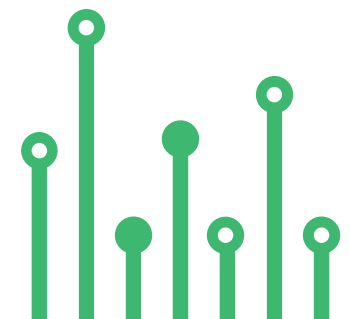


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# Two Channel High Side Driver with Analog Sense for Automotive Applications



SKU: EL138982

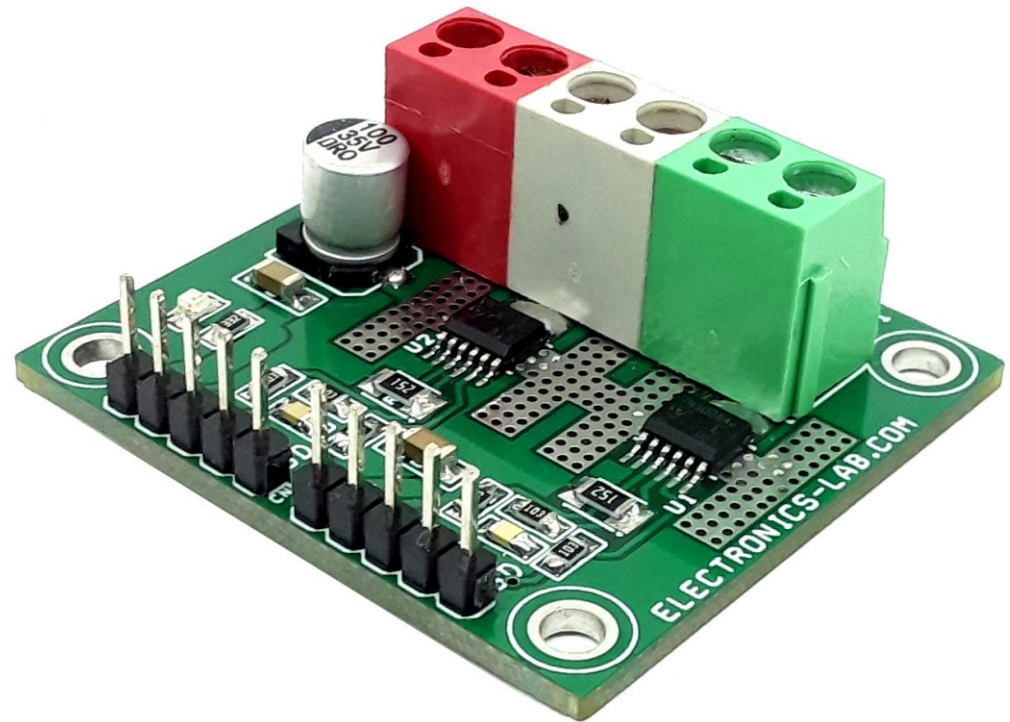
# Two Channel High Side Driver with Analog Sense for Automotive Applications



The project presented here is suitable for all types of resistive, inductive, and capacitive loads, and can also be used to drive LEDs. The board is built using 2 x VN5025AJ chips which are monolithic devices made using STMicroelectronics VIPower technology. It is intended for driving resistive or inductive loads with one side connected to the ground. Active VCC pin voltage clamp protects the device against low energy spikes. This device integrates an analog current sense which delivers a current proportional to the load current (according to a known ratio) when CS\_DIS is driven low or left open. When CS\_DIS is driven high, the CURRENT SENSE pin is in a high impedance condition. Output current limitation protects the device in overload conditions. In case of long overload duration, the device limits the dissipated power to a safe level up to thermal shut-down intervention. Thermal shut-down with automatic restart allows the device to recover normal operation as soon as the fault condition disappears.

