

TIDA-010938 AC-DC REV E2 Bill of Materials

Designator	Quantity	Value	PartNumber	Manufacturer	Description	PackageReference
!PCB1	1		TIDA-010938 AC-DC	Any	Printed Circuit Board	
C1	1	2200pF	CK45-B3FD222KYVNA	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, C45, C56, C74, C75	5	560pF	GRM1885C1H561JA01D	MuRata	CAP, CERM, 560 pF, 50 V, +/- 5%, C0G/NP0, 0603	0603
C7, C8, C9, C143, C144, C148, C155, C160	8	200pF	GRM1885C1H201JA01D	MuRata	CAP, CERM, 200 pF, 50 V, +/- 5%, C0G/NP0, 0603	0603
C10, C16, C22, C25, C29, C38, C39, C43, C44, C47, C50, C55, C62, C67, C70, C85, C91, C95, C114, C125, C127, C169, C176, C182, C185, C186, C201, C203	28	0.1uF	06033C104JAT2A	AVX	CAP, CERM, 0.1 uF, 25 V, +/- 5%, X7R, 0603	0603
C11, C24, C49, C57, C69, C94	6	10uF	TMK316AB7106KLHT	Taiyo Yuden	CAP, CERM, 10 µF, 25 V,+/- 10%, X7R, AEC-Q200 Grade 1, 1206	1206
C12, C58	2	0.22uF	GRM188R71C224KA01D	MuRata	CAP, CERM, 0.22 uF, 16 V, +/- 10%, X7R, 0603	0603
C13, C26, C51, C59, C71	5	330pF	C0603C331K5RACTU	Kemet	CAP, CERM, 330 pF, 50 V, +/- 10%, X7R, 0603	0603

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C14, C27, C32, C33, C34, C35, C36, C37, C41, C42, C48, C53, C60, C72, C77, C78, C79, C80, C82, C83, C86, C87, C89, C92, C93, C96, C97, C101, C107, C108, C112, C113, C130, C131, C132, C133, C134, C135, C136, C137, C145, C151, C152, C157, C163, C164, C167, C168, C170, C171, C172, C173, C174, C175, C177, C178, C179, C180, C190, C192, C193, C194, C196, C199, C200, C202, C204, C206, C208, C209, C218, C219, C231, C232, C234,	86	220pF	GRM188R72A221KA01D	MuRata	CAP CER 220PF 100V X7R 0603	0603
C15, C28, C54, C61, C73, C99	6	2.2uF	CGA4J3X7R1E225K125AB	TDK	CAP, CERM, 2.2 uF, 25 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0805	0805
C17, C63, C111, C119, C122, C123, C181, C189, C198, C210, C211, C214, C223, C226	14	1uF	TMK107BJ105KA-T	Taiyo Yuden	CAP, CERM, 1 µF, 25 V,+/- 10%, X5R, 0603	0603
C18, C64	2	20uF	GRMJN7R61C206ME05	MuRata	CAP, CERM, 20 uF, 16 V, +/- 20%, X5R, 0704	0704
C19, C20, C65, C120, C121, C124, C126, C188	8	10µF	ZRB18AR61E106ME01L	Murata Electronics	10µF ±20% 25V Ceramic Capacitor X5R 0603 (1608 Metric)	0603
C21, C66	2	330pF	GRM1885C1H331JA01D	MuRata	CAP, CERM, 330 pF, 50 V, +/- 5%, C0G/NP0, 0603	0603
C23, C68, C110	3	0.01uF	885012206089	Würth Elektronik	CAP, CERM, 0.01 µF, 50 V,+/- 10%, X7R, 0603	0603

