

xTIDA-010216 REV E1 Bill of Materials

Designator	Quantity	Value	PartNumber	Manufacturer	Description	PackageReference
!PCB1	1		xTIDA-010216	Any	Printed Circuit Board	
C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C19, C20, C21	17	0.22uF	GCM188R71H224KA64D	MuRata	CAP, CERM, 0.22 μ F, 50 V,+/- 10%, X7R, AEC-Q200 Grade 1, 0603	603
C15	1	2.2uF	GRM31CR72A225KA73L	MuRata	CAP, CERM, 2.2 μ F, 100 V,+/- 10%, X7R, 1206	1206
C16, C17, C23, C24, C28, C41, C47	7	100pF	GRM1885C2A101JA01D	MuRata	CAP, CERM, 100 pF, 100 V,+/- 5%, C0G/NP0, 0603	603
C18, C67	2	2.2uF	EMK107BB7225MA-T	Taiyo Yuden	CAP, CERM, 2.2 μ F, 16 V,+/- 10%, X7R, 0603	603
C22, C25, C27, C32, C72	5	470pF	GRM188R71H471KA01D	MuRata	CAP, CERM, 470 pF, 50 V,+/- 10%, X7R, 0603	603
C26, C35, C40, C54, C55, C64, C65, C66, C68, C69, C71, C73, C74	13	0.1uF	GRM188R71H104KA93D	MuRata	CAP, CERM, 0.1 μ F, 50 V,+/- 10%, X7R, 0603	603
C29, C30	2	1uF	GCM188R71C105KA64D	MuRata	CAP, CERM, 1 μ F, 16 V,+/- 10%, X7R, AEC-Q200 Grade 1, 0603	603
C31	1	0.022uF	GRM188R71H223KA01D	MuRata	CAP, CERM, 0.022 μ F, 50 V,+/- 10%, X7R, 0603	603
C33	1	1uF	C3216X7R2A105K160AA	TDK	CAP, CERM, 1 μ F, 100 V,+/- 10%, X7R, 1206	1206
C34, C36	2	4.7uF	C3225X7S2A475K200AE	TDK	CAP, CERM, 4.7 μ F, 100 V,+/- 10%, X7S, 1210	1210
C37, C42, C51, C53	4	4.7uF	GRM21BR71E475KA73L	MuRata	CAP, CERM, 4.7 μ F, 25 V,+/- 10%, X7R, 0805	805
C38	1	10uF	EEE-2AA100UP	Panasonic	CAP, AL, 10 μ F, 100 V, +/- 20%, AEC-Q200 Grade 3, SMD	SMT Radial E
C39, C56, C58	3	0.1uF	GRM188R72A104KA35D	MuRata	CAP, CERM, 0.1 μ F, 100 V,+/- 10%, X7R, 0603	603
C43, C44, C50, C52, C63	5	10uF	C2012X6S1C106K085AC	TDK	CAP, CERM, 10 μ F, 16 V,+/- 10%, X6S, 0805	805
C45	1	56pF	GRM1885C1H560JA01D	MuRata	NC	603
C46	1	2200pF	GRM155R71H222KA01D	MuRata	CAP, CERM, 2200 pF, 50 V,+/- 10%, X7R, 0402	402
C48, C57, C59, C60	4	100pF	GRM1885C1H101JA01D	MuRata	CAP, CERM, 100 pF, 50 V,+/- 5%, C0G/NP0, 0603	603
C49	1	1500pF	GRM155R71H152KA01D	MuRata	CAP, CERM, 1500 pF, 50 V,+/- 10%, X7R, 0402	402
C61	1	56pF	GRM1885C1H560JA01D	MuRata	CAP, CERM, 56 pF, 50 V,+/- 5%, C0G/NP0, 0603	603
C62	1	2200pF	GRM188R71H222KA01D	MuRata	CAP, CERM, 2200 pF, 50 V,+/- 10%, X7R, 0603	603
C70	1	1000pF	GRM1885C1H102JA01D	MuRata	CAP, CERM, 1000 pF, 50 V,+/- 5%, C0G/NP0, 0603	603
D1, D2, D3, D4, D5, D6, D7, D8, D11, D12, D13, D14, D15, D17, D18, D19	16	NC	BZT52C5V6T-7	Diodes Inc.	Diode, Zener, 5.6 V, 300 mW, SOD-523	SOD-523
D9	1	30V	BAT42WS-7-F	Diodes Inc.	Diode, Schottky, 30 V, 0.2 A, SOD-323	SOD-323
D10, D31, D32, D42, D43	5	3.6V	MMSZ4685T1G	ON Semiconductor	Diode, Zener, 3.6 V, 500 mW, SOD-123	SOD-123

