

MotorBoard Rev 1.2 Population List

Population List

Motor Board Revision 1.2

Color Key

Capacitor

Resistor

Diode

237 Total Components

[Gerbers](#)

Description	Layer	MPN	Quantity	Designator	Footprint	Comment
BOTTOM						
Fuse	Bottom	SF-1206F100-2	1	F1	1206	Fuse for Logic Voltages
Single Chip Resistor	Bottom	Multiple	1	R50	0603	3.3kΩ
Schottky Diode	Bottom	P6SMB22A	1	D3	DO-214AA	TVS Diode, 18.8V
Schottky Diode	Bottom	PMEG6020ER	1	D2	SOD-123FL	Schottky Diode, 60V, 2A
Single Chip Resistor	Bottom	Multiple	2	R45, R48	0603	1kΩ
Single Chip Resistor	Bottom	Multiple	4	R55_M1, R55_M2, R55_M3, R55_M4	0603	0Ω
Single Chip Resistor	Bottom	Multiple	8	R46, R47, R51, R53_M1, R53_M2, R53_M3, R53_M4, R53_M5	0603	10kΩ
Chip Capacitor	Bottom	Multiple	12	C81_M1, C81_M2, C81_M3, C81_M4, C83_M1, C83_M2, C83_M3, C83_M4, C84_M1, C84_M2, C84_M3, C84_M4	0603	0.1μF
N-Channel MOSFET	Bottom	IRFHF7545PbF	15	Q29_M1, Q29_M2, Q29_M3, Q29_M4, Q29_M5, Q30_M1, Q30_M2, Q30_M3, Q30_M4, Q30_M5, Q31_M1, Q31_M2, Q31_M3, Q31_M4, Q31_M5	PQFN (5x6)	Motor MOSFETs (N-Channel)
Single Chip Resistor	Bottom	CSNL2512FT1L00	12	R56_M1, R56_M2, R56_M3, R56_M4, R57_M1, R57_M2, R57_M3, R57_M4, R58_M1, R58_M2, R58_M3, R58_M4	2512	0.001Ω, 1%, 2W
SPDT Subminiature Toggle Switch	Bottom	34EWMSP12M6RT	1	S1	34WMS12M6RT	Toggle Switch
Test Point	Bottom		24	TP16_M1, TP16_M2, TP16_M3, TP16_M4, TP17_M1, TP17_M2, TP17_M3, TP17_M4, TP18_M1, TP18_M2, TP18_M3, TP18_M4, TP19_M1, TP19_M2, TP19_M3, TP19_M4, TP23_M1, TP23_M2, TP23_M3, TP23_M4, TP24_M1, TP24_M2, TP24_M3, TP24_M4	TEST-POINT-VIA2	Test-point clips for oscilloscope, Optional
TOP						
Bipolar Transistor with Diode	Top	DRDP006W-7	1	Q9	SOT-363	Overcurrent LED driver
Light-emitting Diode	Top	APT2012SRCPRV	1	LED3	0805	Red, Overcurrent LED
Load Switch	Top	VND5E006ASP-E	1	IC6	PowerSO-16	Load Switch for Battery
ADC	Top	MCP3008	2	IC3, IC8	16-SOIC	ADCs for precision current readings
Schottky Diode	Top	PMEG6020ER	2	D1, D4	SOD-123FL	Schottky Diode, 60V, 2A
Vreg Switching	Top	LMZ14201H	1	IC5	PFM-7 (TO-PMOD)	5V Voltage Regulator
Chip Capacitor	Top	Multiple	6	C32, C47_M1, C47_M2, C47_M3, C47_M4, C47_M5	0603	0.022μF, 50V
Chip Capacitor	Top	Multiple	1	C34	1206	100μF, 6.3V
Chip Capacitor	Top	Multiple	1	C33	0603	2.2μF
Chip Capacitor	Top	GMK316AB7106KL-TR	1	C29	1206	10μF
Single Chip Resistor	Top	RC0603FR-076K49L	1	R14	0603	6.49kΩ, 1%
Single Chip Resistor	Top	RC0603FR-0734KL	1	R15	0603	34.0kΩ, 1%
Single Chip Resistor	Top	Multiple	1	R17	0603	1kΩ
Single Chip Resistor	Top	Multiple	1	R16	0603	100kΩ

