

TIDA-010938 AC-DC REV E1 Bill of Materials

Designator	Quantity	Value	PartNumber	Manufacturer	Description	PackageReference
PCB1	1		TIDA-010938 AC-DC	Any	Printed Circuit Board	
C1	1	2200pF	CK45-63F0222KVNA	TDK	CAP, CERM, 2200 pF, 3000 V, +/- 10%, B, Dia 12.5mm	Dia 12.5mm
C2, C3, C4, C5	4	160µF	ALH82D161DD600	KEMET	ALH82, Aluminum Electrolytic, 160 uF, 20%, 600 VDC, -40+105°C	RADIAL
C6, C10, C16, C25, C29, C43, C44, C47, C50, C52, C91, C125, C127, C185, C186	15	0.1µF	0603C104JAT2A	AVX	CAP, CERM, 0.1 uF, 25 V, +/- 5%, X7R, 0603	0603
C7, C17, C63, C111, C119, C181	6	1µF	TMK107B1105KA-T	Taiyo Yuden	CAP, CERM, 1 µF, 25 V, +/- 10%, X5R, 0603	0603
C8, C23, C68, C110	4	0.01µF	855012206089	Wurth Elektronik	CAP, CERM, 0.01 µF, 50 V, +/- 10%, X7R, 0603	0603
C9, C13, C14, C26, C27, C32, C33, C34, C35, C36, C37, C41, C42, C48, C51, C52, C53, C56, C59, C60, C71, C72, C77, C78, C79, C80, C82, C83, C85, C97, C89, C92, C93, C96, C97, C98, C100, C101, C107, C108, C112, C113, C130, C131, C132, C133, C134, C135, C136, C137, C139, C145, C146, C151, C152, C157, C158, C163, C164, C167, C168, C170, C171, C172, C173, C174, C175, C177, C178, C179, C180, C187, C190, C192, C193, C194, C196, C199, C200, C202, C204, C206, C208, C209,	100	220pF	GRM188R71H221KA01D	MuRata	CAP, CERM, 220 pF, 50 V, +/- 10%, X7R, 0603	0603
C11, C24, C49, C57, C60, C94	6	10µF	TMK316AB7106KLHT	Taiyo Yuden	CAP, CERM, 10 µF, 25 V, +/- 10%, X7R, AEC-Q200 Grade 1, 1206	1206
C12, C58	2	0.22µF	GRM188R71C224KA01D	MuRata	CAP, CERM, 0.22 uF, 16 V, +/- 10%, X7R, 0603	0603

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C15, C28, C54, C81, C73, C39	6	2.2uF	CG4AJ3X7R1E225K125AB	TDK	CAP, CERM, 2.2 uF, 25 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0805	0805
C18, C64	2	20uF	GRMJN7R61C206ME05	MuRata	CAP, CERM, 20 uF, 16 V, +/- 20%, XSR, 0704	0704
C19, C188	2	10uF	TMK107BBJ106MA-T	Taiyo Yuden	CAP, CERM, 10 uF, 25 V, +/- 20%, XSR, 0603	0603
C20, C65, C120, C121, C124, C126	6	10uF	ZRB18AR61E106ME01L	Murata Electronics	10uF ±20% 25V Ceramic Capacitor XSR 0603 (1608 Metric)	0603
C21, C66	2	330pF	GRM1885C1H331JA01D	MuRata	CAP, CERM, 330 pF, 50 V, +/- 5%, COG/NP0, 0603	0603
C22, C38, C39, C35, C37, C84, C85, C114, C169, C176, C162, C201, C203	13	0.1uF	885012206095	Wurth Elektronik	CAP, CERM, 0.1 uF, 50 V, +/- 10%, X7R, 0603	0603
C30, C31, C46, C76, C88, C90, C229	7	0.1uF	C1612W104KDRAC1U	Kemet	CAP, CERM, 0.1 uF, 1000 V, +/- 10%, X7R, 1812	1812
C40, C238, C239, C240, C251, C252	6	100uF	UWT1E101MCL1GS	Nichicon	CAP, AL, 100 uF, 25 V, +/- 20%, SMD	6.6x6.6mm
C45, C74, C75, C81, C129	5	560pF	GRM1885C1H561JA01D	MuRata	CAP, CERM, 560 pF, 50 V, +/- 5%, COG/NP0, 0603	0603
C70, C95	2	0.1uF	GRM188R71C104KA01D	MuRata	CAP, CERM, 0.1 uF, 16 V, +/- 10%, X7R, 0603	0603
C102, C106	2	6.8nF	R413F16805070K	KEMET	6800 pF Film Capacitor 300V 1500V (1.5kV) Polypropylene (PP), Metallized Radial	RADIAL
C103, C104	2	4.7uF	F862FY475K3102V054	KEMET	4.7 uF Film Capacitor 310V 630V Polypropylene (PP), Metallized Radial	RADIAL