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C30, C31, C46, C76, C88, C90, C229	7	0.1uF	C1812W104KDRCTU	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 µF, 25 V, +/- 20%, SMD	6.6x6.6mm
C81, C100, C150, C154, C156, C159, C162, C166	8	2000pF	GRM1885C1H202JA01D	MuRata	CAP, CERM, 2000 pF, 50 V, +/- 5%, C0G/NP0, 0603	0603
C84	1	0.1uF	885012206095	Wurth Elektronik	CAP, CERM, 0.1 uF, 50 V, +/- 10%, X7R, 0603	0603
C102, C106	2	6.8nF	R413F168050T0K	KEMET	6800 pF Film Capacitor 300V 1500V (1.5kV) Polypropylene (PP), Metallized Radial	RADIAL
C103, C104	2	4.7µF	F862FY475K310ZV054	KEMET	4.7 µF Film Capacitor 310V 630V Polypropylene (PP), Metallized Radial	RADIAL
C105, C109, C115	3	0.1uF	GRM188R72A104KA35J	MuRata	CAP, CERM, 0.1 uF, 100 V, +/- 10%, X7R, 0603	0603
C116	1	10uF	ESK106M063AC3FA	KEMET	CAP ALUM 10UF 20% 63V RADIAL TH	5x11mm
C117	1	22pF	06035A220JAT2A	AVX	CAP, CERM, 22 pF, 50 V, +/- 5%, C0G/NP0, 0603	0603
C118	1	150uF	EEU-FR1E151B	Panasonic	CAP, AL, 150 uF, 25 V, +/- 20%, TH	D6.3xL11.2mm
C128, C141, C142, C161, C165, C230	6	0.1uF	C0603X104K3RACTU	Kemet	CAP, CERM, 0.1 uF, 25 V, +/- 10%, X7R, 0603	0603
C129, C138	2	100pF	C0603C101J5GACTU	Kemet	CAP CER 100PF 50V C0G/NP0 0603	0603
C146, C158	2	560pF	C0603C561J5GACTU	Kemet	CAP, CERM, 560 pF, 50 V, +/- 5%, C0G/NP0, 0603	0603
C191, C207, C213, C215, C225, C228	6	10uF	GRM21BR6YA106KE43L	MuRata	CAP, CERM, 10 uF, 35 V, +/- 10%, X5R, 0805	0805
C195, C197, C205, C216, C222, C224	6	0.1uF	CL05B104KO5NNNC	Walsin	CAP, CERM, 0.1 µF, 16 V, +/- 10%, X7R, 0402	0402
C212, C227	2	0.01uF	0402B103K500CT	Walsin	CAP, CERM, 0.01 µF, 50 V, +/- 10%, X7R, 0402	0402
C217, C221, C233, C237	4	47pF	GRM1885C1H470JA01D	MuRata	CAP, CERM, 47 pF, 50 V, +/- 5%, C0G/NP0, 0603	0603
C220, C236	2	4700pF	C0603X472K5RACTU	Kemet	CAP, CERM, 4700 pF, 50 V, +/- 10%, X7R, 0603	0603
C241, C242	2	5µF	C4AKOBU4500A31J	Kemet	5 µF Film Capacitor 900V Polypropylene (PP), Metallized Radial	RADIAL
C243, C244	2	2200pF	DE6E3KJ222MN3A	MuRata	CAP, CERM, 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 DELLS1.22-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-E3/9AT	Vishay-Semiconductor	Diode, Switching, 800 V, 3 A, SMC	SMC
F1, F2	2		SF-3812F2500T-2	Bourns	25 A 250 V AC 80 V DC Fuse Board Mount (Cartridge Style Excluded) Surface Mount 2-SMD, Square End Block	SMD2

