

## High Voltage Step Down Regulator 3.3V-2A Output from 42V Input

The project described here is a high voltage step-down regulator based on A4447 general purpose buck converter chip from Allegro Semiconductor. The output voltage of the board is configured at 3.3V, but it is adjustable from 0.8 to 24V, based on the resistor divider R2 and R5. Connector CN1 is for DC input 24V-42V, Connector CN2 is DC Output. Refer to the information below to adjust various voltage outputs.

### Divider Resistor Value for 1.5V, 1.8V, 3.3V, 5V Output

1.5V: R2=1.3K, R5=1.47K Ohms

1.8V: R2=2.55K, R5=2K Ohms

3.3V: R2= 3K, R5=910 Ohms

5V: R2=6.34K, R5=1.2K Ohms

The chip has a soft start feature, which allows the output to slowly ramp upon startup. This limits the maximum demand on the external power supply by controlling the inrush current required to charge the external capacitor and any DC load at start-up. Internally, the ramp is set to 10 ms nominal rise time. During soft-start, the current limit is 2.2A minimum. ENB pin is connected to the ground to enable the device and begin the soft-start sequence.

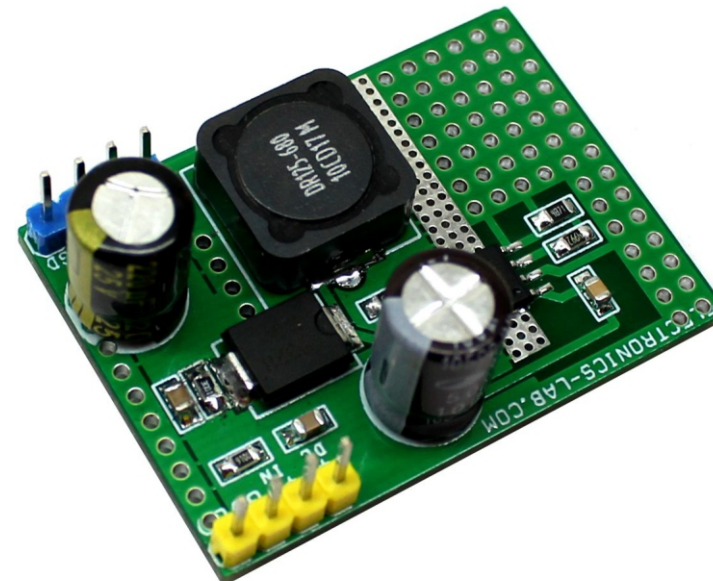
### Features

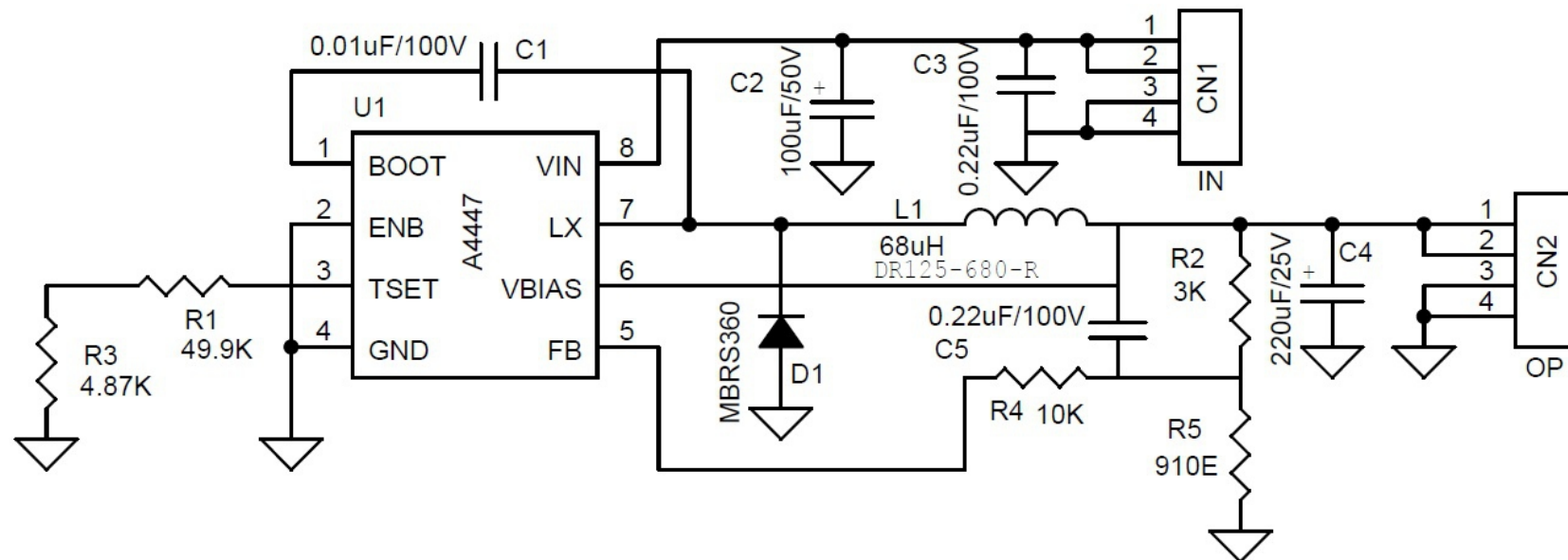