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C105, C109, C115	3	0.1uF	GRM188R72A104KA3SJ	MuRata	CAP, CERM, 0.1 uF, 100 V, +/- 10%, X7R, 0603	0603
C116	1	10uF	UVR1V100MDD1TA	Nichicon	CAP, AL, 10 uF, 35 V, +/- 20%, TH	5x11mm
C117	1	22pF	0603SA220JAT2A	AVX	CAP, CERM, 22 pF, 50 V, +/- 5%, COG/NP0, 0603	0603
C118	1	150uF	EEU-FR1E151B	Panasonic	CAP, AL, 150 uF, 25 V, +/- 20%, TH	06.3xL11.2mm
C122, C123	2	1uF	885012206026	Wurth Elektronik	CAP, CERM, 1 uF, 10 V, +/- 10%, X7R, 0603	0603
C128, C138, C140, C141, C142, C161, C165, C230	8	0.1uF	C0603X104K3RACTU	Kemet	CAP, CERM, 0.1 uF, 25 V, +/- 10%, X7R, 0603	0603
C143, C148, C155, C160	4	200pF	GRM1885C1H201JA01D	MuRata	CAP, CERM, 200 pF, 50 V, +/- 5%, COG/NP0, 0603	0603
C150, C154, C156, C159, C162, C166	6	2000pF	GRM1885C1H202JA01D	MuRata	CAP, CERM, 2000 pF, 50 V, +/- 5%, COG/NP0, 0603	0603
C180, C188, C210, C211, C214, C223, C229	7	1pF	CL10A105KA8NNNC	Samsung	Cap Ceramic 1uF 25V XSR ±10% Pad SMD 0603 +85°C Y1R	0603
C191, C207, C213, C215, C225, C228	6	10uF	GRM21BR6Y106KE43L	MuRata	CAP, CERM, 10 uF, 35 V, +/- 10%, XSR, 0805	0805
C185, C187, C205, C216, C222, C224	6	0.1uF	CL05B104K05NNNC	Walsin	CAP, CERM, 0.1 uF, 16 V, +/- 10%, X7R, 0402	0402
C212, C227	2	0.01uF	0402B103K500CT	Walsin	CAP, CERM, 0.01 uF, 50 V, +/- 10%, X7R, 0402	0402
C211, C221, C233, C237	4	47pF	GRM1885C1H470JA01D	MuRata	CAP, CERM, 47 pF, 50 V, +/- 5%, COG/NP0, 0603	0603
C220, C236	2	4700pF	C0603X472K3RACTU	Kemet	CAP, CERM, 4700 pF, 50 V, +/- 10%, X7R, 0603	0603

