

Item No.	Designator	Quantity	Value	Part Number	Manufacturer	Description	Packaging	Typical Dimension mm (inch)	Not Mounted
1	IC12, IC112, IC212, IC312	4		TPD7106F	TOSHIBA	Gate Driver	SSOP16	5.0 x 4.4	
2	IC13, IC113, IC213, IC313	4		TC7PZ17FU	TOSHIBA	Dual Schmitt Buffer, 6V, 50mA	SOT-363	2.0 x 1.25	
3	IC1, IC101, IC201, IC301	4		LTC4364HMS-2#PBF	ANALOG DEVICES	Surge Stopper			
4	IC2, IC102, IC202, IC302	4		UCC27211A-Q1	TI	Gate Driver, 120V			
5	IC11, IC111, IC211, IC311	4		TLC2272A-Q1	TI	OP Amp			
6	IC14, IC114, IC214, IC314	4		ISO6720	TI	Isolator, 5.5V, 15mA			
7	Q1, Q2, Q4, Q5, Q6, Q7, Q8, Q9, Q101, Q102, Q104, Q105, Q106, Q107, Q108, Q109, Q201, Q202, Q204, Q205, Q206, Q207, Q208, Q209, Q301, Q302, Q304, Q305, Q306, Q307, Q308, Q309	32		XPW4R10ANB	TOSHIBA	N-ch MOSFET, 100V, 70A	DSOP Advance (WF)L	5.0 x 5.0	
8	Q11, Q12, Q17, Q111, Q112, Q117, Q211, Q212, Q217, Q311, Q312, Q317	12		SSM3K361TU	TOSHIBA	N-ch MOSFET, 100V, 3.5A	SOT-323F	2.0 x 1.7	
9	Q13, Q14, Q15, Q16, Q113, Q114, Q115, Q116, Q213, Q214, Q215, Q216, Q313, Q314, Q315, Q316	16		XPQR3004PB	TOSHIBA	N-ch MOSFET, 40V, 400A	L-TOGL	9.9 x 8.5	
10	Q18, Q19, Q118, Q119, Q218, Q219, Q318, Q319	8		RN1907	TOSHIBA	NPN Transistor x2, 50V, 100mA	SOT-363	2.0 x 1.25	
11	Q20, Q120, Q220, Q320	4		2SC4117-GR	TOSHIBA	NPN Transistor, 5V, 100mA	SOT-323	2.0 x 1.25	
12	D2, D3, D4, D6, D7, D8, D102, D103, D104, D106, D107, D108, D202, D203, D204, D206, D207, D208, D302, D303, D304, D306, D307, D308	24		CMS10I30A	TOSHIBA	Schottky Barrier Diode, 30V, 1A	M-FLAT	3.8 x 2.4	
13	D11, D12, D13, D17, D18, D20, D111, D112, D113, D117, D118, D120, D211, D212, D213, D217, D218, D220, D311, D312, D313, D317, D318, D320	24		1SS403E	TOSHIBA	Switching Diode, 200V, 100mA	SOD-523	1.2 x 0.8	
14	D1	1		SMBJ78CA	LITTEL	Transient Voltage Suppressor Diode, 78V, 600W		4.3 x 3.6	

