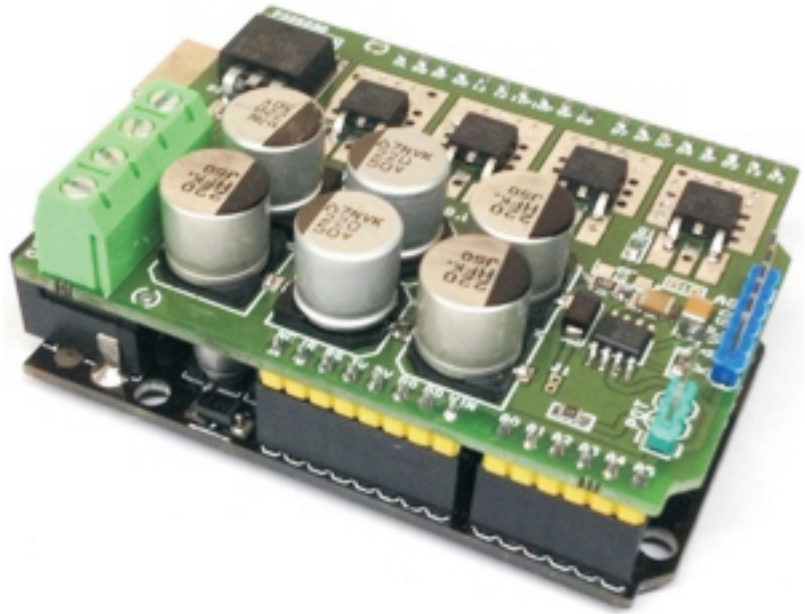
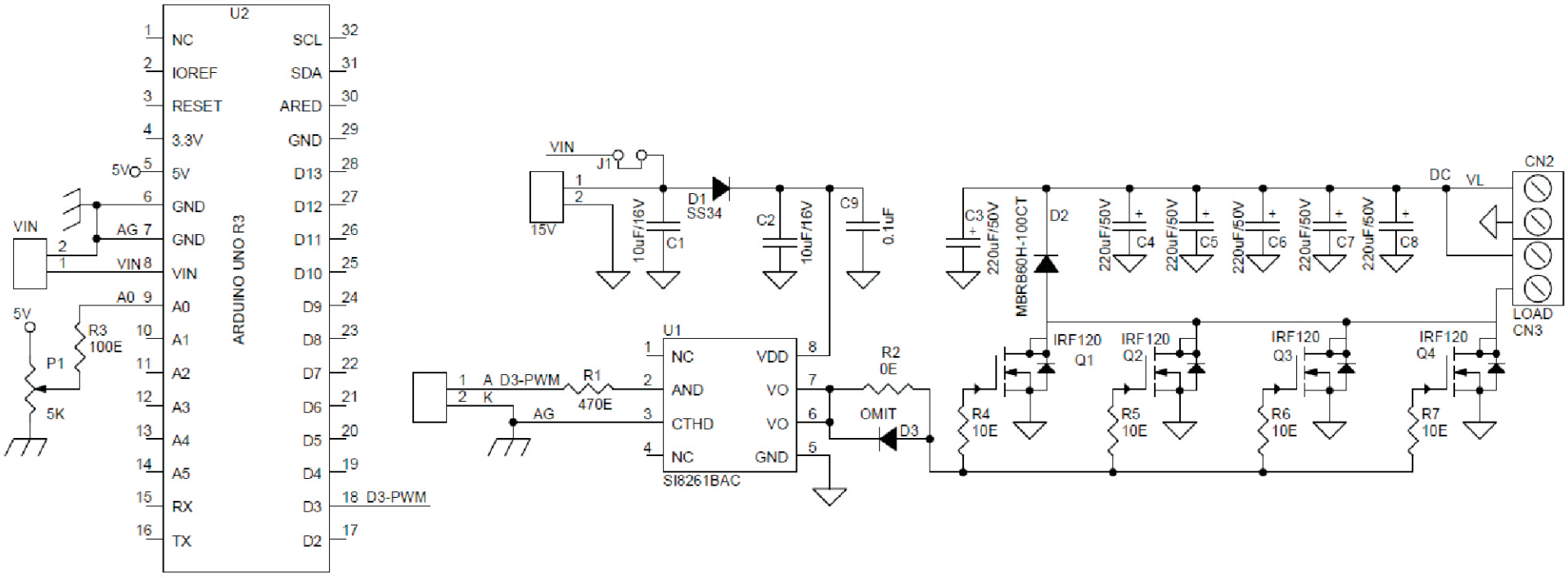
Isolated High Power DC Solid-State Relay Shield for Arduino