## Features

- Power Supply 4.5V to 30V (Up to 36V Limited by Capacitor Voltage)
- Load Current Up to 10 Amps Per Channel (Peak Current 41A)
- Current Sense Voltage Output 0.5V/Amp
- Under Voltage Threshold 3.5V
- Turn On Delay 30 micro-Seconds (4.3Ohms Load)
- Turn OFF Delay 50 micro-Seconds (4.3Ohms Load)
- Temperature Shutdown Threshold 175 Degree Centigrade
- Inrush current active management by power limitation
- Very low standby current
- 0V CMOS-compatible input
- Optimized electromagnetic emission
- Very low electromagnetic susceptibility
- In compliance with the 2002/95/EC European directive
- PCB Dimensions 41.91 x 38.58 mm
- 4 x 3 mm mounting holes



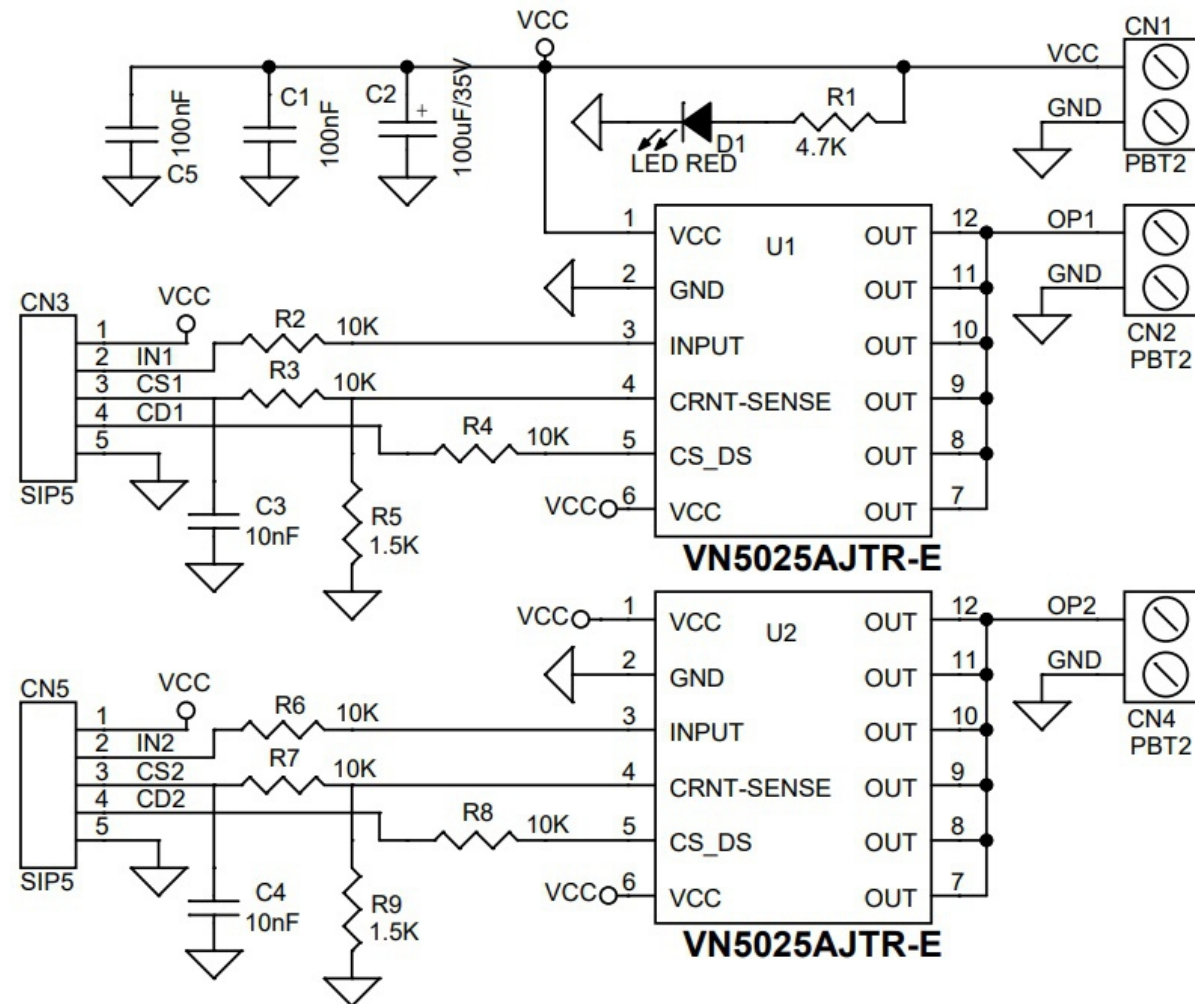
## Diagnostic functions

- Proportional load current sense
- High current sense precision for wide range currents
- Current sense disables
- Thermal shutdown indication
- Very low current sense leakage

