# *15A 100V Isolated Half-Bridge Driver*

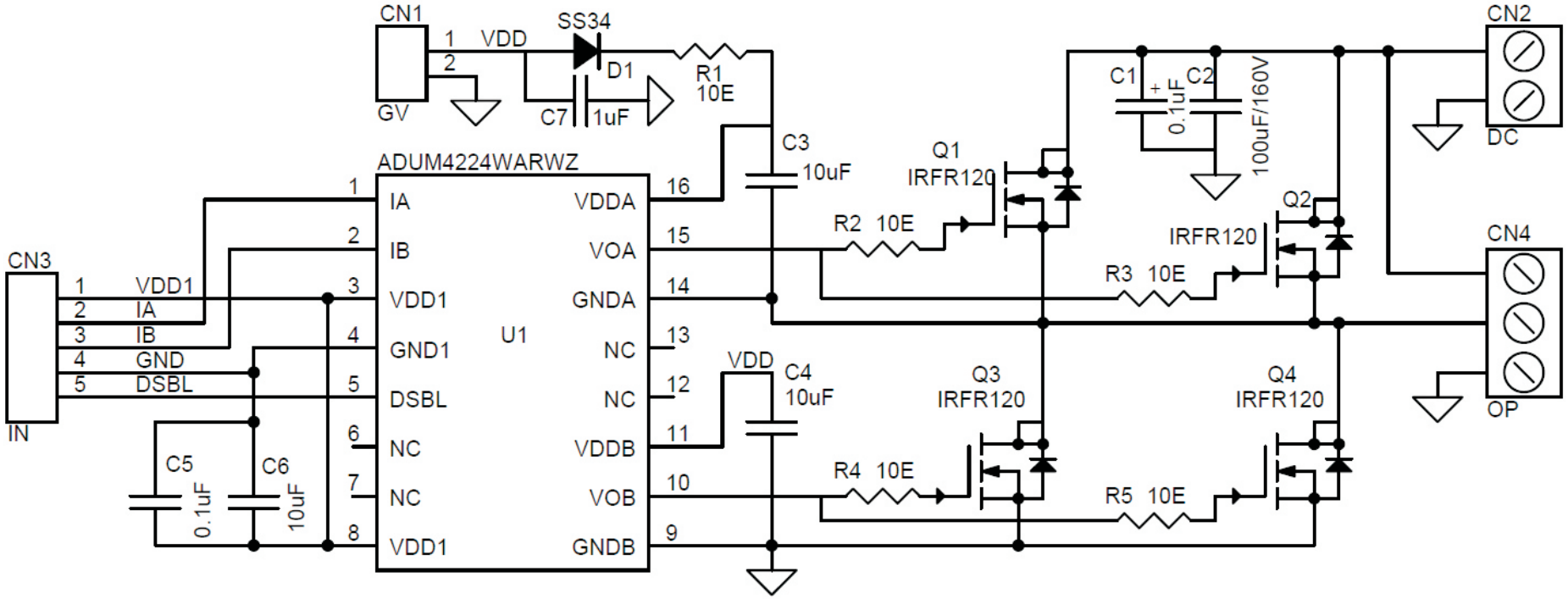
15 Amps 100V Isolated Half bridge driver project intended to design for DC-DC converters, inverters, LED driver and motor driver applications. This projects is really helpful in industrial application where noise is concern since project provides optical isolation between micro-controller and high current output. ADuM4224 isolated precision Half-Bridge driver is heart of the project. IRFR120 dual Mosfet used as output driver. Mosfet can be replacing as per application requirement of voltage and current rating. The ADuM4224 isolators each provide two independent isolated channels. They operate with an input supply ranging from 3.0 V to 5.5 V, providing compatibility with lower voltage systems. In comparison to gate drivers employing high voltage level translation methodologies, the project offers the benefit of true, galvanic isolation between the input and each output. Each output can be continuously operated up to 537 V peak relative to the input, Thereby supporting low-side switching to negative voltages. The differential voltage between the high-side and low-side can be as high as 800 V peak. Refer truth table for operations. The board tested frequency input 100 KHz but it support frequency up to 1 MHz. CN3 connector provided for logic signal and supply input, CN1 Output drive supply , CN2 load supply input, CN4 Load connections.

