

LDMOS- controller board manual v0.01



Sisällys

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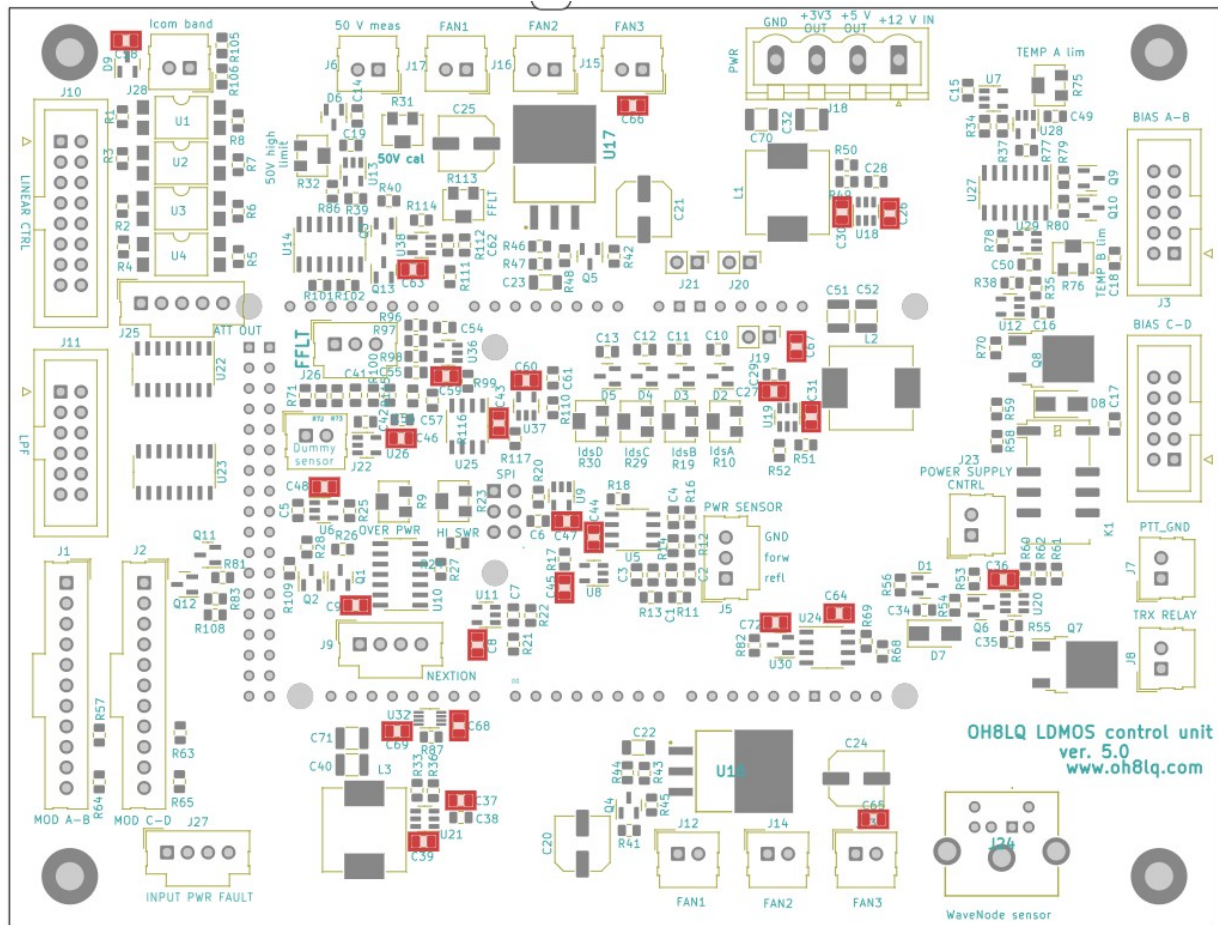
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