

## Big Fast Switch Rev0 Bill of Materials

2021-08-08

Part #	Quantity	Designators	Manufacturer	Description
C2012X7R1H104K085AA	2	C1, C22	TDK	100nF $\pm 10\%$ 50V X7R capacitor, 0805 case
CL31B225KBHNNNE	1	C2	Samsung	2.2 $\mu$ F $\pm 10\%$ 50V X7R capacitor, 1206 case
25SVPF47M	3	C3, C6, C9	Panasonic	47 $\mu$ F $\pm 20\%$ 25V Aluminum polymer capacitor
CL10B104KA8NFNC	12	C4, C7, C12, C13, C15, C17–C21, C29, C32	Samsung	100nF $\pm 10\%$ 25V X7R capacitor, 0603 case
CL21B225KAFNNWE	3	C5, C11, C14	Samsung	2.2 $\mu$ F $\pm 10\%$ 25V X7R capacitor, 0805 case
CL31B225KOHNNNE	2	C8, C10	Samsung	2.2 $\mu$ F $\pm 10\%$ 16V X7R capacitor, 1206 case
B32756G8156K000	1	C16	TDK	15 $\mu$ F $\pm 10\%$ 600V film capacitor
CL32B106KAJNNNE	4	C23–C26	Samsung	10 $\mu$ F $\pm 10\%$ 25V X7R capacitor, 1210 case
CL21B475KOFNNNE	2	C27, C28	Samsung	4.7 $\mu$ F $\pm 10\%$ 16V X7R capacitor, 0805 case
CL21B105KBFNNNG	2	C30, C31	Samsung	1 $\mu$ F $\pm 10\%$ 50V X7R capacitor, 0805 case
1N4448W-7-F	2	D1, D2	Diodes Inc.	75V 250mA switching diode, SOD–123 case
BAS16,215	8	D3–D10	Nexperia	100V 215mA switching diode, SOT–23–3 case
VS-90EPF06L-M3	1	D11	Vishay	600V 90A fast soft recovery rectifier diode, TO–247AD 2L case
BAV199-7-F	2	D12, D13	Diodes Inc.	Dual 85V 140mA low leakage diode, series connection, SOT–23–3 case
BAS70-7-F	2	D14, D15	Diodes Inc.	70V 70mA Schottky diode, SOT–23–3 case
PA-T21-38E	2	HS1, HS2	Ohmite	Heatsink with clip for TO–247 or TO–264 devices
NTCALUG02A103F161	2	—	Vishay	10k $\Omega$ $\pm 1\%$ R <sub>25</sub> 3984K $\pm 0.5\%$ $\beta_{25/85}$ ring lug mount NTC thermistor. Mount one to HS1 and wire to J15 & J17. Mount the other to HS2 and wire to J16 & J18.

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94500A221	2	—	McMaster-Carr	M3 x 0.5mm thread, 6mm long 2mm hex drive screw for mounting thermistors to heatsinks
93237A102	2	—	McMaster-Carr	M3 Belleville washer for mounting thermistors to heatsinks
3135-16-1-0500-011-1-TS	—	—	CnC Tech	Stranded 16AWG 600V wire for connecting HS1 (J10) & HS2 (J13) to earth lug on back of J1
703W-00/52	1	J1	Qualtek	IEC320-C14 AC power input receptacle
74651194R	4	J8, J9, J11, J14	Würth	M4 shank solderable terminal
282837-2	1	J12	TE Connectivity	5.08mm pitch 2 position rising cage clamp terminal block
APT2012SURCK	3	LED1-LED3	Kingbright	Red SMT LED, 0805 case
—	2	M1, M2	—	3D printed mount for fan
MF40200V1-1000U-A99	2	—	Sunon	5V 40mm x 40mm x 20mm BLDC fan
MPM-05-15	1	PS1	Meanwell	15V 5W Medical rated board mount AC/DC converter
MPM-05-3.3	1	PS2	Meanwell	3.3V 5W Medical rated board mount AC/DC converter
MPM-05-5	1	PS3	Meanwell	5V 5W Medical rated board mount AC/DC converter
MMBT3906LT1G	2	Q1, Q2	ON Semi	40V 200mA PNP transistor, SOT-23-3 case
MMBT3904LT1G	3	Q3-Q5	ON Semi	40V 200mA NPN transistor, SOT-23-3 case
STY145N65M5	1	Q6	ST	650V 15mΩ 138A N-MOSFET, Max247 case
—	2	—	Shenzhen Jia Rifeng Tai Company	22mm x 28mm x 1mm Aluminum Nitride insulator for D11 & Q6. Solid—no mounting hole.
249G	—	—	Aavid Thermalloy	Silicone grease for mounting D11 & Q6.
RC0603FR-07620RL	3	R1, R2, R7	Yageo	620Ω ±1% ±100ppm/°C 100mW resistor, 0603 case
RC0603FR-0733KL	4	R3, R6, R21, R22	Yageo	33kΩ ±1% ±100ppm/°C 100mW resistor, 0603 case
RC0603FR-0710KL	7	R4, R5, R25, R34, R35, R40, R41	Yageo	10kΩ ±1% ±100ppm/°C 100mW resistor, 0603 case

