



Designator	Quantity	Description	Value	Tolerance	Footprint	Manufacturer	Manufacturer Part Number	Substitution Allowed	Lead Free
U1	1	Three-phase sensor-less BLDC motor controller with gate driver	-	-	SQFP48	ON Semiconductor	LV8907UW	No	Yes
U2	1	Microcontroller	-	-	TQFP44	ATMEL	ATMEGA32U4	No	Yes
U3	1	5V linear regulator	-	-	SOT-223	ON Semiconductor	NCV8645T50T3G	Yes	Yes
U4	1	Quad operational amplifier	-	-	SOT-223	ON Semiconductor	NCV84074DR2G	Yes	Yes
U5	1	Timer	-	-	SOIC-8	ON Semiconductor	NCV14558DR2G	Yes	Yes
U6	1	Comparator	-	-	SOIC-8	ON Semiconductor	NCV2903DR2G	Yes	Yes
U7	1	10-poles DIP switch	-	-	Pitch 1.27mm	Omron	A6H-0101	Yes	Yes
U8	1	4-poles DIP switch	-	-	Pitch 1.27mm	Omron	A6H-0101	Yes	Yes
J1	1	Motor winding connector	-	-	Pitch 6.35mm	ON-SHORE	OST17030150	Yes	Yes
J2	1	LINBUS and power supply connector	-	-	Pitch 6.35mm	ON-SHORE	OST17020150	Yes	Yes
J3	1	AC-DC adapter connector	-	-	-	Singatron	2DC-04150200	Yes	Yes
J4	1	MINI-B USB connector	-	-	-	Molex	67503-1020	Yes	Yes
J5	1	ICSP header	-	-	Pitch 2.54mm	USECONN	PH-1x03SG	Yes	Yes
J6	1	Header for external MCU signals	-	-	Pitch 2.54mm	USECONN	PH-1x03SG	Yes	Yes
J7	1	Header for unused on-board MCU pins	-	-	Pitch 2.54mm	USECONN	PH-1x03SG	Yes	Yes
J8	1	Jumper for selecting input PWM source	-	-	Pitch 2.54mm	USECONN	PH-1x03SG	Yes	Yes
J9	1	Jumper for selecting source of pull-up voltage	-	-	Pitch 2.54mm	USECONN	PH-1x03SG	Yes	Yes
F1	1	Fuse	-	-	4.55x3.24mm	BOURNS	MF-MSMF050	Yes	Yes
L1	1	Ferrite bead	-	-	1608 BIG	BOURNS	MH0209-300Y	Yes	Yes
T1-T7	7	N-ch power MOSFETs	-	-	DPAK	ON Semiconductor	NKD5803NT4G	Yes	Yes
T8	1	PNP Transistor	-	-	SOT-23	ON Semiconductor	BC546A T1G	Yes	Yes
D1-6	6	Diode	-	-	SOD-323	ON Semiconductor	MM1L6050T1G	Yes	Yes
D7	1	Diode	-	-	SOD-123	ON Semiconductor	SMMSD914T1G	Yes	Yes
DADAP	1	Schottky diode	-	-	SOD-123LF	ON Semiconductor	MBR230LSFT1G	Yes	Yes
Y1	1	Crystal oscillator	-	-	3.2x2.5mm	MERCURY	-12-30/30/4085	Yes	Yes
Z1	1	Zener diode	18V	-	SOT-23	ON Semiconductor	BZK84B18LT1G	Yes	Yes
Z2	1	Zener diode	39V	-	SOD-323	ON Semiconductor	MM3Z39V-T1G	Yes	Yes
SW1	1	Switch for selecting EN signal level	-	-	10x2.5mm Pitch 2.54mm	WURTH	4.50301E+11	Yes	Yes
SW2-3	2	Push button switches	-	-	6.5x6.0mm	Panasonic	EVQ02F03W	Yes	Yes
RV1-2	2	Varistor	-	-	1.0x0.5mm	BOURNS	CG0603MLC-05LE	Yes	Yes
RV3-4	2	Varistor	-	-	1.0x0.5mm	BOURNS	CG0603MLC-24LE	Yes	Yes
VR1	1	Potentiometer	-	-	10x1.0mm	SUNTAN	TSR-3386K502R	Yes	Yes
DIAG	1	LED	RED	-	1608	STANLEY	FR1111C-TR	Yes	Yes
EN REG5 _VCC _VS	4	LEDs	GREEN	-	1608	STANLEY	YBG1111C-TR	Yes	Yes
C58 EXTPWM INTPWM	3	LEDs	YELLOW	-	1608	STANLEY	FY1111C-TR	Yes	Yes