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15	D5, D105, D205, D305	4		NRVUA120VT3G	Onsemi	Rectifiers Diode, 200V, 1A		4.3 x 2.6	
16	D15, D16	2		SZ1SMA24AT3G	LITTEL	Transient Voltage Suppressor Diode, 24V, 400W		4.3 x 2.6	
17	D19, D21, D119, D121, D219, D221, D319, D321	8		EDZVFH15B	ROHM	Zener Diode, 15V, 150mW		0.8 x 1.2	
18	PC1, PC3, PC4, PC101, PC103, PC104, PC201, PC203, PC204, PC301, PC303, PC304	12		TLX9906	TOSHIBA	Automotive Photocoupler, 10V, 30mA	4pin SO6	3.7 x 4.55	
19	PC2, PC7, PC102, PC107, PC202, PC207, PC302, PC307	8		TLX9000	TOSHIBA	Automotive Photocoupler, 40V, 30mA	SO4	2.6 x 4.55	
20	PC5, PC6, PC105, PC106, PC205, PC206, PC305, PC306	8		TLX9291A	TOSHIBA	Automotive Photocoupler, 80V, 30mA	SO4	2.6 x 4.55	
21	R3, R103, R203, R303, R401, R402, R411, R412, R421, R422, R431, R432	12	0Ω			1A		1.6 x 0.8 (0603)	
22	R1, R11, R14, R17, R21, R24, R27, R101, R111, R114, R117, R121, R124, R127, R201, R211, R214, R217, R221, R224, R227, R301, R311, R314, R317, R321, R324, R327	28	10Ω			±5%, 1/4W		2.0 x 1.25 (0805)	
23	R2, R102, R202, R302	4	100kΩ			±0.5%, 1/10W		1.6 x 0.8 (0603)	
24	R4, R104, R204, R304	4	1.8kΩ			±0.5%, 1/10W		1.6 x 0.8 (0603)	
25	R7, R107, R207, R307	4	1MΩ			±1%, 1/10W		1.6 x 0.8 (0603)	
26	R8, R108, R208, R308	4	1mΩ			Metal Shunt Resistor, ±1%, 10W		10.0 x 5.2	
27	R9, R60, R109, R160, R209, R260, R309, R360	8	2.2Ω			±5%, 1/4W		2.0 x 1.25 (0805)	
28	R10, R13, R16, R20, R23, R26, R110, R113, R116, R120, R123, R126, R210, R213, R216, R220, R223, R226, R310, R313, R316, R320, R323, R326	24	1Ω			±5%, 1/4W		2.0 x 1.25 (0805)	

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29	R12, R15, R18, R22, R25, R28, R112, R115, R118, R122, R125, R128, R212, R215, R218, R222, R225, R228, R312, R315, R318, R322, R325, R328	24	10k Ω			$\pm 5\%$, 1/10W		1.6 x 0.8 (0603)	
30	R29, R38, R129, R138, R229, R238, R329, R338	8	0.5m Ω			Metal Shunt Resistor, $\pm 1\%$, 10W		10.0 x 5.2	
31	R47, R55, R147, R155, R247, R255, R347, R355	8	10 Ω			$\pm 0.5\%$, 1/10W		1.6 x 0.8 (0603)	
32	R48, R49, R51, R52, R148, R149, R151, R152, R248, R249, R251, R252, R348, R349, R351, R352	16	20k Ω			$\pm 0.5\%$, 1/10W		1.6 x 0.8 (0603)	
33	R50, R53, R57, R59, R150, R153, R157, R159, R250, R253, R257, R259, R350, R353, R357, R359	16	1k Ω			$\pm 0.5\%$, 1/10W		1.6 x 0.8 (0603)	
34	R56, R58, R156, R158, R256, R258, R356, R358	8	11k Ω			$\pm 0.5\%$, 1/10W		1.6 x 0.8 (0603)	
35	R63, R163, R263, R363	4	330k Ω			$\pm 1\%$, 1/10W		1.6 x 0.8 (0603)	
36	R64, R65, R164, R165, R264, R265, R364, R365	8	100k Ω			$\pm 5\%$, 1/10W		1.6 x 0.8 (0603)	
37	R66, R68, R71, R73, R86, R87, R91, R166, R168, R171, R173, R186, R187, R191, R266, R268, R271, R273, R286, R287, R291, R366, R368, R371, R373, R386, R387, R391	28	33k Ω			$\pm 5\%$, 1/10W		1.6 x 0.8 (0603)	
38	R67, R69, R72, R167, R169, R172, R267, R269, R272, R367, R369, R372	12	360 Ω			$\pm 5\%$, 1/10W		1.6 x 0.8 (0603)	
39	R70, R170, R270, R370	4	1.5k Ω			$\pm 5\%$, 1/10W		1.6 x 0.8 (0603)	
40	R81, R92, R181, R192, R281, R292, R381, R392	8	47k Ω			$\pm 5\%$, 1/5W		1.6 x 0.8 (0603)	
41	R82, R182, R282, R382	4	9.1k Ω			$\pm 5\%$, 1/4W		2.0 x 1.25 (0805)	
42	R84, R85, R184, R185, R284, R285, R384, R385	8	2.2k Ω			$\pm 5\%$, 1/10W		1.6 x 0.8 (0603)	
43	R88, R89, R188, R189, R288, R289, R388, R389	8	47k Ω			$\pm 5\%$, 1/10W		1.6 x 0.8 (0603)	
44	R90, R190, R290, R390	4	3.3k Ω			$\pm 5\%$, 1/10W		1.6 x 0.8 (0603)	
45	R93, R193, R293, R393	4	330k Ω			$\pm 5\%$, 1/10W		1.6 x 0.8 (0603)	
46	R403, R413, R423, R433	4	68k Ω			$\pm 1\%$, 1/10W		1.6 x 0.8 (0603)	
47	R5111, R5211, R5311, R5411	4	10k Ω			Thermistor, $\pm 1\%$, 300mW		1.6 x 0.8 (0603)	