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C241, C242	2	5µF	C4AKOBLU4500A31J	Kemet	5 µF Film Capacitor 900V Polypropylene (PP), Metallized Radial	RADIAL
C243, C244	2	2200pF	DE6E9KJ22MNSA	MuRata	CAP. CERML 2200 pF, 300 V, +/- 20%, E, TH, 2- Leads, Body 9x7mm, Pin Spacing 7.5mm	TH, 2- Leads, Body 9x7mm, Pin Spacing 7.5mm
D2, D8, D19	3	16V	BZT52C16-7-F	Diodes Inc.	Diode, Zener, 16 V, 500 mW, AEC-Q101, SOD-123	SOD-123
D4, D10, D16, D17, D18, D23, D24, D25, D26, D27, D28	11		KG DELLST 22-JGKH-24	Osram Opto	Standard LEDs - SMD Green TOPLED E 1608	0603
D13	1	60V	B160-13-F	Diodes Inc.	Diode, Schottky, 60 V, 1 A, SMA	SMA
D14	1	100V	1N4148W-7-F	Diodes Inc.	Diode, Ultrafast, 100 V, 0.15 A, SOD-123	SOD-123
D15	1	600V	ES1JAF	Fairchild Semiconductor	Diode, Ultrafast, 600 V, 1 A, AEC-Q101, SMAF	SMAF
D20	1	800V	RS3K-E3/GAT	Vishey-Semiconductor	Diode, Switching, 800 V, 3 A, SMC	SMC
F1, F2	2		SF-3812F2000T-2	Bourns	20 A 250 V AC 80 V DC Fuse Board Mount (Cartridge Style Excludes) Surface Mount 2-SMD, Square End Block	3812
FB1, FB2, FB3, FB4, FB5, FB6, FB7, FB8, FB9, FB11, FB12, FB13, FB14, FB15	14		MH1608-601Y	Bourns	600 Ohms @ 100 MHz 1 Power, Signal Line Ferrite Bead 0603 (1608 Metric) 1A 200mOhm	0603
FB18, FB23	2		BLM15EX331SN1D	Murata	Chip Ferrite Bead, 0402, 330Ω @ 100MHz, 0.205Q, 25%, 1.1A	0402
FID1, FID2, FID3, FID4, FID5, FID6	6		N/A	N/A	Fiducial mark. There is nothing to buy or mount.	N/A
J1, J2, J3	3		796636-3	TE Connectivity	3 Position Terminal Block Header, Male Pins, Shrouded (4 Side) 0.200" (5.08mm) Vertical - Through Hole	HDR3

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J6	1		694106402002	Würth Electronics	Power Barrel Connector Jack 2.10mm ID (0.083"), 5.50mm OD (0.217") Through Hole	CONN_PWRL_10MM7_9MM0
J7, J16	2		61300211121	Würth Elektronik	Header, 2.54 mm, 2x1, Gold, TH	Header, 2.54mm, 2x1, TH
J8	1		SSM-107-L-SV-BE	Samtec	7 Position Receptacle, Bottom Entry Connector 0.100" (2.54mm) Surface Mount Gold	HDR7
J10, J12	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
J11	1		HSEC8-160-01-L-DV-A-BL	Samtec	C2000 controlCARD-120HSEC connector, SMT	C2000 pin numbering
J15, J17	2		618009231121	Würth Elektronik	Receptacle, D-Sub, 9 Position, R/A, TH	Receptacle, D-Sub, 9 Position, R/A, TH
K1, K2	2		2071556-3	TE Connectivity	General Purpose Relay SPST-NO (1 Form A) 12VDC Coil Through Hole	PTH_RELAY_18MM2_10MM2
L1, L4	2	95.16uH	B180990	Bourns	Inductor 95.16 uH	PTH12_39MM8_41MM4
L2, L3, L5, L6, L7, L9	6		SDEM201611-4R7MS	Cyntrac	4.7uH Unshielded Inductor 1.1A 426mOhm Max 0806 (2016 Metric)	SMD2
L8, L12, L16, L17	4	1500 ohm	BLM18HE152SN1D	MuRata	Ferrite Bead, 1500 ohm @ 100 MHz, 0.5 A, 0603	0603
L10, L11	2		D6744	Bourns	Common Mode Chokes 4mH 50mohm 250kHz	PTH_CMC_38MM0
L13	1	220uH	MSS1210-224KE	Coilcraft	Inductor, Shielded, Ferrite, 220 uH, 2.1 A, 0.216 ohm, SMD	Inductor, 12.3x10x12.3mm
L14	1	10uH	SRN3015-100M	Bourns	Inductor, Drum Core, Ferrite, 10 uH, 0.88 A, 0.276 ohm, SMD	Inductor, 3x1.5x2mm
L25, L31	2			TDK	100uH @ 100kHz 2 Line Common Mode Choke Surface Mount 5.8 uOhms @ 10MHz 150mA DCR 20mm	SMT_4MM5_3MM2
LBL1	1		TH1-14-423-10	Brady	Thermal Transfer Printable Labels, 0.650" W x 0.200" H - 10,000 per roll	PCB Label 0.650 x 0.200 inch