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FB2, FB4, FB6, FB7, FB8, FB9, FB11, FB12, FB14	9		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, 0.205Ω, 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, J32	2		FCR7350L	CLIFF Electronic Components	Banana Test Connector, 4mm, Socket, PCB Mount, 24 A, 1 kV, Gold Plated Contacts, Blue	CONN_BANANA_JACK
J2, J31	2		FCR7350G	CLIFF Electronic Components	Banana Test Connector, Socket, PCB Mount, 24 A, 1 kV, Gold Plated Contacts, Green	CONN_BANANA_JACK
J3, J9	2		FCR7350B	CLIFF Electronic Components	Banana Jack Connector Standard Banana Solder Black	CONN_BANANA_JACK
J4, J5, J7, J13, J14, J16, J20, J21, J22, J23, J24, J25, J26	13		61300211121	Würth Elektronik	Header, 2.54 mm, 2x1, Gold, TH	Header, 2.54mm, 2x1, TH
J6	1		6.94106E+11	Würth Electronics	Power Barrel Connector Jack 2.10mm ID (0.083"), 5.50mm OD (0.217") Through Hole	CONN_PWR_10MM7_9MM0
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
J18, J19	2		74650073R	Würth Elektronik	Power Element Bush, M3, TH	Power Element Bush, M3, TH
K1, K2	2		G5PZ-1A-E DC12	Omron	General Purpose Relay SPST-NO (1 Form A) 12VDC Coil Through Hole	PTH_RELAY_23MM8_10MM3
L1, L4	2	87uH	145453	Bourns	PFC Inductor 87μH ±10% 35A 13 mΩ	PTH12
L2, L3, L5, L6, L7, L9	6		SDEM20161T-4R7MS	Cyntec	4.7μH 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		47708	Kaschke Components	Common Mode Choke 4mH ±30%	PTH4
L13	1	220uH	MS0311	Bourns	Shielded SMD Power Inductor 220uH 2A 240mOhm 12.0x12.0x10.0mm SMT	SMT_IND_12MM0_12MM0
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	100μH @ 100kHz 2 Line Common Mode Choke Surface Mount 5.8 kOhms @ 10MHz 150mA DCR 20hm	SMT_4MM5_3MM2
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, MP12	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
Q2	1	800V	STD3NK80ZT4	STMicroelectronics	MOSFET, N-CH, 800 V, 2.5 A, DPAK	DPAK

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R1, R8, R9, R18, R19, R24, R25, R26, R27, R28, R29, R31, R32, R35, R37, R38, R39, R58, R59, R61, R62, R63, R64, R65, R66, R69, R71, R72, R73, R83, R86, R87, R88, R120, R121, R134, R140, R141, R144, R146, R148, R150, R151, R152, R154, R160, R161, R169, R170, R175, R259, R260, R263, R264, R265, R267, R268, R270, R272, R273, R274, R276, R278, R279, R281, R282, R284, R286, R311, R314, R319, R320, R323	73	56	RG1608P-560-B-T5	Susumu Co Ltd	RES, 56, 0.1%, 0.1 W, 0603	0603
R2, R3, R4, R97, R119, R136, R137, R138, R139, R142, R143, R145, R156, R159, R163, R165	16	7.32k	RT0603BRD077K32L	Yageo America	RES, 7.32 k, 0.1%, 0.1 W, 0603	0603

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R5, R15, R23, R33, R34, R36, R49, R50, R68, R84, R85, R90, R99, R104, R105, R125, R126, R130, R131, R133, R135, R147, R149, R153, R155, R157, R158, R162, R164, R166, R167, R168, R171, R172, R173, R237, R238, R239, R252, R253, R254, R256, R297, R298, R299, R300, R301, R302, R303, R304, R305, R306, R307, R308, R310, R318, R328, R329, R330, R331, R332, R335, R336, R337, R338	65	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% TO92S	TO-92S
R10, R30, R40, R44, R60, R74	6	56.0k	RG1608P-563-B-T5	Susumu Co Ltd	RES, 56.0 k, 0.1%, 0.1 W, 0603	0603
R11, R13, R46, R47	4	12.0k	ERJ-3EKF1202V	Panasonic	RES, 12.0 k, 1%, 0.1 W, 0603	0603
R12, R45	2	38.8k	RT0603DRE0738K8L	Yageo America	RES, 38.8 k, 0.5%, 0.1 W, 0603	0603
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