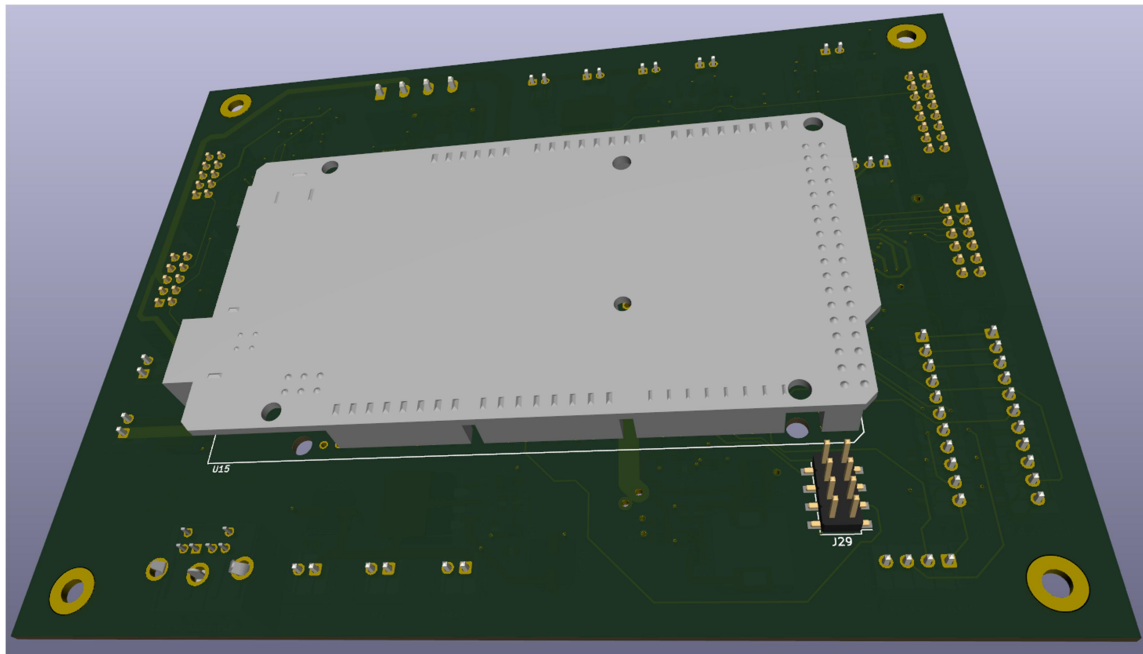
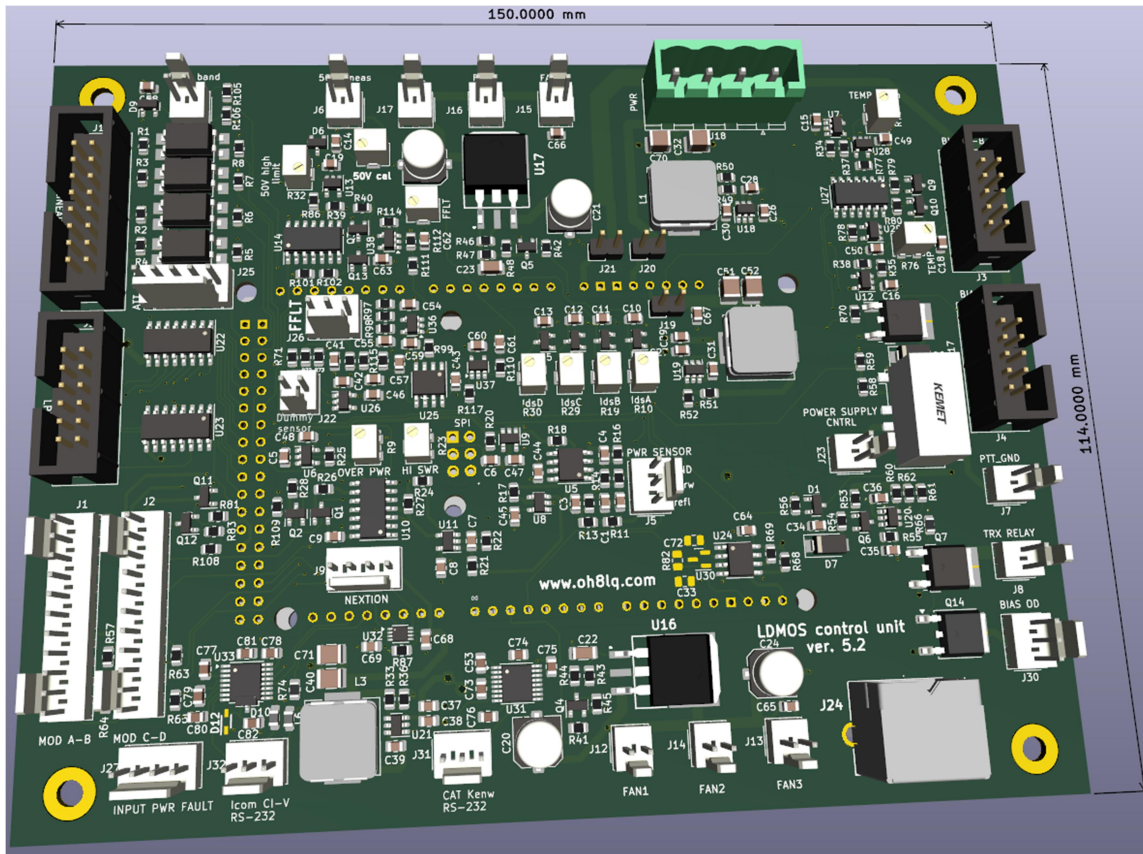
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PWB Layout



