

Item Number	Designator	Quantity	Value	Part Number	Manufacturer	Description	Packaging	Typical Dimension	Not Mount
1	U1	1		<a href="#">TB9M003FG</a>	<a href="#">TOSHIBA</a>	Gate Driver IC with MCU for BLDC Motor Application	<a href="#">HQFP48</a>		
2	U2	1		<a href="#">TMPM067FWQG</a>	<a href="#">TOSHIBA</a>	32bit Microcontroller (Non Automotive)	<a href="#">QFN48</a>		
3	U3	1		MCP16331T-E/CH	Microchip	Step-Down DC/DC Converter	SOT-23-6		
4	U4	1		TXB0106PWR	Texas Instruments	Tri-State Non-Inverted	TTSOP16		
5	U5	1		<a href="#">TC75W58FU</a>	<a href="#">TOSHIBA</a>	CMOS Dual Comparator	<a href="#">SM8</a>		
6	U6	1		OPA365AID	Texas Instruments	Operational Amplifier	SOIC8		
7	U7	1		LM321MFX/NOPB	Texas Instruments	Operational Amplifier	SOT-23		
8	U8	1		M95M04-DRMN6TP	ST Microelectronics	Serial EEPROM 4Mbit	SOIC8		
9	U9	1		FT232RL-REEL	FTDI	USB-UART Converter	SSOP28		
10	U10	1		NCP186AMX330TAG	ON Semiconductor	Low Drop Out Regulator	XDFN8		
11	Y1	1		7A-16.000MAAJ-T	TXC	Crystal 16.0000 MHz		5.0 x 3.2	
12	Y2	1		7A-12.000MAAJ-T	TXC	Crystal 12.0000 MHz		5.0 x 3.2	
11	M1	1		DMP2160UW	Diodes Incorporated	P-ch MOSFET, 20 V, 1.5 A	SOT-323		
12	Q1	1		DMN2058U	Diodes Incorporated	N-ch MOSFET, 20 V, 4.6 A	SOT-23		
13	Q2, Q3, Q4, Q5, Q6, Q7	6		<a href="#">SSM6K804R</a>	<a href="#">TOSHIBA</a>	N-ch MOSFET, 40 V, 12 A	<a href="#">TSOP6F</a>		
14	Q8	1		PJC7401	Panjit	P-ch MOSFET, 30 V, 1.5 A	SOT-323		
15	Q9, Q10, Q11	3		<a href="#">SSM3K15AFU</a>	<a href="#">TOSHIBA</a>	N-ch MOSFET, 30 V, 100 mA	<a href="#">USM</a>		
16	D2	1		1N4148W_R1_00001	Panjit	Diode, 75V, 125 mA	SOD-123		
17	D3	1		PMEG4050EP,115	Nexperia	Schottky Barrier Diode, 40 V, 5 A	SOD-128		
18	TVS1, TVS2	2		<a href="#">DF6D6UFE</a>	<a href="#">TOSHIBA</a>	ESD Protection Diode	<a href="#">ES6</a>		
19	LD1, LD2, LD3, LD4	4		APT2012SGC	Kingbright	LED Green		2.0 x 1.2 (0805)	
20	LD5, LD7, LD8, LD9, LD10	5		BL-HUB35A-AV-TRB	BRIGHT LED	LED Red		2.0 x 1.2 (0805)	
21	LD6	1		BL-HKB35A-AV-TRB	BRIGHT LED	LED Yellow		2.0 x 1.2 (0805)	
22	R1, R5, R16, R65, R67, R69	6	100 k $\Omega$			$\pm 1$ %, 62.5 mW		1.0 x 0.5 (0402)	