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MP1, MP2, MP3, MP5, MP6, MP7, MP8, MP9, MP10, MP12	10		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	WS0N6
Q2	1	800V	STD3NK802T4	STMicroelectronics	MOSFET, N-CH, 800 V, 2.5 A, DPAK	DPAK
R1	1	0.001	CSS2H-2512R-1L00F	Bourns	RES, 0.001, 1%, AEC-Q200 Grade 0, 6.35x3.05mm	6.35x3.05mm
R2, R8, R9, R18, R19, R20, R22, R24, R25, R26, R27, R28, R29, R31, R32, R35, R37, R38, R39, R54, R56, R58, R59, R61, R62, R63, R64, R65, R66, R67, R68, R69, R71, R72, R73, R83, R86, R87, R88, R120, R121, R134, R140, R141, R160, R161, R169, R170, R238, R239, R257, R259, R260, R263, R264, R265, R267, R268, R269, R270, R272, R273, R274, R276, R278, R279, R281, R282, R284, R286, R311, R314, R319, R320, R325	77	56	RG1608P-560-B-T5	Susumu Co Ltd	RES, 56, 0.1%, 0.1 W, 0603	0603
R3, R4	2	10.0	RT0603BRD0710RL	Yageo America	RES, 10.0, 0.1%, 0.1 W, 0603	0603
R5, R15, R33, R34, R40, R50, R84, R85, R90, R91, R99, R104, R105, R108, R109, R110, R125, R126, R130, R131, R133, R135, R147, R149, R153, R155, R157, R158, R162, R164, R166, R167, R168, R171, R172, R173, R237, R252, R253, R254, R255, R256, R258, R297, R298, R299, R300, R301, R302, R303, R304, R305, R306, R307, R308, R310, R318, R328, R329, R330, R331, R332, R335, R336, R337, R338	66	10.0k	RG1608P-103-B-T5	Susumu Co Ltd	RES, 10.0 k, 0.1%, 0.1 W, 0603	0603
R6	1	10kΩ	TMP6131LPGM	Texas Instruments	SENSOR PTC 10K OHM 1% T092S	TO-92S
R10, R30, R40, R44, R60, R74	6	20.0k	RC0603FR-0720KL	Yageo	RES, 20.0 k, 1%, 0.1 W, 0603	0603
R11, R13, R46, R47	4	12.0k	ERJ-SEKF1202V	Panasonic	RES, 12.0 k, 1%, 0.1 W, 0603	0603
R12, R45	2	38.8k	RT0603DRE0738K9L	Yageo America	RES, 38.8 k, 0.5%, 0.1 W, 0603	0603

