7R, 0603	MuRata	GRM188R71H102KA01D	Fitted
1	C10	CAP, CERM, 2700 pF, 50 V, +/- 10%, X7R, 0603	MuRata	GRM188R71H272KA01D	Fitted
2	C11, C36	CAP, CERM, 100pF, 50V, +/-5%, COG/NPO, 0603	TDK	C1608COG1H101J	Fitted
6	C12, C19, C27, C40, C43, C52	CAP, CERM, 1uF, 50V, +/-10%, X7R, 0805	Taiyo Yuden	UMK212B7105KG-T	Fitted
1	C13	CAP, CERM, 0.47 uF, 50 V, +/- 10%, X5R, 0603	Taiyo Yuden	UMK107ABJ474KA-T	Fitted
1	C14	CAP, CERM, 4.7 uF, 50 V, +/- 10%, X5R, 0805	Taiyo Yuden	TMK212BJ475KG-T	Fitted
1	C15	CAP, CERM, 47pF, 1000V, +/-5%, U2J, 1206	Murata	GRM31A7U3A470JW31D	Fitted
1	C17	CAP, CERM, 0.1 uF, 50 V, +/- 10%, X7R, 0805	Samsung	CL21B104KBCNNNC	Fitted
4	C18, C45, C49, C50	CAP, AL, 10uF, 35V, +/-20%, 0.95 ohm, TH	Nichicon	UPW1V100MDD6	Fitted
4	C20, C21, C22, C23	CAP, CERM, 4.7uF, 100V, +/-20%, X7S, 1210	TDK	C3225X7S2A475M200AB	Fitted
3	C24, C25, C26	CAP, AL, 470uF, 63V, +/-20%, 55mohm, TH	Nichicon	UPW1J471MHD6	Fitted
1	C28	CAP, Film, 0.039uF, 1KV, +/-5%, TH	Panasonic	ECQ-E10393JF	Fitted
1	C30	CAP, CERM, 470pF, 1000V, +/-10%, X7R, 1206	MuRata	GRM31BR73A471KW01L	Fitted
2	C31, C35	CAP, CERM, 0.1uF, 50V, +/-10%, X7R, 0603	Samsung	CL10B104K88SFNC	Fitted
2	C33, C53	CAP, AL, 22 uF, 25 V, +/- 20%, TH	Nichicon	UPW1E220MDD6	Fitted
1	C34	CAP, CERM, 2200pF, 50V, +/-10%, X7R, 0603	Kemet	C0603C222K5RACTU	Fitted
1	C37	CAP, CERM, 4700pF, 50V, +/-10%, X8R, 0603	MuRata	GRM188R71H472KA01D	Fitted
2	C38, C39	CAP, CERM, 220pF, 50V, +/-5%, COG/NPO, 0603	Samsung	CL10C221J88NNNC	Fitted
1	C41	CAP, CERM, 0.01uF, 50V, +/-10%, X7R, 0603	Samsung	CL10B103KB8NNNC	Fitted
1	C42	CAP, CERM, 0.033uF, 50V, +/-10%, X7R, 0603	Samsung	CL10B333KB8SFNC	Fitted
1	C47	CAP, CERM, 0.01uF, 250V, +/-10%, X7R, 0805	TDK	C2012X7R2E103K125AA	Fitted
1	C48	CAP, AL, 100uF, 25V, +/-20%, TH	Rubycon	35ZLH100MEFC6.3X11	Fitted
1	D1	DIODE, General Purpose, 600V, 3.0A	ON Semiconductor	1N5406G	Fitted
1	D2	Diode, Dual Ultrafast, 600V, 8A	NXP	BYV25FX-600	Fitted
1	D3	Diode, Bridge Rectifier, 15A, 600V	Micro Commercial Co	GBJ1506-BP	Fitted
3	D4, D10, D21	Diode, Switching, 90V, 225 mA Ifm, High speed	Rohm Semiconductor	1S5355TE-17	Fitted
2	D5, D14	Diode, Schottky, 30V, 0.2A, SOD-323	Micro Commercial Co	BAT54WS-TP	Fitted
1	D6	Diode, Ultrafast, 600 V, 1 A, SMA	ON Semiconductor	MURA160T3G	Fitted
2	D7, D8	DIODE SCHOTTKY 100V 30A TO220AB	ST Microelectronics	STPS20M120STN	Fitted
2	D9, D11	Diode, Switching, 200V, 0.2A, SOD-123	Diodes Inc.	BAV21W-7-F	Fitted
1	D12	Diode, Zener, 12V, 200mW, SOD-323	Diodes Inc.	MMS25242BS-7-F	Fitted
1	D13	Diode, Switching, 70V, 0.25A, SOT-23	ON Semiconductor	BAW56LT1G	Fitted
1	D16	Diode, Switching, 75V, 0.3A, SOT-23	ON Semiconductor	BAV99LT1G	Fitted
3	D17, D18, D20	Diode, Switching, 600V, 1A, TH	Fairchild Semiconductor	1N4937	Fitted
1	D19	Diode, Zener, 15V, 300mW, SOD-323	NXP	BZX384-C15.115	Fitted
2	F1	Fuse Clip cartridge, 250V, 10A, PCB	Littelfuse Inc	01000056Z	Fitted

