+12

R1 10.0K 1%   R2 10.0K 1%

D1

R3 562R 1%

VCC   VCC   VCC

R5 100K 1%   R6 100K 1%   R7 100K 1%

VCC

C1 100nF 50V

MOD0

TX 0	TXD	VIN	29
RX 1	RXD	GND	28
2	RESET	RESET	27
3	GND	5V	26
LOW_A 4	D2	A4	22	VCC_SENSOR
LOW_B 5	D3	A5	23	SHUNT
SHUNT_SEL4 6	D4	A6	24	CTRL_TEMP
SHUNT_SEL5 7	D5	A7	25	MOTOR_TEMP
RC_PWM/HBRIDGE 8	D6	A3	21	RUDDER_POS
FWDF 9	D7	A2	20
REVF 10	D8	A1	19
PWM 11	D9	A0	18	DIS R11 0R 0 DISABLE
EN 12	D10	REF	17
FAULT_IN 13	D11	3.3V	16
V20 14	D12	D13	15	ENGAGED R14 0R 0 SLEEP

arduinoNano

VCC

R4 1.00K 1%

VCC   VCC

R8 1.00K 1%   R9 1.00K 1%

FWD_FAULT   D2
REV_FAULT   D3

R10 0R 0

C5 10nF 50V   C6 10nF 50V

GND   GND

R13 562R 1%

GND

C2 10nF 50V   C3 10nF 50V   C4 10nF 50V

R12 10.0K 1%   NTC 0805 10K Termistor

GND   GND   GND

MOTOR_TEMP   1
2
RUDDER_POS   3
4
FWD_FAULT   5
6
REV_FAULT   7
8
J1

GND

Do not populate

+12   GND

1
2
J2

OUT1   1
OUT2   2
J3

D4   D5

R24 10.0K 1%

LOW_A   R15 0R 0   IN2
LOW_B   R16 0R 0   IN1
PWM   R17 Do not populate 0R 0
EN   R18 Do not populate 0R 0

+12

C7 100nF 50V   C8 100nF 50V   C9 10uF 25V   C10 10uF 25V   C11 10uF 25V   C12 +

GND   GND   GND   GND   GND   GND

C13 1uF 50V

U1

21	VCP	VM	13
22	CPH	VM	20
		DVDD	1
23	CPL	OUT1	18	OUT1
IN1 7	IN1	OUT1	19
IN2 8	IN2	OUT2	14	OUT2
		OUT2	15
SLEEP 11	SLEEP		
DISABLE 9	DISABLE	SRC	16
6	OL	SRC	17
4	SR		
3	MODE	IPROPI1	10
5	ITRIP	IPROPI2	12	SHUNT
		GND	24
2	FAULT	PAD	PAD

DRV8873H

C14 47nF 50V

C15 1uF 16V

GND

GND

GND   GND   GND

R26 54.9R 1%

0.05 Ohm - 10A -> 0.5V
DRV8873 current sensor 1/1100
10A->9mA
0.5V/ 9mA ->55.5555 Ohm

VCC   R19 0R 0   PWM
VCC   R22 0R 0 Do not populate
VCC   R21 0R 0
VCC   R20 0R 0

