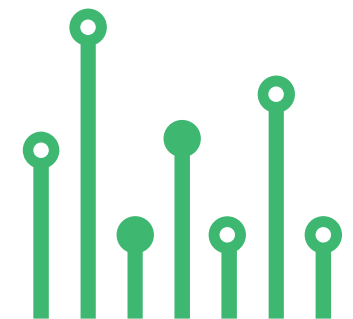


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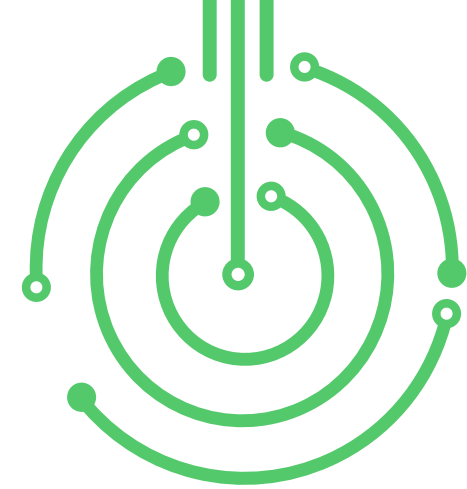
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POWER SUPPLY



Isolated Flyback Converter with 18V-28V Input and 12V Output



SKU: EL154029

Isolated Flyback Converter with 18V-28V Input and 12V Output



Project presented here is a micropower no-opto isolated flyback converter featuring the LT8304 chip from Analog Device. This circuit outputs 12V, and maintains tight regulation with a load current from 10mA up to 1A and over an input voltage from 18V to 28V. The project needs less than 0.5% of its full output power as a minimum load to maintain good output voltage regulation. Transformer leakage inductance causes a voltage spike on the primary side after the power switch turns off. To limit this leakage inductance spike within MOSFET voltage rating of 150V, an RC snubber and a TVS clamp are installed to damp the ringing and clamp the MOSFET drain voltage to a safe level.

Features

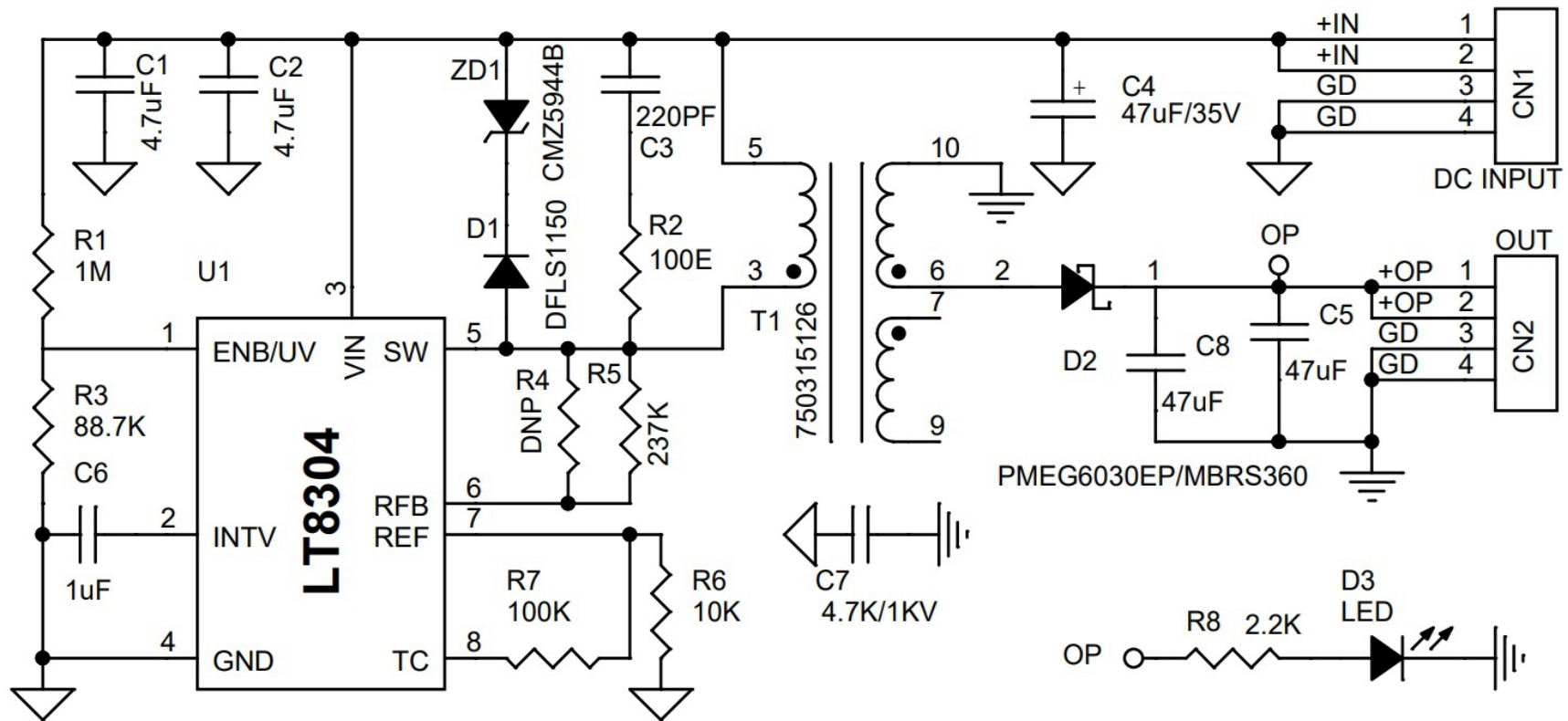
- Supply Input 18V to 28V DC
- Output 12V 10mA-1Amp
- Low Ripple Burst Mode® Operation at Light Load
- Minimum Load < 0.5% (Typ) of Full Output
- Accurate EN/UVLO Threshold and Hysteresis
- Undervoltage Lockout Accurate 1.214V Threshold
- Internal Compensation and Soft-Start
- Temperature Compensation for Output Diode
- Output Short-Circuit Protection
- PCB Dimensions 56.36 MM X 17.46MM