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R20, R22, R54, R56, R57, R67, R174, 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	66	0	RCS06030000Z0EA	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	60Ω	PTCEL13R600LBE	Vishay Bcomponents	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-8ENF1693V	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
R91	1	48.1k	RT0603BRD0748K1L	Yageo America	RES, 48.1 k, 0.1%, 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	33.0k	RG1608P-333-B-T5	Susumu Co Ltd	RES, 33.0 k, 0.1%, 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
R96	1	301	RT0603DRE07301RL	Yageo America	RES, 301, 0.5%, 0.1 W, 0603	0603
R98	1	0.1	ERJ-6RSFR10V	Panasonic	RES, 0.1, 1%, 0.125 W, 0805	0805
R101	1	1.5k	ERJ-3GEYJ152V	Panasonic	RES, 1.5 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603

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R103	1	105k	RT0603BRD07105KL	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
R108, R109, R110	3	560k	TNPV1206560KBEEN	Vishay Draloric	RES, 560 k, 0.1%, 1 W, 1206	1206
R111, R112, R113, R116, R117, R118, R122, R123, R124, 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
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		RMCF0805ZT0R00	Stackpole Electronics	0 Ohms Jumper 0.125W, 1/8W Chip Resistor 0805 (2012 Metric) Automotive AEC-Q200 Thick Film	0805
TP2, TP3, TP12, TP14, TP15, TP19, TP20	7		5001	Keystone Electronics	Test Point, Miniature, Black, TH	Black Miniature Testpoint
TP8	1		5003	Keystone Electronics	Test Point, Miniature, Orange, TH	Orange Miniature Testpoint
TP10	1		5117	Keystone	Test Point, Miniature, Blue, TH	Blue Miniature Testpoint
TP13	1		5005	Keystone Electronics	Test Point, Compact, Red, TH	Red Compact Testpoint
U2, U4, U8, U9, U11, U15	6		LMG3522R030Q	Texas Instruments	650-V 30-mΩ GaN FET with Integrated Driver and Protection	VQFN52
U3, U10	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
U5, U12	2		ISO7762FQDBQRQ1	Texas Instruments	Automotive, robust EMC, six-channel, 4/2, reinforced digital isolator 16- SSOP -40 to 125	SSOP16
U6, U7, U13, U14, U25, U26	6		SN74LVC1G08DBVT	Texas Instruments	Single 2-Input Positive-AND Gate, DBV0005A, SMALL T&R	DBV0005A
U16	1		TMCS1123B1QDVGR	Texas Instruments	TMCS1123B1QDVGR	SOIC10
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		TLV75533PDRVR	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		SN74HC251PW	Texas Instruments	Data Selectors/Multiplexers With 3-State Outputs, PW0016A, TUBE	PW0016A
U27	1		SN74LVC2G34DBVR	Texas Instruments	Dual Buffer Gate, DBV0006A, LARGE T&R	DBV0006A
U28, U29	2		SN74HC365D	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 lowemissions DC-DC Converter	SOIC20

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U31	1		ISOW1412DFM	Texas Instruments	Reinforced 5-kVRMS Isolated RS-485/RS-422 Transceiver With Integrated Low Emissions DC-DC Converter	SOIC20
C52, C98	0	220pF	GRM188R71H221KA01D	MuRata	CAP, CERM, 220 pF, 50 V, +/- 10%, X7R, 0603	0603
D1, D7	0		GB02SLT12-214	GeneSiC Semiconductor	Diode Silicon Carbide Schottky 1200 V 2A (DC) Surface Mount DO-214AA	DO-214AA
J27	0		PK007-015	Teledyne Lecroy	Test Clip, Lead, Probe Adapter for use with LeCroy Passive Probes	CONN_TESTCLIP
R7, R41, R53, R55	0	4.7	CRCW12064R70JNEAHP	Vishay-Dale	RES, 4.7, 5%, 0.75 W, AEC-Q200 Grade 0, 1206	1206
R21, R240, R241, R242, R243, R244, R245, R246, R247, R248, R249, R250	0	0	RCS06030000Z0EA	Vishay-Dale	RES, 0, 0%, 0.25 W, AEC-Q200 Grade 0, 0603	0603