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D16, D20, D21	3	100V	BAT46W-7-F	Diodes Inc.	Diode, Schottky, 100 V, 0.15 A, SOD-123	SOD-123
D22	1	40V	B240A-13-F	Diodes Inc.	Diode, Schottky, 40 V, 2 A, SMA	SMA
D23, D25, D26	3	20V	NSR0520V2T1G	ON Semiconductor	Diode, Schottky, 20 V, 0.5 A, AEC-Q101, SOD-523	SOD-523
D24, D44	2	20V	MBR0520LT1G	ON Semiconductor	Diode, Schottky, 20 V, 0.5 A, SOD-123	SOD-123
D27, D28, D33	3	16V	MMSZ5246B-7-F	Diodes Inc.	Diode, Zener, 16 V, 500 mW, SOD-123	SOD-123
D29, D37	2	200V	BAV21W-7-F	Diodes Inc.	Diode, Switching, 200 V, 0.2 A, SOD-123	SOD-123
D30, D35, D39, D40	4	100V	1N4148W-7-F	Diodes Inc.	Diode, Ultrafast, 100 V, 0.15 A, SOD-123	SOD-123
D34, D36	2	16V	MMSZ5246BS-7-F	Diodes Inc.	Diode, Zener, 16 V, 200 mW, SOD-323	SOD-323
D38	1	18V	MMSZ5248BS-7-F	Diodes Inc.	Diode, Zener, 18 V, 200 mW, SOD-323	SOD-323
D41	1	24V	NUP3105LT1G	ON Semiconductor	Diode, TVS, Bi, 24 V, SOT-23	SOT-23
D45	1	Red	150060RS75000	Würth Elektronik	LED, Red, SMD	LED_0603
L1	1	1uH	74438335100	Würth Elektronik	Inductor, Shielded, 10 µH, 2.7 A, 0.039 ohm, SMD	3x3mm
L2	1	68uH	744777168	Würth Elektronik	Inductor, Shielded Drum Core, Metal Composite, 68 µH, 0.87 A, 0.239 ohm, SMD	SMD
L3, L4, L5, L6	4	600 ohm	74279265	Würth Elektronik	Ferrite Bead, 600 ohm @ 100 MHz, 0.2 A, 0603	603
Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q9, Q10, Q11, Q12, Q13, Q14, Q15, Q16	16	40 V	BSR14	Nexperia	Transistor, NPN, 40 V, 0.8 A, SOT-23	SOT-23
Q17	1	100 V	PBSS8110T,215	Nexperia	Transistor, NPN, 100 V, 1 A, SOT-23	SOT-23
Q18	1	60V	2N7002	Fairchild Semiconductor	MOSFET, N-CH, 60 V, 115 A, SOT-23	SOT-23
Q19, Q31, Q35	3	-150V	SI2325DS-T1-E3	Vishay-Siliconix	MOSFET, P-CH, -150 V, -0.53 A, SOT-23	SOT-23
Q20	1	100V	CSD19538Q3A	Texas Instruments	MOSFET, N-CH, 100 V, 5 A, DNH0008A (VSONP-8)	DNH0008A
Q21, Q22, Q23, Q24, Q25, Q26, Q27, Q28, Q29, Q30	10	100V	CSD19536KTT	Texas Instruments	MOSFET, N-CH, 100 V, 200 A, KTT0002A (TO-263-2)	KTT0002A
Q32, Q36	2	240V	BSS131H6327XTSA1	Vishay-Siliconix	MOSFET, N-CH, 240 V, 0.1 A, SOT-23	SOT-23
Q33	1	40 V	MMBT3906	Fairchild Semiconductor	Transistor, PNP, 40 V, 0.2 A, SOT-23	SOT-23
Q34	1	30 V	BC848CLT1G	ON Semiconductor	Transistor, NPN, 30 V, 0.1 A, SOT-23	SOT-23
Q37	1	40 V	MMST3904-7-F	Diodes Inc.	Transistor, NPN, 40 V, 0.2 A, SOT-323	SOT-323
R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R55, R56, R57, R58, R59, R60	32	80.6	CRCW120680R6FKEA	Vishay-Dale	RES, 80.6, 1%, 0.25 W, 1206	1206