C1-6	6	Capacitor	1000p, 50V	±5%	1608 BIG	MURATA	GRM1882C1H1021A	Yes	Yes
C7	1	Capacitor	0.01u, 50V	±10%	1608 BIG	MURATA	GRM188B11H103K	Yes	Yes
C14 C16-17	3	Capacitor	0.01u, 50V	±10%	1608 BIG	MURATA	GRM188B11H103K	Yes	Yes
C18-26 C40-41	11	Capacitor	100p, 50V	±10%	1608 BIG	MURATA	GRM188B31H***K	Yes	Yes
C8 C11-13	4	Capacitor	4.7u, 50V	±10%	3225 BIG	MURATA	GRM325ER71H475KA	Yes	Yes
C9-10	2	Capacitor	1u, 50V	±10%	3216 BIG	MURATA	GRM31MB31H105K	Yes	Yes
C7 C14 C16-17	4	Capacitor	0.01u, 50V	±10%	1608 BIG	MURATA	GRM188B11H103K	Yes	Yes
C27 C30-31 C35 C37 C39 C44-45 C47	9	CAPACITOR	0.1u, 50V	±10%	1608 BIG	MURATA	GRM188B31H104K	Yes	Yes
C28	1	Electrolytic capacitor	2200u	±20%	Pitch 7.5mm	RUBYCON	50RX302200M18x40	Yes	Yes
C29	1	Capacitor	10u, 50V	±10%	3225 BIG	MURATA	GRM32ER71H106K	Yes	Yes
C32-33	2	Capacitor	22p, 50V	±5%	1608 BIG	MURATA	GRM1882C1H2201A	Yes	Yes
C34 C36 C46	3	Capacitor	1u, 25V	±10%	1608 BIG	MURATA	GRM188B31E105K	Yes	Yes
C38 C42	2	Capacitor	10u, 25V	±10%	3216 BIG	MURATA	GRM31CR71E106K	Yes	Yes
C43	1	Capacitor	220p, 50V	±5%	1608 BIG	MURATA	GRM1882C1H2211A	Yes	Yes
R1-3 R7-9 R17	7	Resistor	100, 0.1W	±5%	1608 BIG	KOA	RK73B1JTxxJ	Yes	Yes
R4-6 R10-12	6	Resistor	100k, 0.1W	±5%	1608 BIG	KOA	RK73B1JTxxJ	Yes	Yes
R13-15 R20	6	Resistor	100k, 0.1W	±5%	1608 BIG	KOA	RK73B1JTxxJ	Yes	Yes
R54-60 R62-63 R66 R68 R74	16	Resistor	1k, 0.1W	±5%	1608 BIG	KOA	RK73B1JTxxJ	Yes	Yes
R17	1	Resistor	0, 0.1W	±5%	1608 BIG	KOA	RK73B1JTxxJ	Yes	Yes
R18	1	Resistor	6.8k, 0.1W	±5%	1608 BIG	KOA	RK73B1JTxxJ	Yes	Yes
R21-23 R42	4	Resistor	5.1k, 0.1W	±5%	1608 BIG	KOA	RK73B1JTxxJ	Yes	Yes
R24 R26	2	Resistor	22k, 0.1W	±5%	1608 BIG	KOA	RK73B1JTxxJ	Yes	Yes
R25 R69	2	Resistor	51, 0.1W	±5%	1608 BIG	KOA	RK73B1JTxxJ	Yes	Yes
R27	1	Resistor	47k, 0.1W	±5%	1608 BIG	KOA	RK73B1JTxxJ	Yes	Yes
R28 R71-72	3	Resistor	4.7k, 0.1W	±5%	1608 BIG	KOA	RK73B1JTxxJ	Yes	Yes
R29-41 R51	14	Resistor	-	±5%	1608 BIG	KOA	RK73B1JTxxJ	Yes	Yes
R43-45	3	Current sense resistors	10m	-	6.3x3.1mm	SUSUMU	KRL3264-C-R010-J-T1	Yes	Yes
R46 R49 R61 R64 R67 R75-76	7	Resistor	10k, 0.1W	±5%	1608 BIG	KOA	RK73B1JTxxJ	Yes	Yes
R47-48 R52	3	Resistor	22, 0.1W	±5%	1608 BIG	KOA	RK73B1JTxxJ	Yes	Yes
R50	1	Resistor	1, 0.1W	±5%	1608 BIG	KOA	RK73B1JTxxJ	Yes	Yes
R53	1	Resistor	2k, 0.1W	±5%	1608 BIG	KOA	RK73B1JTxxJ	Yes	Yes
R65	1	Resistor	3.9k, 0.1W	±5%	1608 BIG	KOA	RK73B1JTxxJ	Yes	Yes
R70	1	Resistor	18k, 0.1W	±5%	1608 BIG	KOA	RK73B1JTxxJ	Yes	Yes
R73	1	Resistor	1M, 0.1W	±5%	1608 BIG	KOA	RK73B1JTxxJ	Yes	Yes
TH1	1	NTC thermistor	-	-	1608 BIG	MURATA	NCP18XH103F	Yes	Yes
USB cable	1	A-MiniB	-	-	-	XIAMEN UME	USBCable A-miniB	Yes	Yes