Qty	Reference	Part Description	Manufacturer	Manufacturer Part Number	Note
1	F1	Fuse, Slow Blow, Ceramic, 250V, 5A	Bel Fuse Inc	5HT 5-R	Fitted
7	HS1, HS2, HS3, HS4, HS5, HS6, HS7	HEATSINK ALUM ANOD	Assmann WSW Components	V6560X	Fitted
1	J1	AC Receptacle, 10A 250VAC	Qualtek Electronics Corporation	703W-00/54	Fitted
1	J2	Header, 100mil, 5x1, TH	Sullins Connector Solutions	PREC005SAAN-RC	Fitted
1	J3	Conn Term Block, 2POS, 5.08mm, TH	On Shore Technology Inc	OSTTC022162	Fitted
1	L3	Inductor, PFC Boost, 1mH, 4A, PQ4040	Würth Electronics Inc	750342669	Fitted
1	L2	Choke Common Mode, 17mH, 4A, 50mohm	Würth Electronics Inc	7448030417	Fitted
2	L1, L4	Shielded Drum Core Ferrite, 100uH, 2.5A, 0.1Ohm, SMD	Würth Electronics Inc	7447709101	Fitted
1	L5	Inductor, Drum Core, Ferrite, 1uH, 21.8A, 0.002 ohm, TH	Coilcraft	PCV-0-102-25L	Fitted
1	Q1	MOSFET N-CH 500V 12A TO-220F	Alpha & Omega Semiconductor Inc	AOTF12T50P	Fitted
2	Q2, Q3	MOSFET N-CH 500V 18A TO-220F	Fairchild Semiconductor	FDPF18N50	Fitted
2	Q4, Q5	Transistor, NPN, 65V, 0.1A, SOT-23	ON Semiconductor	BC846BLT1G	Fitted
2	Q6, Q7	Transistor, PNP, 40V, 0.2A, SOT-23	Fairchild Semiconductor	MMBT3906LT1G	Fitted
1	Q8	Transistor, NPN, 800V, 1.5A, TO-126	Fairchild Semiconductor	KSC5026MOS	Fitted
1	Q9	MOSFET, N-CH, 60V, 0.17A, SOT-23	ON Semiconductor	2N7002ET1G	Fitted
1	R1	RES, 220 ohm, 5%, 1W, 2512	Vishay-Dale	CRCW2512220RJNEG	Fitted
1	R23	RES, 49.9 ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-0749R9L	Fitted
1	R2	RES, 2.54, 1%, 0.1 W, 0603	Yageo America	RC0603FR-072R54L	Fitted
6	R3, R6, R9, R49, R53, R57	RES, 3.32 M, 1%, 0.25 W, 1206,	Yageo America	RC1206FR-073M32L	Fitted
1	R4	RES, 0.05 ohm, 1%, 1 W, 2512	TT Electronics/Welwyn	LRMAM2512-R05FT4	Fitted
4	R5, R12, R15, R19	RES, 21.5 k, 1%, 0.1 W, 0603	Yageo America	RC0603FR-0721K5L	Fitted
1	R7	RES, 226, 1%, 0.1 W, 0603	Yageo America	RC0603FR-07226RL	Fitted
1	R8	RES, 10, 1%, 0.1 W, 0603	Yageo America	RC0603FR-0710ROL	Fitted
1	R10	RES, 17.8k ohm, 1%, 0.1 W, 0603	Yageo America	RC0603FR-0717K8L	Fitted
1	R11	RES, 127k ohm, 1%, 0.1 W, 0603	Yageo America	RC0603FR-07127KL	Fitted
1	R13	RES, 3.32 ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-073R32L	Fitted
3	R14, R17, R54	RES, 5.11 ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-075R11L	Fitted
1	R16	RES, 1.20 ohm, 5%, 1 W, 2512	TE Connectivity	1-1622820-9	Fitted
2	R18, R20	RES, 0.02 ohm, 1%, 1 W, 2512	TT Electronics/Welwyn	LRMAM2512-R02FT4	Fitted
7	R21, R22, R37, R39, R45, R50, R56	RES, 10.0k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-0710KL	Fitted
2	R24, R38	RES, 1.00k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-071KL	Fitted
1	R25	RES SMD 0.0 ohm jumper, 0.1W	Samsung	RC1608J000CS	Fitted
1	R26	RES, 316k ohm, 1%, 0.25W, 1206	Yageo America	RC1206FR-07316KL	Fitted