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R17, R19, R21, R23, R25, R27, R29, R31, R33, R45, R47, R49, R51, R53, R54, R62, R64, R66, R71, R72, R75, R76, R77, R79, R80, R81, R85, R89, R94, R95, R96, R97, R107, R143, R144, R148, R149, R150, R158, R159	40	100	CRCW0603100RFKEA	Vishay-Dale	RES, 100, 1%, 0.1 W, 0603	603
R18, R20, R22, R24, R26, R28, R30, R32, R44, R46, R48, R50, R52, R61, R63, R65	16	300	CRCW0603300RJNEA	Vishay-Dale	RES, 300, 5%, 0.1 W, 0603	603
R67, R69, R70, R145, R152, R153, R154, R155, R156, R157, R160	11	10.0k	CRCW060310K0FKEA	Vishay-Dale	RES, 10.0 k, 1%, 0.1 W, 0603	603
R68	1	100k	RC0603FR-07100KL	Yageo America	RES, 100 k, 1%, 0.1 W, 0603	603
R73, R74	2	10k	CRCW060310K0JNEA	Vishay-Dale	RES, 10 k, 5%, 0.1 W, 0603	603
R78	1	309	CRCW0805309RFKEA	Vishay-Dale	RES, 309, 1%, 0.125 W, 0805	805
R82	1	82.5k	CRCW060382K5FKEA	Vishay-Dale	RES, 82.5 k, 1%, 0.1 W, 0603	603
R83	1	1.00Meg	RC0603FR-071ML	Yageo America	RES, 1.00 M, 1%, 0.1 W, 0603	603
R84, R98	2	0	CRCW06030000Z0EA	Vishay-Dale	RES, 0, 5%, 0.1 W, 0603	603
R86	1	0	CRCW04020000Z0ED	Vishay-Dale	RES, 0, 5%, 0.063 W, 0402	402
R87	1	383k	RC0603FR-07383KL	Yageo America	NC	603
R88	1	150k	CRCW0402150KFKED	Vishay-Dale	RES, 150 k, 1%, 0.063 W, 0402	402
R90	1	30.1k	CRCW060330K1FKEA	Vishay-Dale	RES, 30.1 k, 1%, 0.1 W, 0603	603
R91	1	147k	CRCW0603147KFKEA	Vishay-Dale	RES, 147 k, 1%, 0.1 W, 0603	603
R92	1	22.1k	CRCW060322K1FKEA	Vishay-Dale	RES, 22.1 k, 1%, 0.1 W, 0603	603
R93	1	200k	CRCW0603200KFKEA	Vishay-Dale	RES, 200 k, 1%, 0.1 W, 0603	603
R99, R112	2	4.99k	RC0603FR-074K99L	Yageo America	RES, 4.99 k, 1%, 0.1 W, 0603	603
R100, R101, R102, R103, R104, R105	6	0.002	CSNL2512FT2L00	Stackpole Electronics Inc	RES, 0.002, 1%, 2 W, 2512	2512
R106, R110, R131	3	1.0k	CRCW06031K00JNEA	Vishay-Dale	RES, 1.0 k, 5%, 0.1 W, 0603	603
R108, R111, R127	3	10Meg	CRCW060310M0JNEA	Vishay-Dale	RES, 10 M, 5%, 0.1 W, 0603	603
R109	1	806	RC0603FR-07806RL	Yageo America	RES, 806, 1%, 0.1 W, 0603	603

Designator	Quantity	Value	PartNumber	Manufacturer	Description	PackageReference
R113, R114, R115, R116, R117, R122, R123, R124, R125, R126	10	75	CRCW060375R0FKEA	Vishay-Dale	RES, 75.0, 1%, 0.1 W, 0603	603
R118, R119	2	604	CRCW2512604RFKEG	Vishay-Dale	RES, 604, 1%, 1 W, AEC-Q200 Grade 0, 2512	2512
R120	1	150k	CRCW0603150KFKEA	Vishay-Dale	RES, 150 k, 1%, 0.1 W, 0603	603
R121	1	6.19Meg	CRCW06036M19FKEA	Vishay-Dale	RES, 6.19 M, 1%, 0.1 W, 0603	603
R128, R129	2	30.1k	RT0603BRD0730K1L	Yageo America	RES, 30.1 k, 0.1%, 0.1 W, 0603	603
R130	1	665k	RT0603DRE07665KL	Yageo America	RES, 665 k, 0.5%, 0.1 W, 0603	603
R132	1	3.3Meg	CRCW06033M30JNEA	Vishay-Dale	RES, 3.3 M, 5%, 0.1 W, 0603	603
R133, R137, R141	3	4.99Meg	CRCW06034M99FKEA	Vishay-Dale	RES, 4.99 M, 1%, 0.1 W, 0603	603
