

TIDA-010938 DC-DC REV E1 Bill of Materials

Designator	Quantity	Value	PartNumber	Manufacturer	Description	PackageReference
PCB	1		TIDA-010938 DC-DC	Any	Printed Circuit Board	
C1	1	0.1uF	GRM188R72A104KA35J	MuRata	CAP, CERM, 0.1 uF, 100 V, +/- 10%, X7R, 0603	0603
C2, C30, C224	3	5.6uF	R533R456050P0M	KEMET	5.6 uF Film Capacitor 310V 630V Polypropylene (PP), Metallized Radial	RADIAL
C3, C4, C10, C24	4	2.7uF	C4AKOBU4270A3YJ	Kemet	2.7 uF Film Capacitor 900V Polypropylene (PP), Metallized Radial	RADIAL
C5, C115, C144	3	100uF	UWT1E101MCL1GS	Nichicon	CAP, AL, 100 uF, 25 V, +/- 20%, SMD	6.6x6.6mm
C6, C20, C34, C59, C68, C93	6	10uF	TMK316AB7106KLHT	Taiyo Yuden	CAP, CERM, 10 uF, 25 V, +/- 10%, X7R, AEC-Q200 Grade 1, 1206	1206

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C7, C11, C12, C14, C15, C16, C19, C22, C25, C26, C28, C29, C35, C45, C54, C55, C58, C62, C64, C67, C69, C78, C79, C82, C83, C86, C87, C88, C89, C90, C91, C92, C96, C97, C98, C112, C116, C118, C120, C122, C142, C151, C152, C153	44	220pF	GRM188R71H221KA01D	MuRata	CAP, CERM, 220 pF, 50 V, +/- 10%, X7R, 0603	0603
C8, C21, C31, C36, C37, C48, C49, C52, C56, C57, C61, C70, C71, C95, C108, C124, C125, C128, C129, C146	20	0.1uF	06033C104JAT2A	AVX	CAP, CERM, 0.1 uF, 25 V, +/- 5%, X7R, 0603	0603
C9, C23	2	6uF	C4ALUBU4600M18J	KEMET	6 uF Film Capacitor 700V Polypropylene (PP), Metallized Radial	RADIAL
C13, C27, C46, C65, C80, C99	6	2.2uF	CGA4J3X7R1E225K125AB	TDK	CAP, CERM, 2.2 uF, 25 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0805	0805
C17, C32, C38, C72	4	1uF	TMK107BJ105KA-T	Taiyo Yuden	CAP, CERM, 1 uF, 25 V, +/- 10%, X5R, 0603	0603

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C18, C33, C154	3	0.01uF	SR0603X7R103K1NT95(F)#M123A	Presidio Components	CAP, CERM, 0.01 μ F, 25 V, +/- 10%, X7R, 0603	0603
C39, C73	2	20uF	GRMJN7R61C206ME05	MuRata	CAP, CERM, 20 μ F, 16 V, +/- 20%, X5R, 0704	0704
C40, C74	2	10uF	TMK107BBJ106MA-T	Taiyo Yuden	CAP, CERM, 10 μ F, 25 V, +/- 20%, X5R, 0603	0603
C41, C75	2	10 μ F	ZRB18AR61E106ME01L	Murata Electronics	10 μ F \pm 20% 25V Ceramic Capacitor X5R 0603 (1608 Metric)	0603
C42, C76	2	330pF	GRM1885C1H331JA01D	MuRata	CAP, CERM, 330 pF, 50 V, +/- 5%, C0G/NP0, 0603	0603
C43, C50, C51, C77, C84, C85, C117, C119	8	0.1uF	885012206095	Würth Elektronik	CAP, CERM, 0.1 μ F, 50 V, +/- 10%, X7R, 0603	0603
C44, C53	2	0.01uF	CGA3E2X7R2A103K080AA	TDK	CAP, CERM, 0.01 μ F, 100 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0603	0603
C47, C81	2	0.01uF	885012206089	Würth Elektronik	CAP, CERM, 0.01 μ F, 50 V, +/- 10%, X7R, 0603	0603
C60, C94	2	2.4 μ F	C4ALJBU4240M1WJ	KEMET	2.4 μ F Film Capacitor 700V Polypropylene (PP), Metallized Radial	RADIAL
C63, C66	2	0.47uF	2220Y1K00474KETWS2	Knowles Capacitors	CAP, CERM, 0.47 μ F, 1000 V, +/- 10%, X7R, AEC-Q200 Grade 1, 2220	2220

