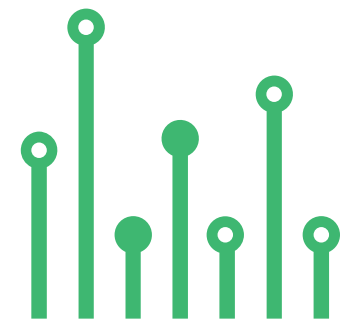


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Ignition Coil Driver



SKU: EL155011

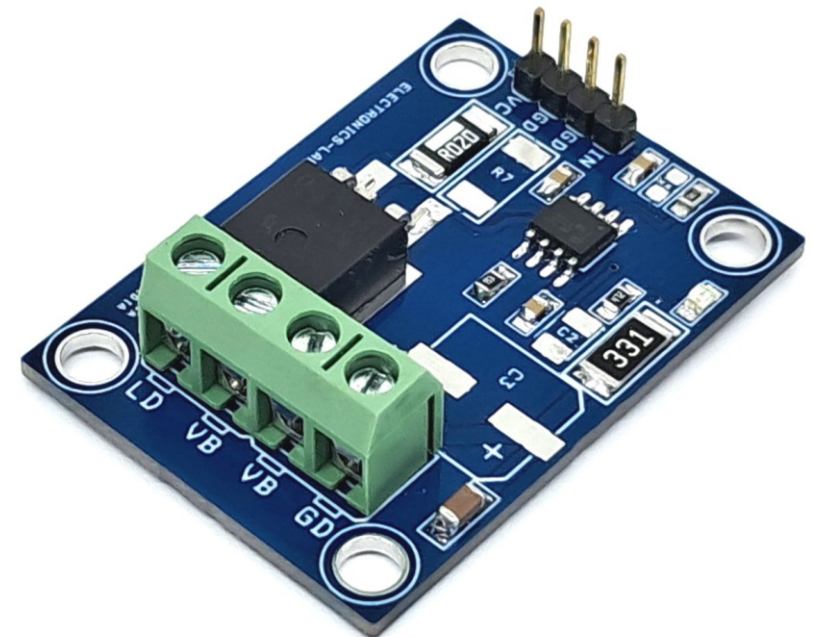
Ignition Coil Driver



The project presented here is an Ignition coil driver featuring FAN1100-F085 ignition gate driver chip and IGBT. Chip is designed to directly drive an ignition IGBT and control the current and spark event of the coil. The coil current is controlled via the input signal pin. When the input is driven high, the output of the chip is enabled to turn on the IGBT and start charging the coil. Output sink current is programmable using resistor R5 (RA). An input spike filter suppresses input signals of less than 13uS in duration. A Max Dwell timer is included in the chip which will turn off the IGBT if input stays active for longer than the programmable time. This time interval can be modified through an external capacitor on the CSSD pin. When the Max Dwell timer is exceeded, the CHIP will enter a Soft-Shut-Down mode (SSD) slowly dropping the collector current by lowering the gate drive to the IGBT thereby discharging the coil such as to inhibit a spark event. Once the soft shutdown operation has started, any transition on the input signal is ignored until after the completion of the soft shutdown function. Chip also limits the collector current of the IGBT during charging. This is done through the sense resistor R6 in the emitter leg of the ignition IGBT developing a signal input to the V-Sense pin of the chip.

