Dual Output Adjustable Linear Power Supply +1.2V to +12 V @ 250mA, -1.2V to -12V @ 250 mA, 230V/115V AC Input

This project is a solution to power up most devices or projects requiring dual (+/-) adjustable power. The circuit consists of a stepdown transformer, bridge rectifier, DC filter capacitors, LM317 positive and LM337 negative adjustable voltage regulators, 2 x trimmer pot for independent output voltage adjust, and power LEDs.

Connector CN1 : 230V/115V AC Input, Jumper J2 : 230V Selection, Jumper J1 & J3 : 115V Selection, Transformer T1 : Step Down Transformer 12V-0-12VAC Output, 230V/115V AC Input, Bridge Rectifier BR1 : Rectifier Converts DC in to AC Supply, Capacitors C3, C5 : DC Filter Capacitors, LED D1 : +V PWR LED, LED D2 -V PWR LED, Resistor R1, R2 : Current Limiting Resistors For LEDs D1 and D2, Regulator U1 : +V Adjustable Regulator, Regulator U2 : -V Adjustable Regulator , Trimmer Pot PR1 : +V Output Adjust +1.2V to +12V, Trimmer Pot PR2 : -V Output Adjust -1.2V to -12V, Capacitor C1, C2, C4, C6 : DC Filter Capacitors, Connector CN2 : Adjustable DC Output

Note1: Power supply supports 230V AC or 115V AC input, Jumpers are located under PCB for input voltage selection, remove input power cable while changing Jumper selection.

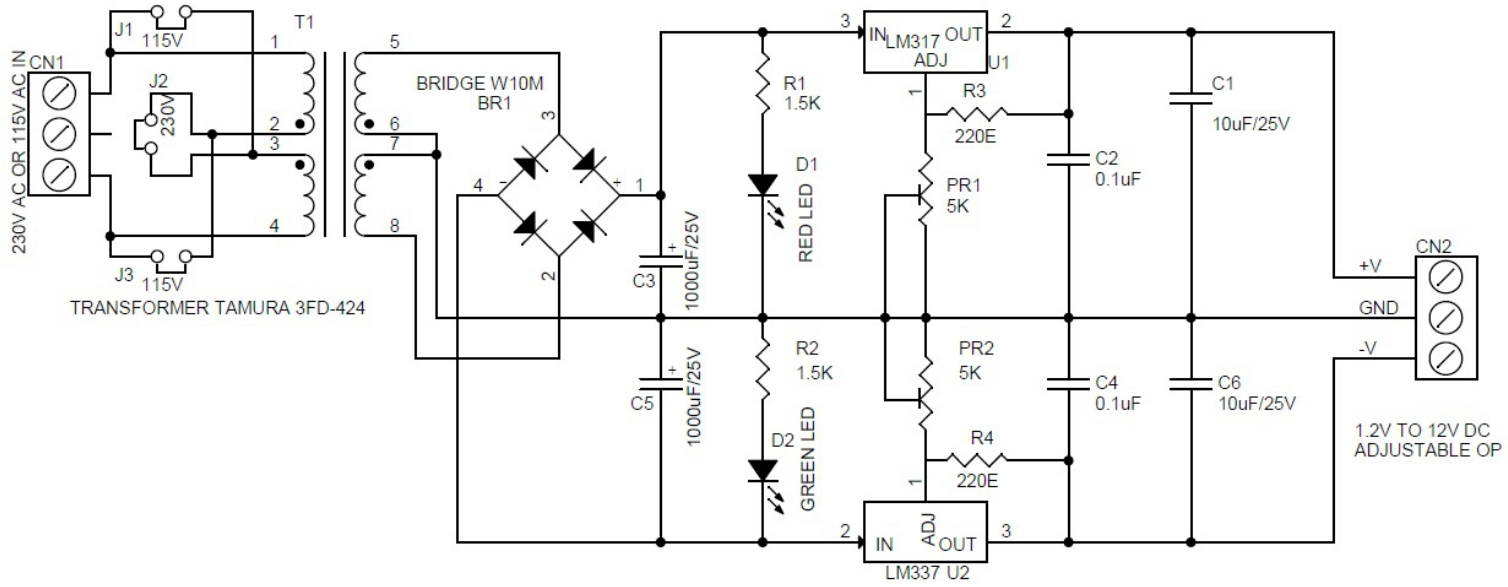
- ***For 230V AC Input Close Jumper J2, Jumper J1 and J3 Open***
- ***For 115V AC Input Close Jumper J1 and J3, Jumper J2 Open***