1	R27	RES, 34.8k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-0734K8L	Fitted
1	R28	RES, 100k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-07100KL	Fitted
1	R29	RES, 2.67k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-072K67L	Fitted
2	R30, R51	RES, 100 ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-07100RL	Fitted
2	R31, R35	RES, 51.1 ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-0751R1L	Fitted
1	R32	RES, 1.54k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-071K54L	Fitted
3	R33, R34, R40	RES, 4.42k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-074K42L	Fitted
1	R36	RES, 511 ohm, 1%, 0.1 W, 0603	Yageo America	RC0603FR-07511RL	Fitted
1	R41	RES, 13.7k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-0713K7L	Fitted
1	R42	RES, 2.37k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-072K37L	Fitted
1	R44	RES, 5.49k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-075K49L	Fitted
1	R46	RES, 2.49k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-072K49L	Fitted
2	R47, R55	RES, 15.4 ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-0715R4L	Fitted
1	R48	RES, 82k ohm, 5%, 0.25W, 1206	Yageo America	RC1206JR-0782KL	Fitted
1	R52	RES, 6.81k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-076K81L	Fitted
1	R58	RES, 133k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-07133KL	Fitted
1	R59	RES, 1.15k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-071K15L	Fitted
1	R60	RES, 226k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-07226KL	Fitted
1	R61	RES, 7.50 ohm, 1%, 0.25W, 1206	Yageo America	RC1206FR-077R5L	Fitted
1	R62	RES, 56.2k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-0756K2L	Fitted
1	RT1	NTC Thermistor, 5 ohm, 4A	Cantherm	MF72-005D11	Fitted
1	RV1	Varistor 275V RMS 10MM Radial, TH	Bourns Inc	MOV-10D431K	Fitted
1	T1	LLC Transformer, ETD44, 400uH, 75uH Leakage, 2.3A	Würth Electronics Inc	750342670	Fitted
1	T2	Flyback Transformer, EE1304, 4mH, 100mA	Würth Electronics Inc	750342671	Fitted
11	TP1, TP2, TP3, TP5, TP6, TP7, TP9, TP10, TP11, TP14, TP15	Test Point, Miniature, Red, TH	Keystone	5000	Fitted
4	TP4, TP8, TP12, TP13	Test Point, Miniature, Black, TH	Keystone	5001	Fitted
1	U1	8-PIN CCM PFC Controller	Texas Instruments	UCC28180D	Fitted
1	U2	IC, 24-V Input, 150 mA, Utralow IQ LDO Regulator	Texas Instruments	TLV70450DBV	Fitted
1	U3	High-Speed, 4A, 600V High-side Low-side Gate Driver	Texas Instruments	UCC27714D	Fitted
1	U4	IC, Dual OpAmp With Internal Reference	Texas Instruments	TL103WAID	Fitted
1	U5	High-Performance Resonant Mode Controller	Texas Instruments	UCC25600D	Fitted
2	U6, U7	Opto-Isolator, 1 Channel, TH	Lite-On Inc	LTV-817A	Fitted
1	U8	Constant-Voltage, Constant-Current Controller With Primary-Side Regulation, BJT Drive	Texas Instruments	UCC28722DBV	Fitted

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