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23	R3, R8, R12, R14, R55, R64, R66, R68, R86	9	4.7 k $\Omega$			$\pm 1\%$ , 62.5 mW		1.0 x 0.5 (0402)	
24	R4	1	1.5 k $\Omega$			$\pm 1\%$ , 100 mW		1.0 x 0.5 (0402)	
25	R6, R26, R81	3	330 $\Omega$			$\pm 1\%$ , 62.5 mW		1.0 x 0.5 (0402)	
26	R7, R13, R17, R18, R24, R63, R73, R74, R75, R76, R87, R88	12	10 k $\Omega$			$\pm 1\%$ , 62.5 mW		1.0 x 0.5 (0402)	
27	R9	1	523 k $\Omega$			$\pm 1\%$ , 62.5 mW		1.0 x 0.5 (0402)	
28	R10	1	97.6 k $\Omega$			$\pm 1\%$ , 62.5 mW		1.0 x 0.5 (0402)	
29	R11, R15, R23	3	1 k $\Omega$			$\pm 1\%$ , 62.5 mW		1.0 x 0.5 (0402)	
30	R19, R20, R33, R34	4	27 $\Omega$			$\pm 1\%$ , 62.5 mW		1.0 x 0.5 (0402)	
31	R22, R25	2	470 $\Omega$			$\pm 1\%$ , 62.5 mW		1.0 x 0.5 (0402)	
32	R27, R28, R29, R37, R38, R39, R70, R71, R72, R78	10	47 $\Omega$			$\pm 1\%$ , 125 mW		2.0 x 1.2 (0805)	
33	R35, R36, R61, R62	4	5.1 k $\Omega$			$\pm 1\%$ , 62.5 mW		1.0 x 0.5 (0402)	
34	R43	1	0.01 $\Omega$			$\pm 1\%$ , 1 W		3.7 x 2.0 (1508)	
35	R44, R48	2	2.2 $\Omega$			$\pm 1\%$ , 100 mW		1.6 x 0.8 (0603)	
36	R45, R49	2	220 $\Omega$			$\pm 1\%$ , 100 mW		1.6 x 0.8 (0603)	
37	R46	1	0 $\Omega$			1 A		1.6 x 0.8 (0603)	
38	R47	1	100 $\Omega$			$\pm 1\%$ , 100 mW		1.6 x 0.8 (0603)	
39	R50, R56, R58	3	4.7 k $\Omega$			$\pm 1\%$ , 100 mW		1.6 x 0.8 (0603)	
40	R51, R54	2	9.1 k $\Omega$			$\pm 1\%$ , 100 mW		1.6 x 0.8 (0603)	
41	R52	1	10 k $\Omega$			$\pm 1\%$ , 100 mW		1.6 x 0.8 (0603)	
42	R53	1	0 $\Omega$			2 A		2.0 x 1.2 (0805)	
43	R57, R60	2	1 k $\Omega$			$\pm 1\%$ , 100 mW		1.6 x 0.8 (0603)	

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44	R59	1	22 kΩ			±1 %, 100 mW		1.6 x 0.8 (0603)	
45	R82, R83	2	10 Ω			±1 %, 100 mW		1.0 x 0.5 (0402)	
46	R84	1	330 kΩ			±1 %, 62.5 mW		1.0 x 0.5 (0402)	
47	R85	1	39 kΩ			±1 %, 62.5 mW		1.0 x 0.5 (0402)	
48	R89	1	47 Ω			±1 %, 62.5 mW		1.0 x 0.5 (0402)	
49	RT1	1	10 kΩ	NCP18XH103F03RB	Murata	±1 %, 100 mW		1.6 x 0.8 (0603)	
50	P1	1	10 kΩ	N6L50T0S1033030R	Piher	Potentiometer			
51	C1	1	4.7 μF			Ceramic, 25 V, ±10 %		1.6 x 0.8 (0603)	
52	C2, C4	2	10 μF			Ceramic, 25 V, ±20 %		1.6 x 0.8 (0603)	
53	C3, C5, C27, C28	4	0.1 μF			Ceramic, 25 V, ±10 %		1.0 x 0.5 (0402)	
54	C6	1	2.2 μF			Ceramic, 6.3 V, ±10 %		1.0 x 0.5 (0402)	
55	C7, C8, C40, C41	4	1 μF			Ceramic, 10 V, ±10 %		1.0 x 0.5 (0402)	
56	C9, C10, C12, C13	4	18 pF			Ceramic, 50 V, ±5 %		1.0 x 0.5 (0402)	
57	C11	1	1 μF			Ceramic, 10 V, ±10 %		1.6 x 0.8 (0603)	
58	C15	1	220 pF			Ceramic, 50 V, ±5 %		1.6 x 0.8 (0603)	
59	C16, C17, C18, C19, C20, C26, C29, C30, C32, C33, C34, C35, C36, C37, C38	15	0.1 μF			Ceramic, 10 V, ±10 %		1.0 x 0.5 (0402)	
60	C21	1	20 pF			Ceramic, 50 V, ±5 %		1.0 x 0.5 (0402)	
61	C22	1	47 μF			Ceramic, 6.3 V, ±20 %		2.0 x 1.2 (0805)	
62	C23	1	10 μF			Ceramic, 6.3 V, ±20 %		1.6 x 0.8 (0603)	
63	C24, C25	2	10μF			Ceramic, 25 V, ±10 %		3.2 x 1.6 (1206)	
64	C42	1	100 μF	UWT1V101MCL1GS	Nichicon	Aluminum, 35 V, ±20 %		6.3 x 6.3	
65	C43	1	1 μF			Ceramic, 25 V, ±10 %		1.0 x 0.5 (0402)	
66	C44	1	0.022 μF			Ceramic, 50 V, ±10 %		1.6 x 0.8 (0603)	