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48	L1, L101, L201, L301	4	0.4μH	XAL1580-401MED	Coilcraft	47A, ±20%		15.2 x 16.2	
49	L2, L102, L202, L302	4	2.2μH	IHXL-1500VZ-5A	VISHAY	115A, ±20%		38.1 x 21.9	
50	C1, C2, C3, C4, C85, C86, C87, C88	8	0.47μF			Ceramic, 100V, ±10%		3.2 x 1.6 (1206)	
51	C5, C6, C7, C8, C9, C10, C11, C12, C35, C36, C81, C89, C90, C91, C92, C93, C94, C95, C96, C135, C136, C181, C235, C236, C281, C335, C336, C381	28	10μF			Ceramic, 50V, ±10%		5.7 x 5.0 (2220)	
52	C13, C113, C213, C313	4	0.1μF			Ceramic, 100V, ±10%		3.2 x 1.6 (1206)	
53	C14, C114, C214, C314	4	33nF			Ceramic, 50V, ±5%		2.0 x 1.25 (0805)	
54	C15, C115, C215, C315	4	1000pF			Ceramic, 50V, ±10%		1.6 x 0.8 (0603)	
55	C16, C17, C116, C117, C216, C217, C316, C317	8	150μF	UCZ1K151MNS1MS	nichicon	Electrolytic, 80V, ±20%		13.6 x 13.6	
56	C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C118, C119, C120, C121, C122, C123, C124, C125, C126, C127, C128, C218, C219, C220, C221, C222, C223, C224, C225, C226, C227, C228, C318, C319, C320, C321, C322, C323, C324, C325, C326, C327, C328	44	47μF	PCV1J470MCL2GS	nichicon	Electrolytic, 63V, ±20%		10.3 x 10.3	
57	C29, C30, C31, C32, C33, C34, C59, C60, C61, C62, C63, C64, C129, C130, C131, C132, C133, C134, C159, C160, C161, C162, C163, C164, C229, C230, C231, C232, C233, C234, C259, C260, C261, C262, C263, C264, C329, C330, C331, C332, C333, C334, C359, C360, C361, C362, C363, C364	48	4.7μF			Ceramic, 100V, ±20%		5.7 x 5.0 (2220)	