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C100, C101, C106, C107, C110, C111, C113, C126, C127, C130, C131, C133, C134, C135, C140, C141	16	0.03uF	C1812C303KDGLCAUTO	Kemet	CAP, CERM, 0.1 uF, 1000 V, +/- 10%, X7R, 1812	1812
C102, C132, C155	3	0.1uF	C0603X104K3RACTU	Kemet	CAP, CERM, 0.1 uF, 25 V, +/- 10%, X7R, 0603	0603
C103, C104, C105, C109	4	1600pF	GRM1885C1H162JA01D	MuRata	CAP, CERM, 1600 pF, 50 V, +/- 5%, C0G/NP0, 0603	0603
C143	1	14uF	C4AKOBW5140A3JJ	Kemet	14 uF Film Capacitor 900V Polypropylene (PP), Metallized Radial - 4 Leads	RADIAL
D1, D3	2		C6D20065G	Wolfspeed	Schottky Diode 650 V 20A Surface Mount TO-263-2	TO263-2
D6, D9	2	16V	BZT52C16-7-F	Diodes Inc.	Diode, Zener, 16 V, 500 mW, AEC-Q101, SOD-123	SOD-123
D11	1		SMBJ5350B-TP	MCC	Zener Diode 13 V 5 W ±5% Surface Mount DO-214AA (SMB)	SMB
D12	1	150V	ES1C-13-F	Diodes Inc.	Diode, Superfast Rectifier, 150 V, 1 A, SMA	SMA
D13, D15, D16	3	Green	150060VS75000	Würth Elektronik	LED, Green, SMD	LED_0603

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D14, D17, D18, D19, D20, D21, D22	7		KG DELLS1.22-JGKH-24	Osram Opto	Standard LEDs - SMD Green TOPLED E 1608	0603
FB1, FB2, FB3, FB4, FB5, FB6, FB9, FB10, FB11, FB12, FB13, FB14	12		MH1608-601Y	Bourns	600 Ohms @ 100 MHz 1 Power, Signal Line Ferrite Bead 0603 (1608 Metric) 1A 200mOhm	0603
FID1, FID2, FID3, FID4, FID5, FID6	6		N/A	N/A	Fiducial mark. There is nothing to buy or mount.	N/A
J1	1		796636-3	TE Connectivity	3 Position Terminal Block Header, Male Pins, Shrouded (4 Side) 0.200" (5.08mm) Vertical - Through Hole	HDR3
J2, J3, J4, J5	4		1714955	Phoenix Contact	Terminal Block, 2x1, 6.35mm, Green, TH	Terminal Block, 2x1, 6.35mm, Green, TH
J6, J8	2		SHF-112-01-L-D-TH	Samtec	Conn Shrouded Header (4 Sides) HDR 24 POS 1.27mm Solder ST Top Entry Thru-Hole Tube	HDR24
K1	1		G7L-2A-X DC12	Omron	General Purpose Relay DPST-NO (2 Form A) 12VDC Coil Through Hole	PTH_RELAY_52MM5 _35MM5