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67	C45	1	1000 pF			Ceramic, 50 V, ± 10 %		1.0 x 0.5 (0402)	
68	C46	1	2.2 pF			Ceramic, 50 V, ± 0.25 pF		1.0 x 0.5 (0402)	
69	C52, C53, C57, C58, C60, C61	6	0.1 µF			Ceramic, 50 V, ± 10 %		1.6 x 0.8 (0603)	
70	C54	1	0.22 µF			Ceramic, 10 V, ± 10 %		1.6 x 0.8 (0603)	
71	C59	1	22 pF			Ceramic, 50 V, ± 5 %		1.6 x 0.8 (0603)	
72	L1	1	22 µH	NR8040T220M	Taiyo Yuden	2.2 A, ±20 %			
73	FB1	1		BLM18KG331SZ1D	Murata	Ferrite Bead			
74	FP2	1		BLM21PG300SN1D	Murata	Ferrite Bead			
75	CN1	1		282837-3	TE Connectivity	Terminal Block 3 Positions			
76	CN2, CN3	2		812039-099	CHLink	USB Type-C Connector			
77	HDR1	1		890-70-016-10-001101	Preci-Dip	Header Pin 16 Positions			
78	J4	1		GRP052VWQS-RC	Sullins Connector	Header Pin 10 Positions			
79	J5	1		95157-440LF	Amphenol FCI	Header Pin 40 Positions			
80	J6, J10, J11, J12	4		PREC002DAAN-RC	Sullins Connector	Header Pin 4 Positions			
81	J7, J8, J9, J13	4		892-70-006-10-001101	Preci-Dip	Header Pin 6 Positions			
82	J14, J15, J16	3		61300821121	Würth Electronics	Header Pin 8 Positions			
83	J17	1		61301021121	Würth Electronics	Header Pin 10 Positions			
84	J18, j33	2		61300211121	Würth Electronics	Header Pin 2 Positions			
85	SW1, SW3	2		CJS-1200TA	Copal Electronics	Slide Switch SPDT			
86	SW2	1		DIS02GE	Biwin	DIP Switch			
87	T1	1		TD-06XG	Chun Kai Industries (HK) Ltd.	Push Switch			
88	T2	1		TD-10XA	Chun Kai Industries (HK) Ltd.	Push Switch			

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89	TB1	1		DG129-5.08-02P-15	Degson Electronics	Terminal Block 2 Positions			
90	TB2, TB3, TB4, TB5	4		282834-2	TE Connectivity	Terminal Block 2 Positions			
91	TP2, TP3	2		S1751-46R	Harwin	Test Pin			
92	DZ1, DZ2, DZ3	3		<a href="#">CRZ16</a>	<a href="#">TOSHIBA</a>	Zener Diode, 16V, 10 mA	<a href="#">S-FLAT</a>		Not Mount
93	DZ4, DZ5, DZ6	3		<a href="#">XCUZ16V</a>	<a href="#">TOSHIBA</a>	Zener Diode, 16V, 5 mA	<a href="#">USC</a>		Not Mount
94	R30, R31, R32, R40, R41, R42	6	9.1 kΩ					1.0 x 0.5 (0402)	Not Mount
95	R21	1	10 kΩ					1.0 x 0.5 (0402)	Not Mount
96	R77, R79, R80	3	10 kΩ					2.0 x 1.2 (0805)	Not Mount
97	C55	1						2.0 x 1.2 (0805)	Not Mount
98	C56	1						2.0 x 1.2 (0805)	Not Mount

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