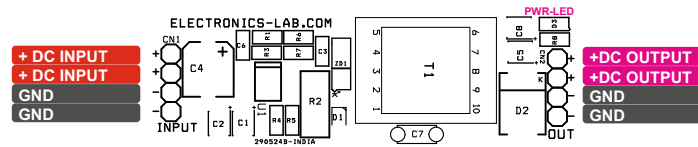
The LT8304 is a monolithic micropower isolated flyback converter. By sampling the isolated output voltage directly from the primary-side flyback waveform, the parts require no third winding or optoisolator for regulation. The output voltage is programmed with two external resistors and a third optional temperature compensation resistor. Boundary mode operation provides a small magnetic solution with excellent load regulation. Low ripple Burst Mode operation maintains high efficiency at light load while minimizing the output voltage ripple. A 2A, 150V DMOS power switch is integrated along with all the high voltage circuitry and control logic into a thermally enhanced 8-lead SO package.

The LT8304 operates from an input voltage range of 3V to 100V and delivers up to 24W of isolated output power. The high level of integration and the use of boundary and low ripple Burst Mode operation result in a simple to use, low component count, and high efficiency application solution for isolated power delivery.

Schematic



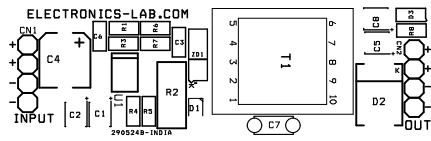
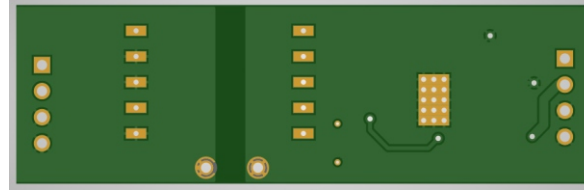
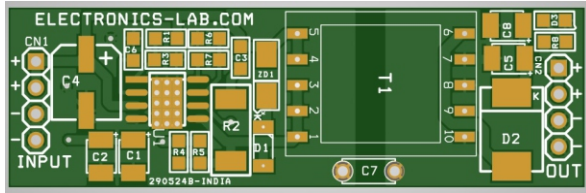
Connections



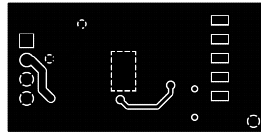
Connection

- CN1: Pin 1,2 = +DC Input, Pin 2,3=GND
- CN1: Pin 1,2 = +DC Output, Pin 2,3=GND
- D1: Output LED

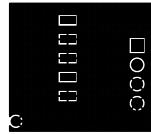
PCB



SILK SCREEN TOP



BOTTOM LAYER



TOP LAYER

PCB DIMENSIONS 56.36 MM X 17.46MM

Parts List

BOM						
NO.	QNTY.	REF.	DESC	MANUFACTURER	SUPPLIER	SUPPLIER PART NO
1	1	CN1	4 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5317-ND
2	1	CN2	4 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5317-ND
3	2	C1,C2	4.7uF/50V X7S CERAMIC SMD SIZE 1206	YAGEO/MURATA	DIGIKEY	
4	1	C3	220PF/50V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
5	1	C4	47uF/35V ELEKTROLYTIC CAPACITOR	WURTH	DIGIKEY	732-8508-1-ND
6	2	C5,C8	47uF/25V X5R CERAMIC SMD SIZE 1210	YAGEO/MURATA	DIGIKEY	
7	1	C6	1uF/50V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
8	1	C7	4.7K/1KV CAPACITOR THT	TDK	DIGIKEY	445-CK45-B3AD472KYVNACT-ND
9	1	D1	DFLS1150	DIODE INC	DIGIKEY	DFLS1150DICT-ND
10	1	D2	PMEG6030EP/MBRS360	ONSEMI	DIGIKEY	MBRS360T3GOSCT-ND
11	1	D3	LED RED SMD SIZE 0805	OSRAM	DIGIKEY	475-1278-1-ND
12	1	R1	1M 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
13	1	R2	100E 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
14	1	R3	88.7K 1% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
15	1	R4	237K 1% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
16	1	R5	DNP			
17	1	R6	10K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
18	1	R7	100K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
19	1	R8	2.2K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
20	1	T1	750315126 TRANSFORMER	WURTH	DIGIKEY	1297-1194-1-ND
21	1	U1	LT8304 SOIC8	ANALOG DEVICE	DIGIKEY	505-LT8304IS8E#PBF-ND
22	1	ZD1	CMZ5944B	CENTRAL SEMI	DIGIKEY	1514-CMZ5944BTR13PBFREECT-ND



Keep
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