Designator	Quantity	Value	PartNumber	Manufacturer	Description	PackageReference
L1, L4	2	160uH	B180974	Bourns	Double Boost Inductor	PTH12_41MM5_40M5
L2, L5, L7, L10, L11, L14	6		SDEM20161T-4R7MS	Cyntec	4.7µH Unshielded Inductor 1.1A 426mOhm Max 0806 (2016 Metric)	SMD2
L3	1	1uH	SRP1038A-1R0M	Bourns	Inductor, Shielded, Powdered Iron, 1 uH, 18 A, 0.003 ohm, AEC-Q200 Grade 1, SMD	11x10mm
L6, L8	2	22uH	SRP2313AA-220M	Bourns	Inductor, Shielded, Metal Composite, 22 µH, 14 A, 0.011 ohm, AEC-Q200 Grade 0, SMD	Nonstandard
L9, L13	2	186.7uH	B180975	Bourns	Bi-directional DC-DC Inductor 186.7µH ± 10%	PTH12_55MM5_50MM0
L18	1	22uH	B180986	Bourns	Inductor 22µH 4.7mΩ	PTH12
LBL1	1		THT-14-423-10	Brady	Thermal Transfer Printable Labels, 0.650" W x 0.200" H - 10,000 per roll	PCB Label 0.650 x 0.200 inch
MP1, MP2, MP3, MP4, MP5, MP6, MP7, MP8, MP9	9		9774015960R	Würth Electronics	Round Spacer Unthreaded Steel 0.059" (1.50mm)	ROUND_SPACER_6MM0
Q1	1		CSD17318Q2	Texas Instruments	30-V N-Channel NexFET™ Power MOSFET	WSON6

Designator	Quantity	Value	PartNumber	Manufacturer	Description	PackageReference
R1, R3, R4, R5, R8, R11, R13, R14, R15, R19, R24, R26, R34, R35, R37, R38, R40, R49, R51, R59, R60, R62, R63, R65, R72, R75, R76, R77, R78, R83, R84, R85, R86, R87, R89, R144, R146, R149, R150, R151, R152, R155, R158, R159	44	56	RG1608P-560-B-T5	Susumu Co Ltd	RES, 56, 0.1%, 0.1 W, 0603	0603
R2, R88	2	1000Ω	PTCEL13R102SBE	Vishay	PTCEL Series 850 V 1 kΩhm ±30 % Radial Inrush Current Limiter PTC Thermistor	RADIAL
R6, R16, R32, R45, R57, R70	6	20.0k	RC0603FR-0720KL	Yageo	RES, 20.0 k, 1%, 0.1 W, 0603	0603
R7, R147	2	1.67k	RT0603DRE071K67L	Yageo America	RES, 1.67 k, 0.5%, 0.1 W, 0603	0603
R9, R10, R20, R56, R58, R67, R71, R96	8	10.0	RT0603BRD0710RL	Yageo America	RES, 10.0, 0.1%, 0.1 W, 0603	0603

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R12, R29, R39, R41, R54, R64, R79, R80, R81, R82, R90, R91, R92, R93, R106, R125, R127, R129, R131, R139, R140, R141, R145, R156, R157	25	10.0k	RG1608P-103-B-T5	Susumu Co Ltd	RES, 10.0 k, 0.1%, 0.1 W, 0603	0603
R17, R18	2	3m	CSS2H-2512K-3L00F	Bourns	Res Metal Strip 2512 0.003 Ohm 1% 4W ±75ppm/C Pad SMD Automotive T/R	2512
R22, R25, R47, R50	4	12.0k	ERJ-3EKF1202V	Panasonic	RES, 12.0 k, 1%, 0.1 W, 0603	0603
R23, R48	2	38.8k	RT0603DRE0738K8L	Yageo America	RES, 38.8 k, 0.5%, 0.1 W, 0603	0603
R27, R52	2	4.02k	RT0603BRD074K02L	Yageo America	RES, 4.02 k, 0.1%, 0.1 W, 0603	0603
R28, R30, R31, R33, R36, R42, R43, R44, R53, R68, R69, R74	12	680k	TNPV1206680KBEEN	Vishay Draloric	RES, 680 k, 0.1%, 1 W, 1206	1206
R55, R97	2	0	RCS06030000Z0EA	Vishay-Dale	RES, 0, 0%, 0.25 W, AEC-Q200 Grade 0, 0603	0603
R61, R66, R73, R95	4	56.0	RC0603FR-0756RL	Yageo	RES, 56.0, 1%, 0.1 W, 0603	0603