FEATURES

- Power Supply 12V to 14V DC
- Input Frequency 5Hz-60Hz (Max 200hz)
- Input Signal 5V Type (Max 6V)
- Signal Line Input Buffer
- Input Spike Filter
- Operation from Ignition or Battery Line
- Ground Shift Tolerance ± 1.5 V
- Programmable Maximum Dwell Time
- Programmable Input Pull Down Current
- Control IGBT Current Limiting through VSENSE Pin



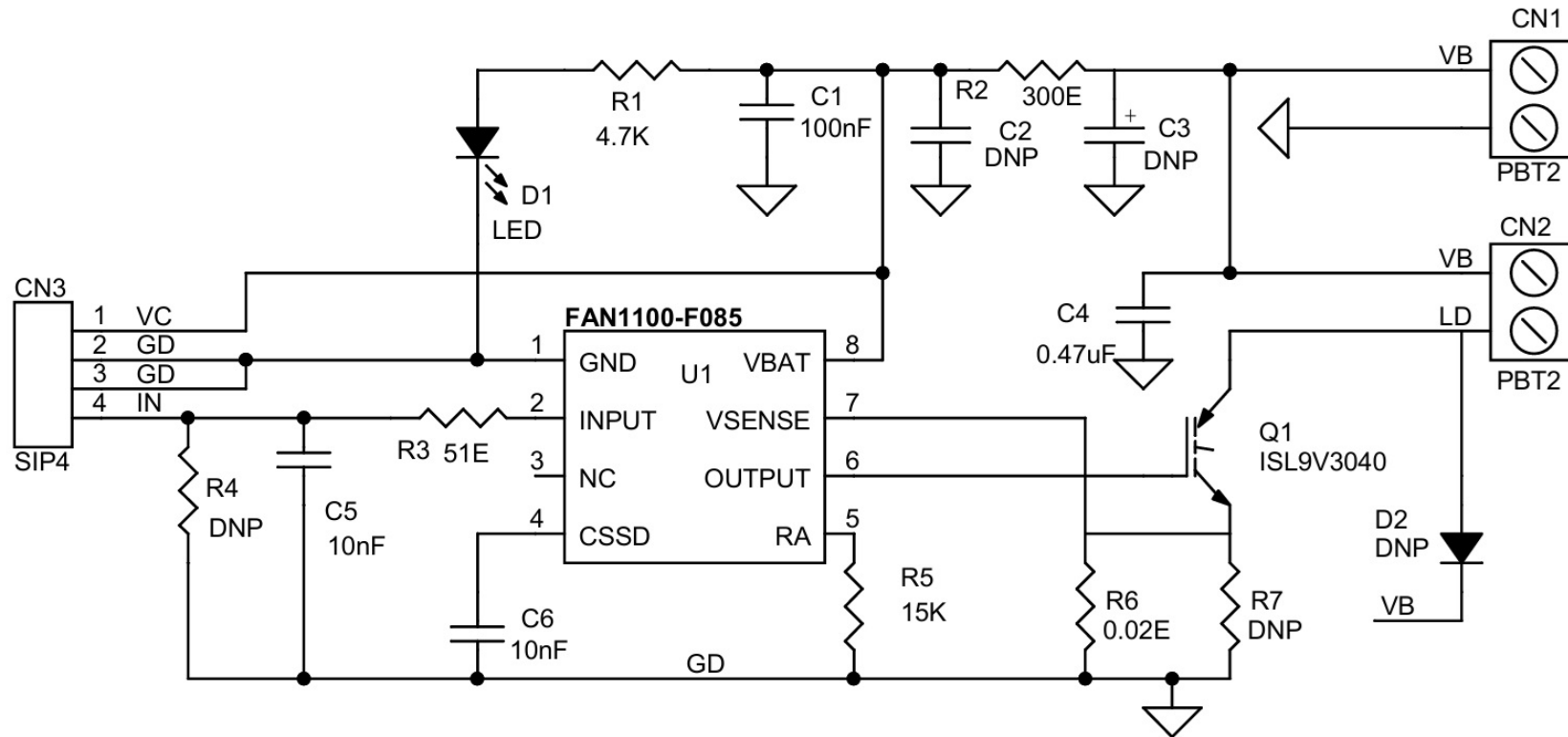
- Soft Shutdown following Max Dwell Time Out
- On Board Power LED
- Screw Terminals for Power Input and Ignition Coil
- Header Connector for Signal Input
- 4X4MM PCB Mounting Holes
- PCB Dimensions 45.09X32.39MM