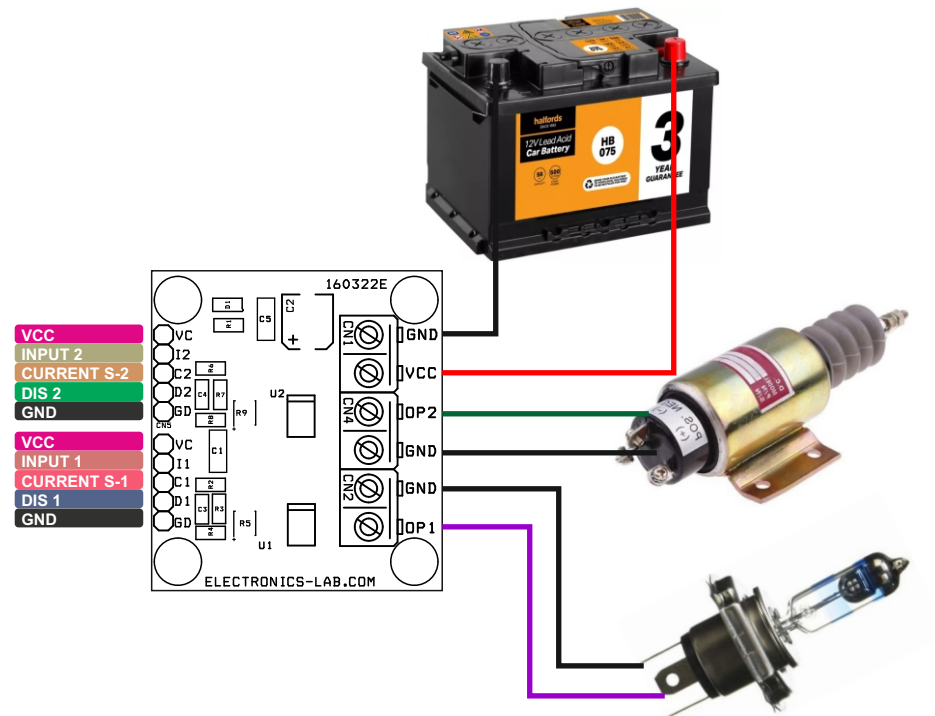
## Protection

- Undervoltage shut-down
- Overvoltage clamp
- Load current limitation
- Self-limiting of fast thermal transients
- Protection against loss of ground and loss of Vcc
- Thermal shut down