R134, R135	2	49.9k	CRCW060349K9FKEA	Vishay-Dale	RES, 49.9 k, 1%, 0.1 W, 0603	603
R136, R142	2	1.0Meg	CRCW06031M00JNEA	Vishay-Dale	RES, 1.0 M, 5%, 0.1 W, 0603	603
R138, R140	2	40.2k	RC0603FR-0740K2L	Yageo America	RES, 40.2 k, 1%, 0.1 W, 0603	603
R139	1	499k	RC0603FR-07499KL	Yageo America	RES, 499 k, 1%, 0.1 W, 0603	603
R146, R147	2	60.4	RC0603FR-0760R4L	Yageo America	RES, 60.4, 1%, 0.1 W, 0603	603
R151	1	47.0k	RC0603FR-0747KL	Yageo America	RES, 47.0 k, 1%, 0.1 W, 0603	603
R161	1	470	RC0603FR-07470RL	Yageo America	RES, 470, 1%, 0.1 W, 0603	603
R162	1	10	RC0603FR-0710RL	Yageo America	RES, 10.0, 1%, 0.1 W, 0603	603
RT1, RT2, RT3, RT4	4	10.0k ohm	MF51E103F3950	Cantherm	Thermistor NTC, 10.0k ohm, 1%, Disc, 5x8.4 mm	Disc, 5x8.4 mm
RT5	1		TMP6131DECR	Texas Instruments	Thermistor, DEC0002A (X1SON-2)	DEC0002A
S1, S2	2		RS-032G05A3-SM RT	C&K Components	Switch, Tactile, SPST-NO, 0.05A, 12V, SMD	SPST, 6x3.5mm
T1	1	10uH	750344754	Würth Elektronik	Transformer, 10 uH, TH	10x10mm
U1	1		bq76952PFBR	Texas Instruments	Multicell Battery Monitor and Protection Family, PFB0048A (TQFP-48)	PFB0048A
U2	1		TPS54308DDCR	Texas Instruments	4.5-V to 28-V Input, 3-A Output Synchronous Step-Down Converter, DDC0006A (SOT-6)	DDC0006A
U3	1		LM5163DDAR	Texas Instruments	100-V Input, 0.5-A Synchronous Buck DC/DC Converter with Ultra-low IQ, DDA0008E (HSOIC-8)	DDA0008E
U4	1		UCC27517DBVR	Texas Instruments	4A/4A Single Channel High-speed Low-side Gate Driver, DBV0005A (SOT-23-5)	DBV0005A
U5	1		UCC27524AD	Texas Instruments	Dual, 5A, High-Speed Low-Side Power MOSFET Driver, with Negative Input Voltage Ability, D0008A (SOIC-8)	D0008A
U6	1		MSP430FR2155TDBTR	Texas Instruments	24MHz 105C ULP Microcontroller With 32 KB FRAM, 4 KB SRAM, 44 IO, 12-bit ADC, DBT0038A (TSSOP-38)	DBT0038A
U7	1		ISO1042BDWVR	Texas Instruments	Reinforced Isolated CAN XCVRS with 70V Protection Voltage and CAN FD, DWV0008A (SOIC-8)	DWV0008A
U8	1		TPS7A2450DBVR	Texas Instruments	Linear Voltage Regulator IC 1 Output 200mA SOT-23-5	SOT-23-5
U9	1		ISO7731FDBQR	Texas Instruments	High Speed, Robust EMC Triple-Channel Digital Isolators, DBQ0016A (SSOP-16)	DBQ0016A
U10	1		TLP293(GB-TPL,E	Toshiba	Optocoupler, 3.75 kV, 100-600% CTR, SMT	SOP, 4-Leads, Body 2.65x4.60mm, Pitch 1.27mm
U11	1		THVD1400D	Texas Instruments	500 kbps RS-485 Transceivers With ±8-kV IEC ESD Protection	SOIC8
U12	1		TPD2E007DCKR	Texas Instruments	ESD Protection Array for AC Signal Data Interface, 2 Channels, -40 to +85 degC, 3-pin SC70 (DCK), Green (RoHS & no Sb/Br)	DCK0003A

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