Recommended Ignition IGBT (Ideal for Coil-on-Plug and Driver-on-Coil Applications)

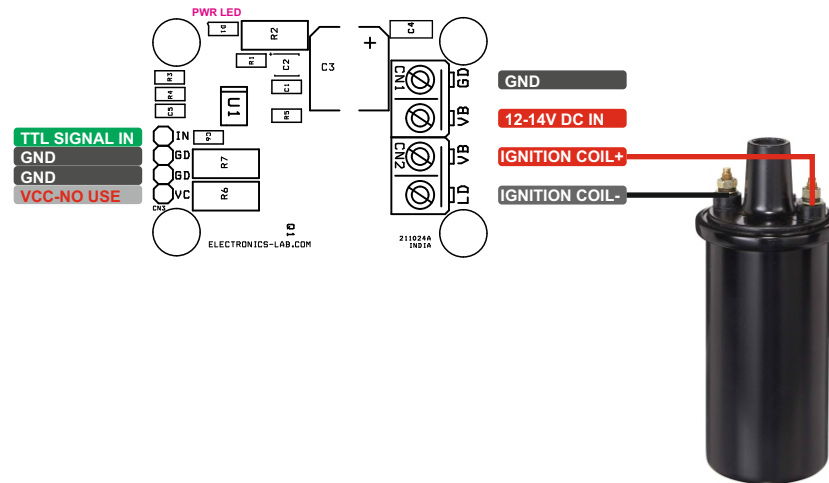
- ISL9V5045S_F085 450V-500mJ
- ISL9V2040S3S 400V-200mJ
- ISL9V3040S3S 400V-300mJ
- NGB8204N 400V-18Amps
- NGB8206N 350V-20Amps

These Logic Level Insulated Gate Bipolar Transistor (IGBT) features monolithic circuitry integrating ESD and Overvoltage clamped protection for use in inductive coil drivers' applications. Primary uses include Ignition, Direct Fuel Injection, or wherever high voltage and high current switching is required. Ignition IGBTs are optimized to control the load current through the ignition coil and feature an integrated clamp structure that limits the maximum voltage on the primary side.

Schematic



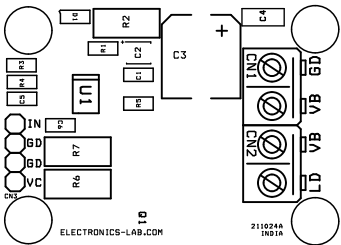
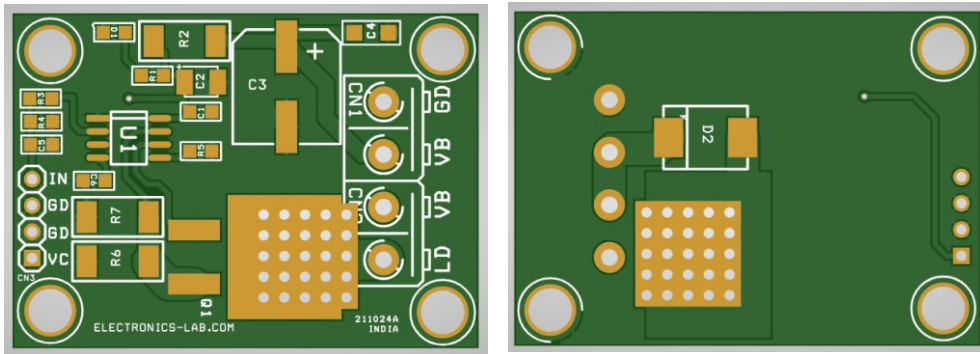
Connections



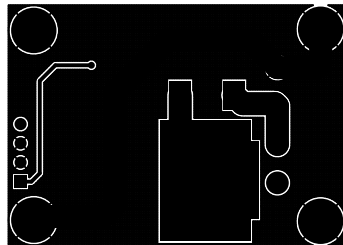
Connections:

- CN1 Power Input: Pin 1 = Pin 1 +12V to 14V DC, Pin 2 = GND
- CN2 Ignition Coil: Pin 1 = + Coil, Pin 2 = -Coil
- CN3 Signal Input: Pin 1 = VCC No Use, Pin 2 = GND, Pin 3 = GND, Pin 4 = Signal Input (TTL)
- D1: Power LED

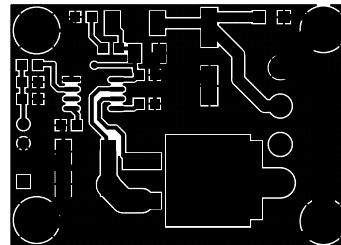
PCB



SILK SCREEN TOP



BOTTOM LAYER



TOP LAYER

PCB DIMENSIONS 45.09X32.39MM

Parts List

| BOM | | | | | | |
|-----|-------|----------|-----------------------------------|--------------|----------|---------------------------|
| NO. | QNTY. | REF. | DESC. | MANUFACTURER | SUPPLIER | SUPPLIER PART NO |
| 1 | 2 | CN1,CN2 | 2 PIN SCREW TERMINAL PITCH 5.08MM | PHOENIX | DIGIKEY | 277-1247-ND |
| 2 | 1 | CN3 | 4 PIN MALE HEADER PITCH 2.54MM | WURTH | DIGIKEY | 732-5317-ND |
| 3 | 1 | C1 | 100nF/50V CERAMIC SMD SIZE 0805 | YAGEO/MURATA | DIGIKEY | |
| 4 | 3 | C2,C3,R7 | DNP | | | |
| 5 | 1 | C4 | 0.47uF/50V CERAMIC SMD SIZE 0805 | YAGEO/MURATA | DIGIKEY | |
| 6 | 2 | C5,C6 | 10nF/50V CERAMIC SMD SIZE 0805 | YAGEO/MURATA | DIGIKEY | |
| 7 | 1 | D1 | LED RED SMD SIZE 0805 | OSRAM | DIGIKEY | 475-1278-1-ND |
| 8 | 1 | Q1 | ISL9V3040 D2PAK-TO263-3 430V/21A | ONSEMI | DIGIKEY | ISL9V3040S3STCT-ND |
| 9 | 1 | R1 | 4.7K 5% SMD SIZE 0805 | YAGEO/MURATA | DIGIKEY | |
| 10 | 1 | R2 | 300E/1W 5% SMD SIZE 2512 | BOURNS INC | DIGIKEY | 118-CR2512-JW-301ELFCT-ND |
| 11 | 1 | R3 | 51E 1% SMD SIZE 0805 | YAGEO/MURATA | DIGIKEY | |
| 12 | 1 | R4 | DNP | | | |
| 13 | 1 | R5 | 15K 5% SMD SIZE 0805 | YAGEO/MURATA | DIGIKEY | |
| 14 | 1 | R6 | 0.02E 3W 1% SMD SIZE 0805 | BOURNS INC | DIGIKEY | CRA2512-FZ-R020ELFCT-ND |
| 15 | 1 | U1 | FAN1100-F085 | ONSEMI | DIGIKEY | FAN1100-F085CT-ND |

Notes

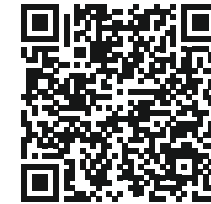
Lined area for taking notes.



APP

Android App

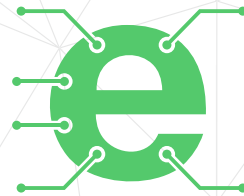
DOWNLOAD



Android App launched in 2017 and has 100k+ downloads - rated with 4.5 stars.

SCAN QR CODE





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