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RC0603FR-0743KL	2	R8, R9	Yageo	43k $\Omega$ $\pm$ 1% $\pm$ 100ppm/ $^{\circ}$ C 100mW resistor, 0603 case
RC0603FR-073K9L	1	R10	Yageo	3.9k $\Omega$ $\pm$ 1% $\pm$ 100ppm/ $^{\circ}$ C 100mW resistor, 0603 case
ROX5SJ47K	1	R11	TE Connectivity	47k $\Omega$ $\pm$ 5% $\pm$ 350ppm/ $^{\circ}$ C 5W metal oxide film resistor, axial through hole
RC0603FR-076K2L	2	R12, R13	Yageo	6.2k $\Omega$ $\pm$ 1% $\pm$ 100ppm/ $^{\circ}$ C 100mW resistor, 0603 case
RC0603JR-07100RL	2	R14, R15	Yageo	100 $\Omega$ $\pm$ 5% $\pm$ 100ppm/ $^{\circ}$ C 100mW resistor, 0603 case
RC0603JR-0722RL	2	R16, R27	Yageo	22 $\Omega$ $\pm$ 5% $\pm$ 100ppm/ $^{\circ}$ C 100mW resistor, 0603 case
RC0603JR-071KL	2	R17, R26	Yageo	1k $\Omega$ $\pm$ 5% $\pm$ 100ppm/ $^{\circ}$ C 100mW resistor, 0603 case
RC0603FR-072K7L	2	R18, R19	Yageo	2.7k $\Omega$ $\pm$ 1% $\pm$ 100ppm/ $^{\circ}$ C 100mW resistor, 0603 case
RC0603FR-0756KL	1	R20	Yageo	56k $\Omega$ $\pm$ 1% $\pm$ 100ppm/ $^{\circ}$ C 100mW resistor, 0603 case
CRCW12062R70JNEAHP	1	R23	Vishay	2.7 $\Omega$ $\pm$ 5% $\pm$ 200ppm/ $^{\circ}$ C 750mW pulse withstanding resistor, 1206 case
CRCW12061R00JNEAHP	1	R24	Vishay	1 $\Omega$ $\pm$ 5% $\pm$ 200ppm/ $^{\circ}$ C 750mW pulse withstanding resistor, 1206 case
RC0603JR-07100KL	3	R28, R29, R42	Yageo	100k $\Omega$ $\pm$ 5% $\pm$ 100ppm/ $^{\circ}$ C 100mW resistor, 0603 case
ERJ-PB3B5230V	6	R30, R32, R36–R39	Panasonic	523 $\Omega$ $\pm$ 0.1% $\pm$ 50ppm/ $^{\circ}$ C 200mW resistor, 0603 case
RC0603FR-077K5L	2	R31, R33	Yageo	7.5k $\Omega$ $\pm$ 1% $\pm$ 100ppm/ $^{\circ}$ C 100mW resistor, 0603 case
90417A118	4	S1–S4	McMaster–Carr	#4–20 x 3/8” thread forming screw for plastics
90417A119	6	—	McMaster–Carr	#4–20 x 1/2” thread forming screw for plastics. 2 each applied to J1, M1, and M2.
—	1	—	—	3D printed board support plate
30KPA300CA	2	TVS1, TVS4	Littelfuse	300V $V_{WM}$ bidirectional TVS diode, P600 axial through hole case
SMF15A-E3-08	1	TVS2	Vishay	15V $V_{WM}$ unidirectional TVS diode, SMF case
PTVS3V3S1UR	1	TVS3	Nexperia	3.3V $V_{WM}$ unidirectional TVS diode, SOD–123W case

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DLP05LC-7-F	1	TVS5	Diodes Inc.	5V $V_{WM}$ low capacitance unidirectional TVS diode, SOT-23-3 case
MIC5225-3.3YM5	1	U1	Microchip	3.3V linear regulator, SOT-23-5 case
UCC21750	1	U2	TI	Isolated MOSFET gate driver, Wide SOIC-16 case
SN74LVC1G11DBVR	1	U3	TI	3-Input AND gate, SOT-23-6 case
SN74LVC1G17DBVR	1	U4	TI	Non-inverting Schmitt trigger buffer, SOT-23-5 case
LMV762MA	1	U5	TI	Dual precision comparator, SOIC-8 case
TPS3839G33DBZR	1	U6	TI	3.08V threshold supply voltage monitor, active low output, SOT-23-3 case