

## 230V AC input , 12V Output DC Converter, Non-Isolated buck Converter

The project described here outputs 12V DC voltage from the input of 230V AC. The output current is up to 100mA. The project is based on BM2P129TF chip which is PWM method DC/DC converter with a built-in 650V MOSFET. BM2P129TF contributes to low power consumption by built-in a 650V starting circuit. Built-in current detection resistor realizes compact power supply design. Current mode control imposes current limitation on every cycle, providing superior performance in bandwidth and transient response. The switching frequency is 100Khz in fixed mode. At light load, frequency is reduced and high efficiency is realized. Built-in frequency hopping function contributes to low EMI. Low on-resistance 9.5 Ohms 650V MOSFET built-in contributes to low power consumption. Default over current limit of the chip is 450mA.

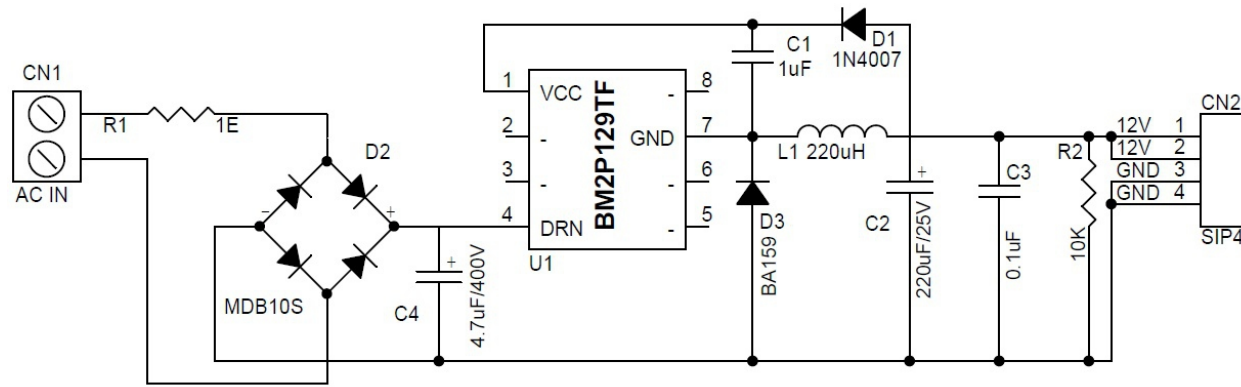
This project uses lethal AC voltage and should be handled only by qualified personnel familiar with all safety and operating precedes.

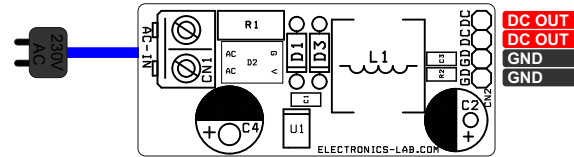
**Note:** The project can also operate with a lower input voltage of 90V AC. The board provides 10.5V and load current 2mA with 90V AC input. The module also can be used as a high voltage DC-DC to DC converter with input range 100V DC to 380V DC, output 10.5V to 13V.

### Features

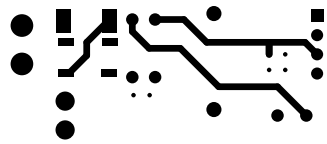
- Input Supply 230V AC
- Output 12V DC
- Load 100mA Constant (Maximum 150mA)
- Operating Frequency 100kHz Fixed
- Cycle By Cycle Current Control
- Efficiency 75%
- PCB dimensions: 46.67 x 19.53 mm



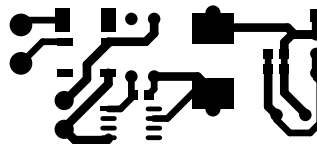




BOM						
NO	QNTY	REF	DESC	MANUFACTURER	SUPPLIER	SUPPLIER PART NO
1	1	CN1	2 PIN SCREW TERMINAL PITCH 5.08MM	PHOENIX	DIGIKEY	277-1247-ND
2	1	CN2	4 PIN HEADER CONNECTOR PITCH 2.54MM	WURTH	DIGIKEY	732-5317-ND
3	1	C1	1uF/25V SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
4	1	C2	220uF/25V ELECTROLYTIC	NICHICON	DIGIKEY	493-15302-ND
5	1	C3	0.1uF/50V SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
6	1	C4	4.7uF/400V ELECTROLYTIC	WURTH	DIGIKEY	732-8886-1-ND
7	1	D1	1N4007	MICRO COMMERCIAL	DIGIKEY	1N4007MSCT-ND
8	1	D2	MDB10S	ONSEMI	DIGIKEY	MDB10SFCT-ND
9	1	D3	BA159	VISHAY	DIGIKEY	BA159GP-E3/73GICT-ND
10	1	L1	220uH/1.38A	BOURNS	DIGIKEY	118-SRR1260A-221KCT-ND
11	1	R1	1E 2W SMD SIZE 2512	YAGEO/MURATA	DIGIKEY	118-SRR1260A-221KCT-ND
12	1	R2	10K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
13	1	U1	BM2P129TF SOIC8	ROHM	DIGIKEY	BM2P129TF-E2CT-ND

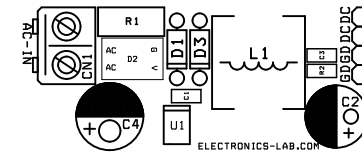


BOTTOM LAYER



TOP LAYER

PCB DIMENSIONS 46.67MM X 19.53MM



SILK SCREEN TOP