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R14, R48	2	3.01k	RC0603FR-073K01L	Yageo	RES, 3.01 k, 1%, 0.1 W, 0603	0603
R16	1	2.7k	CRCW06032K70JNEA	Vishay-Dale	RES, 2.7 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603
R17, R42, R43, R51, R52, R100, R115	7	5.6k	RC0603JR-075K6L	Yageo	RES, 5.6 k, 5%, 0.1 W, 0603	0603
R21, R23, R36	3	680k	TNPV1206680KBEEN	Vishay Draloric	RES, 680 k, 0.1%, 1 W, 1206	1206
R57, R174, R175, R176, R177, R178, R179, R180, R181, R182, R183, R184, R186, R187, R188, R189, R190, R191, R192, R193, R194, R195, R196, R197, R198, R199, R200, R201, R202, R203, R204, R205, R206, R207, R208, R209, R210, R211, R212, R213, R214, R215, R216, R217, R218, R219, R220, R221, R222, R223, R224, R225, R226, R227, R228, R229, R230, R231, R232, R233, R234, R236	62	0	RC506030000Z0EA	Vishay-Dale	RES, 0, 0%, 0.25 W, AEC-Q200 Grade 0, 0603	0603
R70, R76, R102	3	680	RC0603JR-07680RL	Yageo	RES, 680, 5%, 0.1 W, 0603	0603
R75, R114	2	500	PTCEL13R600LBE	Vishay Bicomponents	PTCEL Series 500 V 60 Ohm ±30 % Radial Inrush Current Limiter PTC Thermistor	RADIAL
R77, R79, R80, R185, R235, R290, R291, R326, R327	9	169k	ERJ-6ENF169SV	Panasonic	RES, 169 k, 1%, 0.25 W, AEC-Q200 Grade 0, 1206	1206
R78, R81, R82	3		isoM5-275-B-L2	Bourns	5 kA Varistor 1 Circuit Through Hole Disc 17mm	RADIAL
R89	1	200	RT0603DRE07200RL	Yageo America	RES, 200, 0.5%, 0.1 W, 0603	0603
R92	1	5.76k	RT0603DRE075K76L	Yageo America	RES, 5.76 k, 0.5%, 0.1 W, 0603	0603
R93	1	38.3k	RT0603DRE0738K3L	Yageo America	RES, 38.3 k, 0.5%, 0.1 W, 0603	0603
R94	1	475k	CRCW1206475KFKEA	Vishay-Dale	RES, 475 k, 1%, 0.25 W, AEC-Q200 Grade 0, 1206	1206
R95	1	15.6k	RT0603DRE0715K6L	Yageo America	RES, 15.6 k, 0.5%, 0.1 W, 0603	0603
R98	1	301	RT0603DRE07301RL	Yageo America	RES, 301, 0.5%, 0.1 W, 0603	0603

Designator	Quantity	Value	PartNumber	Manufacturer	Description	PackageReference
R97	1	0.68	ERJ-6RQFR68V	Panasonic	RES, 0.68, 1%, 0.125 W, AEC-Q200 Grade 0, 0805	0805
R98	1	0.75	CSR1206FKR750	Stackpole Electronics Inc	RES, 0.75, 1%, 0.5 W, 1206	1206
R101	1	1.5k	ERJ-3GEY1152V	Panasonic	RES, 1.5 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603
R103	1	105k	RT0603BR007105KL	Yageo America	RES, 105 k, 0.1%, 0.1 W, 0603	0603
R106	1	20.0k	RT0603DRE0720KL	Yageo America	RES, 20.0 k, 0.5%, 0.1 W, 0603	0603
R107	1	1.5k	CRCW06031K50JNEA	Vishay-Dale	RES, 1.5 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603
R111, R112, R113, R116, R117, R118, R122, R123, R126, R127, R128, R129	12	1.00Meg	TNPV12061M00BEEN	Vishay Draloric	RES, 1.00 M, 0.1%, 1 W, 1206	1206
R132	1		3269W-1-104LF	Bourns	100 kOhms 0.25W, 1/4W Gull Wing Surface Mount Trimmer Potentiometer Cermet 12 Turn Top Adjustment	SMD
R136, R139, R143, R145, R156, R159, R163, R165	8	7.32k	RT0603BR0077K32L	Yageo America	RES, 7.32 k, 0.1%, 0.1 W, 0603	0603
R280, R287, R288, R289	4	59.7	RT0603DRE0759R7L	Yageo America	RES, 59.7, 0.5%, 0.1 W, 0603	0603
R312, R316, R321, R325	4		RMCF0805Z10R00	Stackpole Electronics	0 Ohms Jumper 0.125W, 1/8W Chip Resistor 0805 (2012 Metric) Automotive AEC-Q200 Thick Film	0805
TP2, TP3, TP4, TP6, TP8, TP9, TP10, TP12, TP13, TP21, TP22	11		5001	Keystone Electronics	Test Point, Miniature, Black, TH	Black Miniature Testpoint
TP7, TP19, TP20	3		5000	Keystone Electronics	Test Point, Miniature, Red, TH	Red Miniature Testpoint