Designator	Quantity	Value	PartNumber	Manufacturer	Description	PackageReference
R94, R98	2		CSR0805FKR250	Stackpole Electronics Inc	250 mOhms \pm 1% 0.25W, 1/4W Chip Resistor 0805 (2012 Metric) Current Sense Thick Film	0805
R105, R132, R133, R135, R136, R138	6	5.6k	RC0603JR-075K6L	Yageo	RES, 5.6 k, 5%, 0.1 W, 0603	0603
R107, R111	2	10.0	RC0603FR-0710RL	Yageo	RES, 10.0, 1%, 0.1 W, 0603	0603
R108, R109, R112, R113, R116, R117, R120, R121	8	80.6	RC0603FR-0780R6L	Yageo	RES, 80.6, 1%, 0.1 W, 0603	0603
R134, R137	2	0.001	CSS2H-2512R-1L00F	Bourns	RES, 0.001, 1%, 5 W, AEC-Q200 Grade 0, 6.35x3.05mm	6.35x3.05mm
R148, R160, R161, R162, R163, R164, R165, R166	8	2.20	RC1206FR-072R2L	Yageo America	RES, 2.20, 1%, 0.25 W, 1206	1206
R153	1	499	CRCW0603499RFKEAC	Vishay-Dale	RES, 499, 1%, 0.1 W, 0603	0603
R154	1	218	RT0603DRE07218RL	Yageo America	RES, 218, 0.5%, 0.1 W, 0603	0603

Designator	Quantity	Value	PartNumber	Manufacturer	Description	PackageReference
TP1, TP2, TP3, TP4, TP5, TP6, TP13, TP14, TP15, TP17, TP18, TP19, TP20, TP21, TP22, TP23, TP24, TP27, TP28, TP29, TP30, TP31, TP32, TP33, TP34, TP35, TP36, TP37, TP38, TP39, TP40, TP41, TP42, TP43, TP44, TP45, TP46	37		5001	Keystone Electronics	Test Point, Miniature, Black, TH	Black Miniature Testpoint
U1, U4, U7, U10, U12, U15	6		LMG3522R030-Q1	Texas Instruments	650-V 30-mΩ GaN FET with Integrated Driver, Protection, and Temperature Reporting	VQFN52
U2, U25	2			Texas Instruments	Dual Buffer Gate, DBV0006A, LARGE T&R	DBV0006A
U3, U5	2		INA181A2IDBV	Texas Instruments	Bidirectional, Low- and High-Side Measurement, Multichannel, Voltage Output, Current-Sense Amplifier, DBV0006A (SOT-6)	DBV0006A
U6, U11	2		UCC14131QDWNRQ1	Texas Instruments	Automotive 1.5-W, 12-V VIN / 12-VOUT, 15-V VIN / 15-V VOUT, HighDensity, > 5-kVRMS, Isolated DC/DC Module	SSOP36
U8, U13, U17, U18, U19, U20	6		SN74LVC1G08DBVT	Texas Instruments	Single 2-Input Positive-AND Gate, DBV0005A, SMALL T&R	DBV0005A
U9, U14	2		ISO7741DBQR	Texas Instruments	High Speed, Robust EMC Quad-Channel Digital Isolators, DBQ0016A (SSOP-16)	DBQ0016A

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U16, U23	2		OPA2388IDR	Texas Instruments	Precision, Zero-Drift, Zero-Crossover, True Rail-to-Rail, Input/Output Operational Amplifiers	SOIC8
U21, U22	2		AMC1302DWV	Texas Instruments	Precision Reinforced Isolated Amplifier for Current Sensing, DWV0008A (SOIC-8)	DWV0008A
D5, D8	0		GB02SLT12-214	GeneSiC Semiconductor	Diode Silicon Carbide Schottky 1200 V 2A (DC) Surface Mount DO-214AA	DO-214AA
R21, R46	0	2.00	RT0603DRE072RL	Yageo America	RES, 2.00, 0.5%, 0.1 W, 0603	0603