R23 0R 0
PH/EN

VCC   D6
Do not populate

R25 5.11K 1%

FAULT_IN   R27 0R 0

GND

R28 0R 0   R29 0R 0

GND   GND

Designator	Comment	Description	Footprint	LibRef	Quantity	ASSY
C1, C7, C8	100nF 50V	Capacitor ceramic multilayer SMD 100nF 20% X7R 50V 0603	C_0603C	CAP_CER_GP_100nF_20%_50V_X7R_0603	3	
C2, C3, C4, C5, C6	10nF 50V	Capacitor ceramic multilayer SMD 10nF 20% X5R 50V 0603	C_0603C	CAP_CER_GP_10nF_20%_50V_X5R_0603	5	
C9, C10, C11	10uF 25V	Capacitor ceramic multilayer SMD 10uF 20% X5R 25V 0603	C_0603C	CAP_CER_GP_10uF_20%_25V_X5R_0603	3	
C12	100uF 25V	Capacitor Aluminum Electrolytic SMD FP 100uF 20% 25V Size:E . d 8x 6.2	PANACAP-E-GENERIC	CAP_POL_FP_100uF_20%_25V_E	1	
C13	1uF 50V	Capacitor ceramic multilayer SMD 1uF 20% X6S 50V 0603	C_0603C	CAP_CER_GP_1uF_20%_50V_X6S_0603	1	
C14	47nF 50V	Capacitor ceramic multilayer SMD 47nF 20% X5R 50V 0603	C_0603C	CAP_CER_GP_47nF_20%_50V_X5R_0603	1	
C15	1uF 16V	Capacitor ceramic multilayer SMD 1uF 20% JB 16V 0603	C_0603C	CAP_CER_GP_1uF_20%_16V_JB_0603	1	
D1, D6	Yellow LED	LED ULTRA-BRIGHT YELLOW SMT 0603	C_0603D	LTST-C190KSKT	2	
D2, D3	1N4150W	Si-Diode 1N4150W	SOD-123-12	1N4150W	2	
D4	Red LED	LED ULTRA-BRIGHT RED SMT 0603	C_0603D	LTST-C190CKT	1	
D5	Green LED	LED ULTRA-BRIGHT GREEN SMT 0603	C_0603D	LTST-C190GKT	1	
J1	MOLEX 22-23-2081	HEADER VERTICAL 0.100 SQ KEYED FRICT.LOCK 8P MOLEX 22-23-2081	MOLEX_22-23-2081	HEADER VERTICAL 0.100 SQ KEYED FRICT.LOCK 8P MOLEX 22-23-2081	1	
J2, J3	MOLEX 26-60-4020	HEADER VERTICAL 0.156 SQ KEYED FRICT. LOCK 2P MOLEX 26-60-4020	MOLEX_26-60-4020	HEADER VERTICAL 0.156 SQ KEYED FRICT. LOCK 2P MOLEX 26-60-4020	2	
MOD0	arduinoNano		Arduino nano	arduinoNano	1	
R1, R2, R24	10.0K 1%	Thick film Resistor 10.0K 1% 0603	C_0603R	RES_10.0K_0603_1%	3	
R3, R13	562R 1%	Thick film Resistor 562R 1% 0603	C_0603R	RES_562R_0603_1%	2	
R4, R8, R9	1.00K 1%	Thick film Resistor 1.00K 1% 0603	C_0603R	RES_1.00K_0603_1%	3	
R5, R6, R7	100K 1%	Thick film Resistor 100K 1% 0603	C_0603R	RES_100K_0603_1%	3	
R10, R11, R15, R16, R19, R20, R21, R27, R28, R29	0R 0	Thick film Resistor 0R 0 0603	C_0603R	RES_0R_0603_1%	10	
R12	10.0K 1%	Thick film Resistor 10.0K 1% 0805	C_0805R	RES_10.0K_0805_1%	1	
R14, R17, R18, R22, R23	0R 0	Thick film Resistor 0R 0 0603	C_0603R	RES_0R_0603_1%	5	Do not populate
R25	5.11K 1%	Thick film Resistor 5.11K 1% 0603	C_0603R	RES_5.11K_0603_1%	1	
R26	54.9R 1%	Thick film Resistor 54.9R 1% 0603	C_0603R	RES_54.9R_0603_1%	1	
U1	DRV8873H		HTSSOP24	DRV8873H	1	

43.00

43.00

PVA 1002.00

R14
R13
R27
R18
R4
R17
R11
R8
C5
C6
R9
R10

D5 D4
R24
OUTPUT

C2
R5

R1 R3
C11
D1 R2
J2
+12
GND

C14 C13
C7 C9
C8 C10
C12 C4 R7
C3 R6
R12

R16
Rud

R15
Temp

J1
D3
REW
D2
FWD

U1

C15
D6
R19
R25
R23
C1
R29
R22
R21
R28
R20
R26

PVA 1002.00

R14

R13

R27

R18

R4

R17

R11

R8

C5

C6

R9

R5

R10

D5 D4

R24

OUTPUT

R1 R3

C11

D1 R2

C12 C4 R7

C3 R6

J2

+12

GND

ALU
E

C14
C13

C2

C7 C9

C8 C10

R12

01234
56789

U1

C15

R19

D6

R25

R23

R29

R22

R21

C1

R28

R20

R26

R15

Te

J1

PVA 1002.00

OUTPUT

D5 D4

R24

R14

R13

R27

R18

R4

R17

R8

C5

C6

R11

R9

R10

J1

D3

REW

D2

FWD

R1 R3

C11

D1 R2

J2

+12

GND

C12 C4 R7

C3 R6

C14 C13

C7 C9

C2

R5

C8 C10

R16

Rud

R12

R15

Temp

U1

C15

D6

R19

R25

R23

R29 R22 R21

R28 R20 R26

C1