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TP14	1		5116	Keystone	Test Point, Miniature, Green, TH	Green Miniature Testpoint
TP15	1		5117	Keystone	Test Point, Miniature, Blue, TH	Blue Miniature Testpoint
U1	1		INA181A3IDBVT	Texas Instruments	Bidirectional, Low- and High-Side Measurement, Multichannel, Voltage Output, Current-Sense Amplifier, DBV0006A (SOT-6)	DBV0006A
U2, U4, U8, U9, U11, U15	6		LMG3522R030-Q1	Texas Instruments	650-V 30-mΩ GaN FET with Integrated Driver, Protection, and Temperature Reporting	VQFN52
U3, U10	2		UCC14131QDWRN01	Texas Instruments	Automotive 1.5-W, 12-V VIN / 12-V VOUT, 15-V VIN / 15-V VOUT, HighDensity, > 5-AVRMS, Isolated DC/DC Module	SSOP36
U5, U12	2		ISO7762DBQR	Texas Instruments	High-Speed, Robust EMC, Reinforced Six-Channel Digital Isolator, DBQ0016A (SSOP-16)	DBQ0016A
U6, U7, U13, U14, U25, U26	6		SN74LVC1G08DBVT	Texas Instruments	Single 2-Input Positive-AND Gate, DBV0005A, SMALL T&R	DBV0005A
U16	1		TMC5112362QDVGR	Texas Instruments	TMC5112362QDVGR	SOICW10
U17	1		UCC28710DR	Texas Instruments	Constant-Voltage, Constant-Current PWM Controller with Primary-Side Regulation, D0007A (SOIC-7)	D0007A
U18	1		TPS560200DBVR	Texas Instruments	17V Input, 500mA Synchronous Step-Down Regulator in SOT-23 with Advanced Eco-Mode(TM), DBV0005A (SOT-23-5)	DBV0005A
U19	1		TLV75533PQVR	Texas Instruments	500mA LDO, DRV0006A (WSON-6)	DRV0006A
U20, U32	2		OPA2388IDR	Texas Instruments	Precision, Zero-Drift, Zero-Crossover, True Rail-to-Rail, Input/Output Operational Amplifiers	SOIC8
U21, U22	2		OPA4388IDR	Texas Instruments	Op Amp Quad Zero Drift Amplifier R-R I/O ±2.75V/5.5V 14-Pin SOIC T/R	SOIC14
U23, U24	2			Texas Instruments	Data Selectors/Multiplexers With 3-State Outputs, PW0016A, TUBE	PW0016A
U27	1		SN74LVC126APWR	Texas Instruments	Quadruple Bus Buffer Gate with 3-State Outputs, PW0014A (TSSOP-14)	PW0014A

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U28, U29	2			Texas Instruments	Hex Buffers And Line Drivers With 3-State Outputs, D0016A, TUBE	D0016A
U30	1		ISOW1044DFM	Texas Instruments	Reinforced 5-kVRMS Isolated CAN Transceiver with Integrated Low-Emissions DC-DC Converter	SOIC20
U31	1		ISOW1412DFM	Texas Instruments	Reinforced 5-kVRMS Isolated RS-485/RS-422 Transceiver With Integrated Low Emissions DC-DC Converter	SOIC20
D1, D7	0		GB02SLT12-214	GeneSIC Semiconductor	Diode Silicon Carbide Schottky 1200 V 2A (DC) Surface Mount DO-214AA	DO-214AA
R7, R41, R53, R55	0	4.7	CR0W12064R70JNEAHP	Vishay-Dale	RES, 4.7, 5%, 0.75 W, AEC-Q200 Grade 0, 1206	1206
R240, R241, R242, R243, R244, R245, R246, R247, R248, R249, R250, R251	0	0	RC50603000020EA	Vishay-Dale	RES, 0, 0%, 0.25 W, AEC-Q200 Grade 0, 0603	0603