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58	C37, C41, C72, C74, C78, C99, C137, C141, C172, C174, C178, C199, C237, C241, C272, C274, C278, C299, C337, C341, C372, C374, C378, C399	24	2.2μF			Ceramic, 50V, ±10%		3.2 x 2.5 (1210)	
59	C38, C39, C40, C73, C75, C77, C83, C100, C110, C138, C139, C140, C173, C175, C177, C183, C210, C238, C239, C240, C273, C275, C277, C283, C310, C338, C339, C340, C373, C375, C377, C383	32	0.1μF			Ceramic, 50V, ±10%		1.6 x 0.8 (0603)	
60	C42, C43, C49, C50, C142, C143, C149, C150, C242, C243, C249, C250, C342, C343, C349, C350	16	4700pF			Ceramic, 50V, ±5%		1.6 x 0.8 (0603)	
61	C51, C52, C53, C54, C55, C56, C151, C152, C153, C154, C155, C156, C251, C252, C253, C254, C255, C256, C351, C352, C353, C354, C355, C356	24	39μF	PCV1J390 MCL2GS	nichicon	Electrolytic, 63V, ±20%		8.3 x 8.3	
62	C57, C58, C157, C158, C257, C258, C357, C358	8	150μF	UCZ1J151 MNQ1MS	nichicon	Electrolytic, 63V, ±20%		13.6 x 13.6	
63	C70, C97, C98, C170, C197, C198, C270, C297, C298, C370, C397, C398	12	220μF	UCZ1A22 1MCL1GS	nichicon	Electrolytic, 10V, ±20%		8.3 x 8.3	
64	C71, C171, C271, C371	4	220μF	UCZ1C22 1MCL1GS	nichicon	Electrolytic, 16V, ±20%		8.3 x 8.3	
65	C76, C79, C80, C101, C111, C176, C179, C180, C211, C276, C279, C280, C311, C376, C379, C380	16	470pF			Ceramic, 50V, ±5%		1.6 x 0.8 (0603)	
66	C82, C84, C182, C184, C282, C284, C382, C384	8	0.01μF			Ceramic, 50V, ±5%		1.6 x 0.8 (0603)	
67	C401, C403, C411, C413, C421, C423, C431, C433	8	0.033μF			Ceramic, 50V, ±5%		3.2 x 1.6 (1206)	
68	C405, C415, C425, C435	4	0.1μF			Ceramic, 50V, ±10%		3.2 x 1.6 (1206)	
69	CN1, CN101, CN201, CN301	4		B6B-XH-A	JST	Connector, Through Hole, 6 Positions		17.4 x 5.75	
70	CN2, CN102, CN202, CN302	4		B9B-XH-A	JST	Connector, Through Hole, 9 Positions		24.9 x 5.75	
71	CN3, CN103, CN203, CN303	4		B8B-XH-A	JST	Connector, Through Hole, 8 Positions		22.4 x 5.75	
72	CN4, CN104, CN204, CN304	4		B5B-XH-A	JST	Connector, Through Hole, 5 Positions		14.9 x 5.75	
73	CN5, CN105, CN205, CN305	4		B2B-EH	JST	Connector, Through Hole, 2 Positions		7.5 x 3.8	

Item No.	Designator	Quantity	Value	Part Number	Manufacturer	Description	Packaging	Typical Dimension mm (inch)	Not Mounted
74	CN6	1		B2B-XH-A	JST	Connector, Through Hole, 2 Positions		7.4 x 5.75	
75	CN7	1		B3B-XH-A	JST	Connector, Through Hole, 3 Positions		9.9 x 5.75	
76	CN8, CN9, CN10, CN108, CN109, CN110, CN208, CN209, CN210, CN308, CN309, CN310	12		B2P-VH	JST	Connector, Through Hole, 2 Positions		7.86 x 8.5	
77	CN11, CN12, CN13, CN14, CN15, CN18, CN19, CN111, CN112, CN113, CN114, CN115, CN118, CN119, CN211, CN212, CN213, CN214, CN215, CN218, CN219, CN311, CN312, CN313, CN314, CN315, CN318, CN319	28		TSM-102-01-L-SV	Samtec	Pin Header, SMD, 2 Positions		5.08 x 2.54	
78	CN16, CN17, CN20, CN23, CN29, CN30, CN31, CN32, CN33, CN34, CN116, CN117, CN120, CN123, CN129, CN130, CN131, CN132, CN133, CN134, CN216, CN217, CN220, CN223, CN229, CN230, CN231, CN232, CN233, CN234, CN316, CN317, CN320, CN323, CN329, CN330, CN331, CN332, CN333, CN334	40		TSW-101-07-G-S	Samtec	Pin Header, Through Hole, 1 Position		2.54 x 2.54	
79	CN21, CN22, CN24, CN25, CN26, CN27, CN28, CN121, CN122, CN124, CN125, CN126, CN127, CN128, CN221, CN222, CN224, CN225, CN226, CN227, CN228, CN321, CN322, CN324, CN325, CN326, CN327, CN328	28		HW-1-S	MAC8	Pin Header, SMD, 1 Position		3.2 x 1.6	

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第5条 準拠法

本規約の準拠法は日本法とします。

第6条 管轄裁判所

本リファレンスデザインに関する全ての紛争については、別段の定めがない限り東京地方裁判所を第一審の専属管轄裁判所とします。