Load iBOM



Connector pin description

Pin	Description	Remarks
1	50 V on active LOW	Output open collector
2	Shutdown active LOW	Output open collector
3	Fault reset active LOW	Output max. 3.3 V
4	GND	
5	GND	
6	Current meas module A 0-10 V	Output analog
7	Over current module A active LOW	input max. 3.3 V
8	Shutdown active LOW	Output open collector
9	Current meas module B 0-10 V	Output analog
10	Over current module B active LOW	input max. 3.3 V
11	Shutdown active LOW	Output open collector

J1 Connector Vds control module A-B

Pin	Description	
1	50 V on active LOW	Output open collector
2	Shutdown active LOW	Output open collector
3	Fault reset active LOW	Output max. 3.3 V
4	GND	
5	GND	
6	Current meas module C 0-10 V	Output analog
7	Over current module C active LOW	input max. 3.3 V
8	Shutdown active LOW	Output open collector
9	Current meas module D 0-10 V	Output analog
10	Over current module D active LOW	input max. 3.3 V
11	Shutdown active LOW	Output open collector

J2 Connector Vds control module C-D

1	GND	
2	BIAS ON module A Switch bias voltage on. PTT delay 20 ms	Output Active LOW
3	+12 V	Output
4	LM35_A analog in	Input
5	+5 V LM35 Vcc	Output
6	GND	
7	+12 V	Output
8	BIAS ON module B. Switch bias voltage on. PTT delay 20 ms	Output
9	GND	
10	NC	

J3 Connector bias module A

1	GND	
2	BIAS ON module C. Switch bias voltage on. PTT delay 20 ms	Output Active LOW
3	+12 V	Output
4	LM35_B analog in	Analog Input
5	+5 V LM35 Vcc	Output
6	GND	
7	+12 V	Output
8	BIAS ON module D. Switch bias voltage on. PTT delay 20 ms	Output
9	GND	
10	NC	

J4 Connector bias module B

1	Reflected 0-13 V (400 W → 2,826)	Input
2	Forward 0-13 V (3200 W → 7,994V)	Input
3	GND	

J5 Connector Power sensor

1	Vds scaled	Input
2	GND	

J6 Vds scaled 0-3.3 V

1	+12 V	
2	Relay (open collector)	Output

J8 Connector J8 RTX-relay control

1	PTT active LOW	Input
2	GND	

J7 Connector PTT

1	GND	
2	Serial RX TTL 5V	Input
3	Serial TX TTL 5V	Output
4	+5 V 1.5 A	

J9 Connector Nextion display

1	NC	
2	GND	
3	PTT	Input
4	TX INH	Input
5	GND	
6	NC	
7	BAND A	Input
8	NC	
9	BAND B	Input
10	NC	
11	BAND C	Input
12	NC	
13	BAND D	Input
14	GND 1	
15	TX INH	Input
16	NC	

J10 Yaesu Linear port

1	+12 V	
2	160 m (open collector)	Output
3	80 m (open collector)	Output
4	60 m (open collector)	Output
5	40 m (open collector)	Output
6	30 m (open collector)	Output
7	20 m (open collector)	Output
8	17 m (open collector)	Output
9	15 m (open collector)	Output
10	12 m (open collector)	Output
11	10 m (open collector)	Output
12	NC	