# Schematic



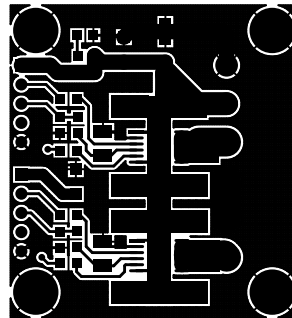
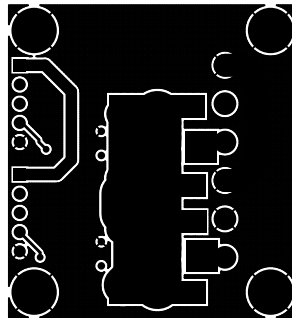
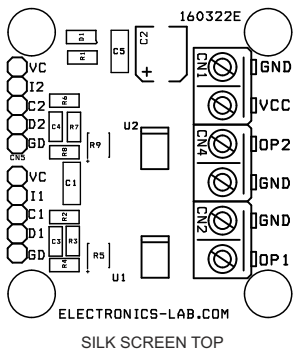
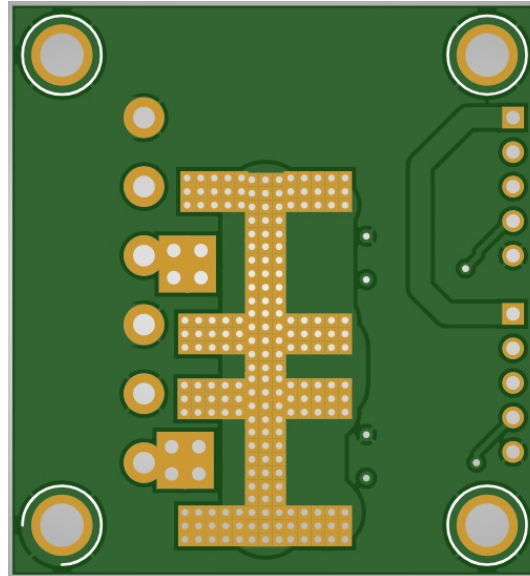
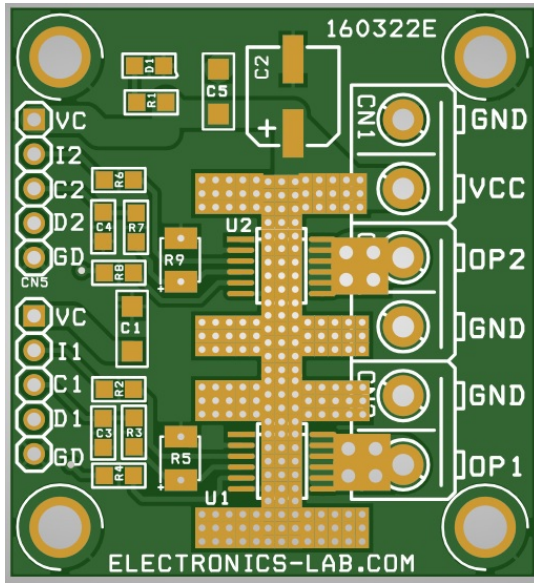
# Connections



## Connection and Other Details

- \_ CN1: Pin 1 = Motor Power Supply 4.5V to 30V , Pin 2 = GND
- \_ CN2: Pin 1 = Output 1-Load, Pin 2 = GND-Load
- \_ CN4: Pin 1 = Output 2-Load, Pin 2 = GND-Load
- \_ CN3: Pin 1 = VCC, Pin 2 = Input 1 , Pin 3 Current Sense 1 Output, Pin 4 = Current Sense Disable 1 , Pin 5 = GND
- \_ CN4: Pin 1 = VCC, Pin 2 = Input 2 , Pin 3 Current Sense 2 Output, Pin 4 = Current Sense Disable 2 , Pin 5 = GND
- \_ D1: Power LED

# PCB



PCB DIMENSIONS 41.91 X 38.58MM

# Parts List

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BOM						
NO	QNTY	REF	DESC	MANUFACTURER	SUPPLIER	SUPPLIER PART NO
1	3	CN1,CN2,CN4	2 PIN SCREW TERMINAL PITCH 5.08MM	PHOENIX	DIGIKEY	277-1247-ND
2	2	CN3,CN5	5 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5318-ND
3	2	C1,C5	100nF/50V CERAMIC SMD SIZE 1206	YAGEO/MURATA	DIGIKEY	
4	1	C2	100uF/35V SMD Electrolytic	NICHICON	DIGIKEY	493-2203-1-ND
5	2	C3,C4	10nF/50V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
6	1	D1	LED RED SMD SIZE 0805	LITE ON INC	DIGIKEY	160-1427-1-ND
7	1	R1	4.7K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
8	6	R2,R3,R4,R6,R7,R8	10K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
9	2	R5,R9	1.5K 5% SMD SIZE 1206	YAGEO/MURATA	DIGIKEY	
10	2	U1,U2	VN5025AJTR-E	ST	DIGIKEY	497-11469-1-ND



# Notes

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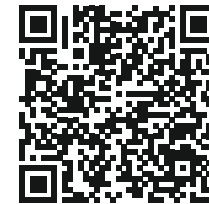
## APP

### Android App

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