Supply Input 24-42V DC

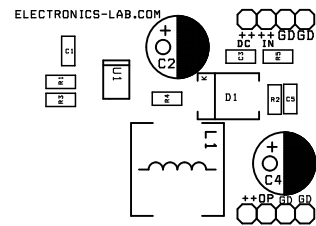
Output 3.3V

Load 2 Amp

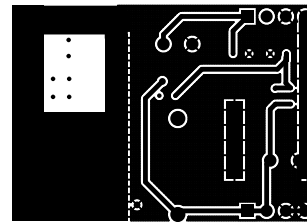
PCB Dimensions 40.64MM X 29.31MM



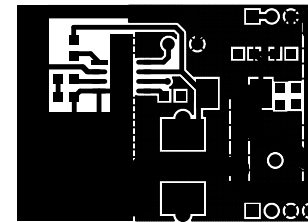




SILK SCREEN TOP

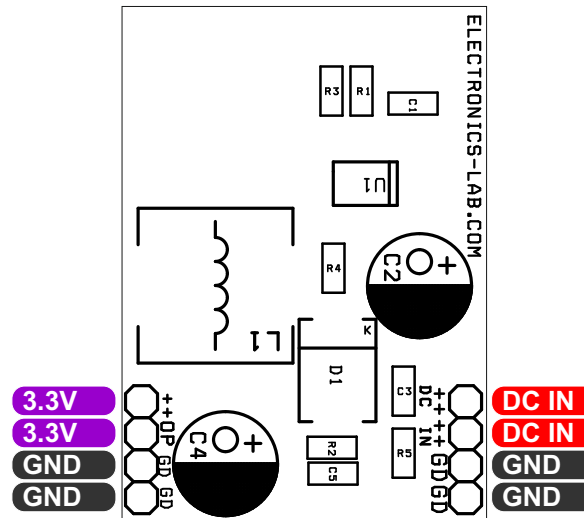


BOTTOM LAYER



TOPLAYER

PCB DIMENSIONS 40.64MM X 29.21MM



BOM				
SR.	QNTY.	REF.	DESC.	VENDOR/DIGIKEY/MOUSER
1	1	CN1	4 PIN MALE HEADER 2.54MM PITCH	DIGIKEY 732-5317-ND
2	1	CN2	4 PIN MALE HEADER 2.54MM PITCH	DIGIKEY 732-5317-ND
3	1	C1	0.01uF/100V SMD SIZE 0805	DIGIKEY 399-1159-1-ND
4	1	C2	100uF/50V ELECTROLYTIC	DIGIKEY P15369CT-ND
5	2	C3,C5	0.22uF/100V SMD SIZE 0805	DIGIKEY 478-10431-1-ND
6	1	C4	220uF/25V LOW ESR ELECTROLYTIC	DIGIKEY P19706CT-ND
7	1	D1	MBRS360 ONSEMI	DIGIKEY MBRS360T3GOSCT-ND
8	1	L1	68uH/2.22A SMD 12MM	DIGIKEY 513-1386-1-ND
9	1	R1	49.9K 1% SMD SIZE 0805	DIGIKEY 2019-WK73R2ATTD4992FTR-ND
10	1	R2	3K 1% SMD SIZE 0805	DIGIKEY A126368CT-ND
11	1	R3	4.87K 1% SMD SIZE 0805	DIGIKEY 2019-RK73H2ATTD4871FCT-ND
12	1	R4	10K 1% SMD SIZE 0805	DIGIKEY RNCPO805FTD10K0CT-ND
13	1	R5	910E 1% SMD SIZE 0805	DIGIKEY 311-910CRCT-ND
14	1	U1	A4447 SOIC8	DIGIKEY 620-1329-1-ND