J11 LPF control

1	FAN+ 5-12 V temperature controlled A	Output
2	GND	

J12 FAN power

1	FAN+ 5-12 V temperature controlled A	Output
2	GND	

J13 FAN power

1	FAN+ 5-12 V temperature controlled A	Output
2	GND	

J14 FAN power

1	FAN+ 5-12 V temperature controlled B	Output
2	GND	

J15 FAN power

1	FAN+ 5-12 V temperature controlled B	Output
2	GND	

J16 FAN power

1	FAN+ 5-12 V temperature controlled B	Output
2	GND	

J17 FAN power

1	+12 V 2 A	Input
2	+5 V 500 mA	Output
3	+3.3 V 500 mA	Output
4	GND	

J18 Power connector

1	Power signal 0-3.3 V	Input
2	GND	

J22 Harmonic load power sensor

1	Closing relay max 1 A	Output
2	COM	Output

J23 Vds Power supply control

1	REFL	Input
2	REFL	Input
3	FORW	Input
4	FORW	Input
5	GND	
6	GND	

J24 WaveNode sensor MiniDIN

1	+12 V	
2	Input ATT control 1 (open collector)	Output
3	Input ATT control 2 (open collector)	Output
4	Input ATT control 3 (open collector)	Output
5	GND	

J25 Input attenuator control

1	Forwarding power 0-10 V	Input
2	Reflected power 0-10 V	Input
3	GND	

J26 LPF-fault sensor

1	Shutdown active LOW	input
2	Input over power detected active LOW	input
3	Fault reset active LOW	output
4	GND	

J27 Input over power protection

1	BAND signal 0-10 V	Input (ICOM band voltages)
2	GND	

J28 ICOM band selector

1	RXD	Input
2	GND	
3	ESP_PD (power down)	Output
4	NC	
5	NC	
6	NC	
7	+3V3	Output
8	TXD	Output

J29 ESP32 Wifi module

1	+12 VDC	Output
2	Reflected power 0-10 V	Open-drain output
3	GND	

J30 BIAS-ON open drain

1	TXD	Output
2	RXD	Output
3	GND	

J31 CAT-serial data

1	NC	
2	Data	In/Out
3	GND	

J32 Icom CI-V

J19	+3V3 to Arduino	No Connect
J20	+5 V to arduino	No connect
J21	+ 12 V Vcc to Arduino	Closed (feed 12 V to Arduino)

Jumpers (set arduino voltages)

Calibration

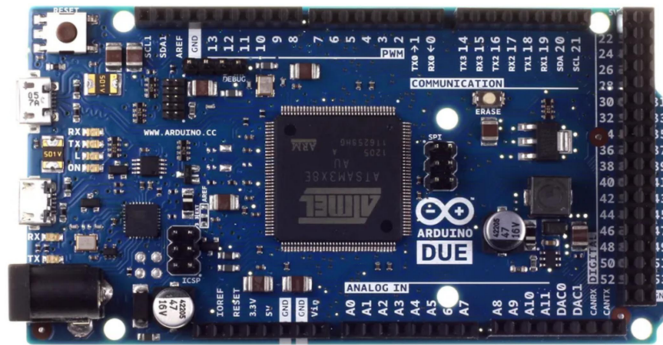
Trimmer	Adjustment	Cause
R9	Over Power	Set point to shutdown amplifier
R10	Ids A Calibration	Display bar level setting
R19	Ids B Calibration	Display bar level setting
R23	Hi SWR Calibration	Set point to shutdown amplifier
R29	Ids C Calibration	Display bar level setting
R30	Ids D Calibration	Display bar level setting
R31	Vds measurement calibration	Display bar level setting
R32	Vds Upper limit calibration	Set point to shutdown amplifier
R75	Max temperature A-sensor	Set point to shutdown amplifier
R76	Max temperature B-sensor	Set point to shutdown amplifier
R113	LPF Fault SWR detection	Set point to shutdown amplifier

Calibration

Calibration values depend on the peripheral cards and sensors used. Examples of values to be set can be found in the wiring diagram.

Arduino DUE

<https://docs.arduino.cc/resources/datasheets/A000062-datasheet.pdf>



Arduino GIGA R1 WiFi

https://store.arduino.cc/products/giga-r1-wifi?srltid=AfmBOogek1RW9rwOVeDvXd_1Figi-76p5TYFQcECqHahX29IB0ZwarUY