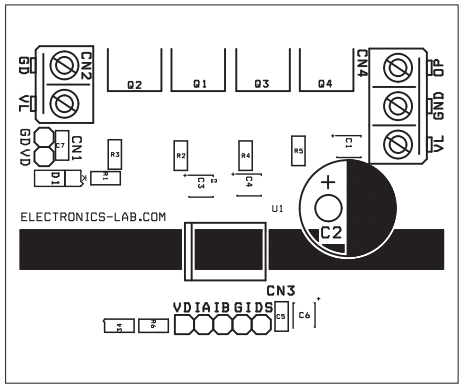
The ADuM42241 is 4 A isolated, half-bridge gate drivers that employ the Analog Devices, Inc., iCoupler® technology to provide independent and isolated high-side and low-side outputs. The ADuM4224 provides 5000 V rms isolation in the wide-body, 16-lead SOIC package. Combining high speed CMOS and monolithic transformer technology, these isolation components provide outstanding performance characteristics superior to the alternatives, such as the combination of pulse transformers and gate drivers.

**Note :** Output Mosfets can be used as per application requirement of voltage and load current, output supply input will be depend on Mosfet.

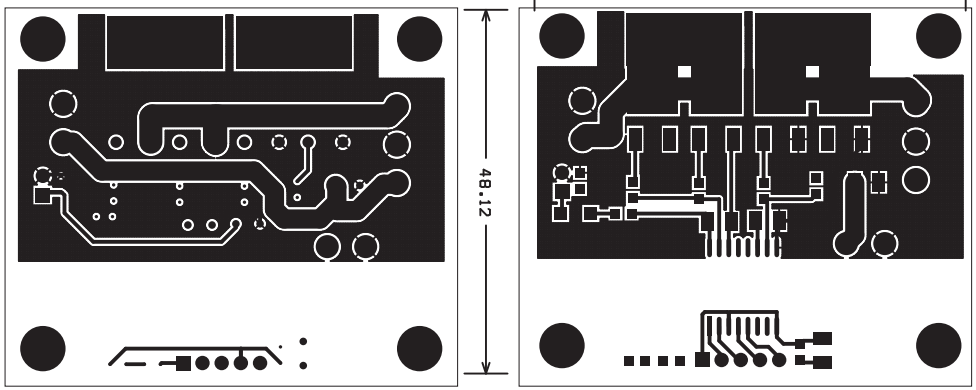
***Features***

- Supply Output Side 12V DC ( 5V-18V Possible Refer Note)
- Supply VDD1 5V-12V DC
- Input Signal VIA/VIB 3V to 5V
- Frequency Up to 1Mhz
- PCB Dimensions 57.04mm X 48.12 mm


CN1
1
2
VDD
GV
SS34
D1
C7
1uF
R1
10E
ADUM4224WARWZ
U1
IA
IB
VDD1
GND1
DSBL
NC
NC
VDD1
VDDA
VOA
GNDA
NC
NC
VDDB
VOB
GNDB
C3
10uF
VDD
C4
10uF
Q1
IRFR120
R2 10E
C1
0.1uF
C2
100uF/160V
Q2
IRFR120
R3 10E
Q3
IRFR120
R4 10E
Q4
IRFR120
R5 10E
CN2
DC
CN4
OP
CN3
VDD1
IA
IB
GND
DSBL
IN
C5
0.1uF
C6
10uF




SILK SCREEN TOP




BOTTOM LAYER

TOP LAYER

PCB DIMENSIONS 57.04 X 48.12MM

| BOM | | | |
|---|---|---|---|
| SR. | QNTY. | REF. | DESC. |
| 1 | 1 | CN1 | 2 PIN MALE HEADER CONNECTOR |
| 2 | 1 | CN2 | 2 PIN SCREW TERMINAL |
| 3 | 1 | CN3 | 5 PIN MALE HEADER CONNECTOR |
| 4 | 1 | CN4 | 3 PIN SCREW TERMINAL |
| 5 | 2 | C1,C5 | 0.1uF SMD 0805 |
| 6 | 1 | C2 | 100uF/160V |
| 7 | 3 | C3,C4,C6 | 10uF/25V SMD 1210 |
| 8 | 1 | C7 | 1uF /25V SMD 0805 |
| 9 | 1 | D1 | SS34 FAST SWITCHING DIODE |
| 10 | 4 | Q1,Q2,Q3,Q4 | IRFR120 SMD DPAK |
| 11 | 5 | R1,R2,R3,R4,R5 | 10E SMD 0805 |
| 12 | 1 | U1 | ADUM4224 |