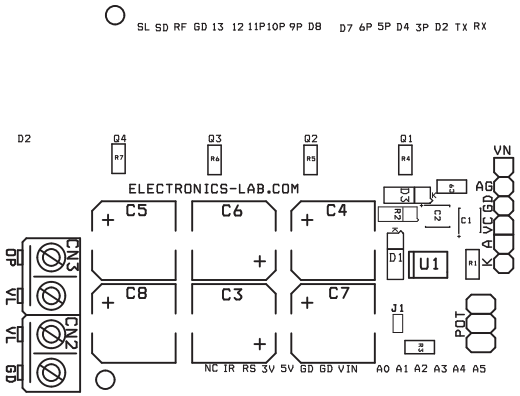
Isolated high power Mosfet DC solid state relay shield allows you to control high current DC load in switching or PWM control mode. The project can be used in wide verity of applications like DC-DC Converters, inverters, DC motor control, solenoid, LED Dimmer, battery chargers, it can controls inductive and resistive loads. On board high current fast recovery diode across the load provided for back EMF protection. The board can control load up to 25A with input supply up to 48V DC. High voltage dc input supply up to 90V possible by altering DC bus capacitor voltage. Input PWM frequency Up to 100 KHz duty cycle 0-100%. Mosfet power driver is isolated from Gate driver input. Gate driver circuitry required 15V DC. Load supply 15V to 48V DC. Jumper J1 helps to use common supply for Arduino and gate driver. Screw terminal CN3 helps to connect load supply and load. Anode of gate driver connected to D3-PWM pin of Arduino to feed PWM signal or ON/OFF. P1 Potentiometer connected to Analog pin A0 of Arduino to adjust the PWM. Higher current Mosfet can be used to archive more current. Gate input required TTL level signal.

Feature

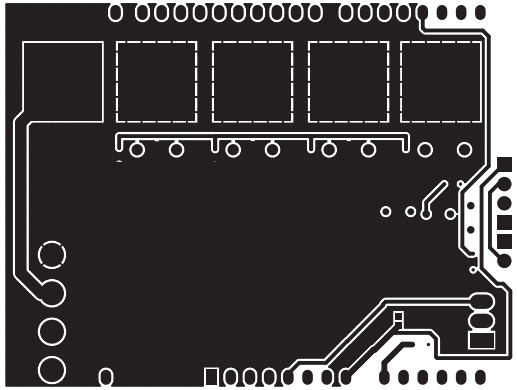
- Gate Driver Supply 15V
- Load Supply 15V-48V
- Load Current 25Amps
- PWM Control: Arduino D3-PWM Pin
- Potentiometer: Arduino Analog Pin A0
- Jumper J1 : Close If common supply Arduino + Gate Driver
- CN1: Supply 15V Gate Driver
- CN3: Load
- CN2: Load Supply Input
- CN4: PWM Input
- CN5: Arduino Supply Input



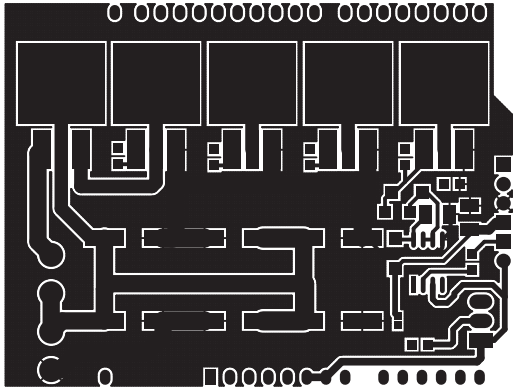

U2
ARDUINO UNO R3
NC
IOREF
RESET
3.3V
5V
GND
GND
VIN
A0
A1
A2
A3
A4
A5
RX
TX
SCL
SDA
ARED
GND
D13
D12
D11
D10
D9
D8
D7
D6
D5
D4
D3
D2
18 D3-PWM
5V
VIN
AG
VIN
A0
R3
100E
P1
5K
J1
15V
D1
SS34
C1
10uF/16V
C2
10uF/16V
C9
0.1uF
U1
NC
AND
CTHD
NC
VDD
VO
VO
GND
SI8261BAC
1 A D3-PWM
2 K
AG
R1
470E
R2
0E
OMIT
D3
C3
220uF/50V
MBRB60H-100CT
D2
C4
C5
C6
C7
C8
220uF/50V
IRF120
Q1
IRF120
Q2
IRF120
Q3
IRF120
Q4
R4
10E
R5
10E
R6
10E
R7
10E
DC
VL
CN2
LOAD
CN3



SILKSCREEN TOP



BOTTOM LAYER



TOP LAYER

PCB DIMENSIONS 67.92 MM X 51.81 MM

BOM			
SR.	**QNTY.**	**REF.**	**DESC.**
1	1	CN1	2 PIN HEADER CONNECTOR
2	1	CN2	2 PIN SCREW TERMINAL
3	1	CN3	2 PIN SCREW TERMINAL
4	1	CN4	2 PIN HEADER CONNECTOR
5	1	CN5	2 PIN HEADER CONNECTOR
6	2	C1,C2	10uF/16V OR 25V
7	6	C3,C4,C5,C6,C7,C8	220uF/50V
8	1	C9	0.1uF SMD 0805
9	1	D1	SS34 SMD
10	1	D2	MBRB60H-100CT
11	1	D3	OMIT
12	1	J1	JUMPER
13	1	P1	5K
14	4	Q1,Q2,Q3,Q4	IRF120 DPAK
15	1	R1	470E SMD 0805
16	1	R2	0E SMD 0805
17	1	R3	100E SMD 0805
18	4	R4,R5,R6,R7	10E SMD 0805
19	1	U1	SI8261BAC SO8
20	1	U2	ARDUINO UNO SHIELD