58 components

142 components

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Single Chip Resistor	Top	Multiple	1	R12	0603	330Ω, Status LED's Resistor
Single Chip Resistor	Top	Multiple	4	R18, R19, R20, R21	0603	10kΩ
Opamp	Top	OPA365	5	U3, U5_M1, U5_M2, U5_M3, U5_M4	SOT-23-5	Opamps for precision current readings
4-Array Resistor	Top	CAY16-4991F4LF	8	R31_M1, R31_M2, R31_M3, R31_M4, R32_M1, R32_M2, R32_M3, R32_M4	0603-4CC	4.99Ω, 1%
Single Chip Resistor	Top	MCR01MRTF4992	4	R34_M1, R34_M2, R34_M3, R34_M4	0402	49.9kΩ, 1%
Chip Capacitor	Top	Multiple	10	C48_M1, C48_M2, C48_M3, C48_M4, C48_M5, C50_M1, C50_M2, C50_M3, C50_M4, C50_M5	0603	1μF
Chip Capacitor	Top	Multiple	19	C30, C31, C55_M1, C55_M2, C55_M3, C55_M4, C55_M5, C58_M1, C58_M2, C58_M3, C58_M4, C58_M5, C60_M1, C60_M2, C60_M3, C60_M4, C81_M5, C83_M5, C84_M5	0603	0.1μF, 50V
Single Chip Resistor	Top	Multiple	12	R7, R22, R23, R26_M1, R26_M2, R26_M3, R26_M4, R27_M1, R27_M2, R27_M3, R27_M4, R27_M5	0603	0Ω
N-Channel MOSFET	Top	IRFH7545PbF	15	Q14_M1, Q14_M2, Q14_M3, Q14_M4, Q14_M5, Q15_M1, Q15_M2, Q15_M3, Q15_M4, Q15_M5, Q16_M1, Q16_M2, Q16_M3, Q16_M4, Q16_M5	PQFN (5x6)	Motor MOSFETs (N-Channel)
Header 2X20	Top	DF12(5.0)-40DP-0.5V(86)	1	J1	DF12(5.0)-40DP-0.5V(86)	Control Board Connector (SCRAPE OFF 1/2 PASTE)
Header 2X25	Top	DF12(5.0)-50DP-0.5V(86)	1	J2	DF12(5.0)-50DP-0.5V(86)	Control Board Connector (SCRAPE OFF 1/2 PASTE)
Voltage Reg. with Enable	Top	TLV70233	1	IC4	SOT-23-5	3.3V Voltage Regulator
IC, 3 Phase Pre-Driver	Top	DRV8303	5	IC9_M1, IC9_M2, IC9_M3, IC9_M4, IC9_M5	48-TSSOP	DRV8303, Gate Driver IC (SCRAPE OFF 1/2 PASTE)
Light-emitting Diode	Top	APA3010SGC-GX	1	LED1	2-SMD	Green, Status LED (PLACE AS ONE OF THE LAST)
Chip Capacitor	Top	Multiple	12	C61_M1, C61_M2, C61_M3, C61_M4, C62_M1, C62_M2, C62_M3, C62_M4, C63_M1, C63_M2, C63_M3, C63_M4	0603	1000pF, 50V (PLACE AS ONE OF THE LAST)
Chip Capacitor	Top	C3225X7R1H225K250AB	22	C49_M1, C49_M2, C49_M3, C49_M4, C49_M5, C54_M1, C54_M2, C54_M3, C54_M4, C54_M5, C67_M1, C67_M2, C67_M3, C67_M4, C68_M1, C68_M2, C68_M3, C68_M4, C69_M1, C69_M2, C69_M3, C69_M4	1210	2.2μF, 50V (PLACE AS ONE OF THE LAST)
THROUGH-HOLE						
Mounted Standoff	Top	93500A220	1	H1	SMD Standoff	Permanent Standoff, Through Hole
Header 2X2	Bottom	39-30-1040	4	J9_M1, J9_M2, J9_M3, J9_M4	Molex 39-30-1040	Motor Connectors, Through Hole
Header 1X8	Bottom	35363-0860	1	J7	Molex 35363-0860	Dribbler Connector, Through Hole
Header 1X2	Bottom	DF22-2P-7.92DS(35)	1	J6	DF22-2P	Battery Connector, Through Hole
Header 1X2	Bottom	B2PS-VH(LF)(SN)	1	J5	B2PS-VH	Kicker Connector, Through Hole
Capacitor Polarized	Bottom	EKZM350ELL391MH20D	2	C73, C86	CAP KZM 8mm	390μF, Through Hole, Optional
Related Parts						
Battery Connector Terminals		DF22-1416SCF	2			
Battery Connector Housing		DF22-2S-7.92C(28)	1			

10 components