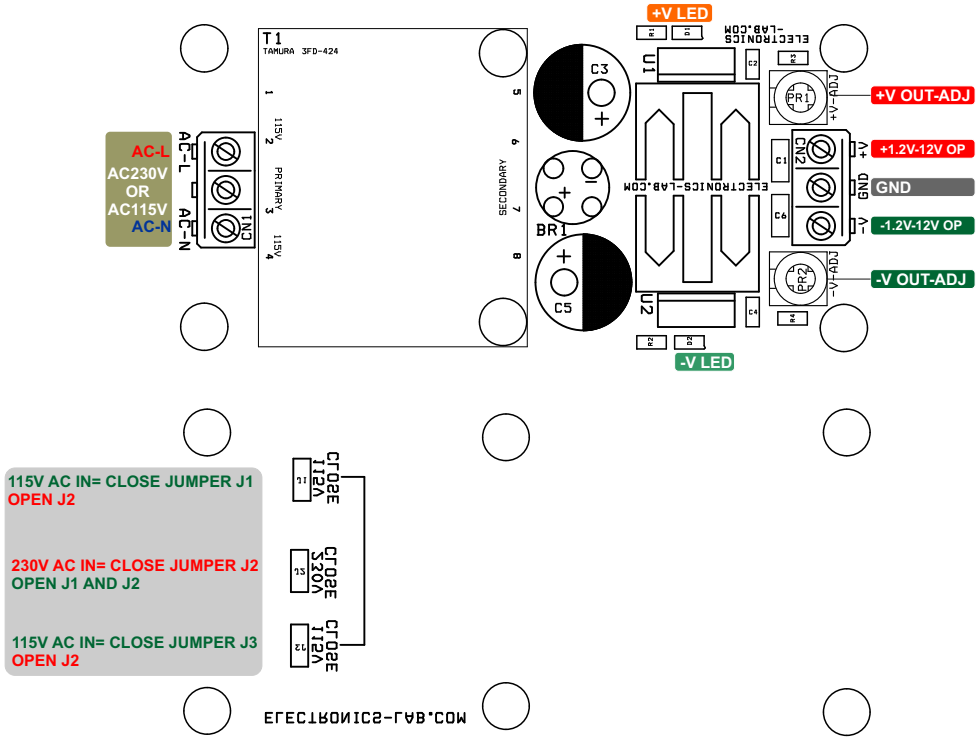
Note 2: This power supply contains hazardous voltage at input, PCB must be installed I n an encloser which prevents accidental contact. Use Plastic screws to mount the PCB
Note 3: Heatsink is must for regulators U1 and U2 @ full load, heatsink should be mounted with plastic screws and should not touch ground plane of the PCB.

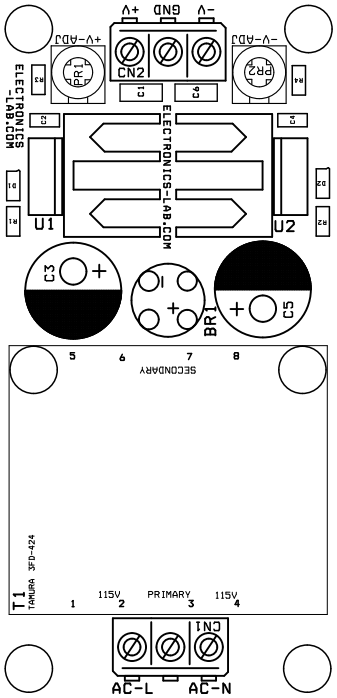
Note 4: It is advisable to set the output voltage using Pr1 and PR2 before connecting output to the load.

Features

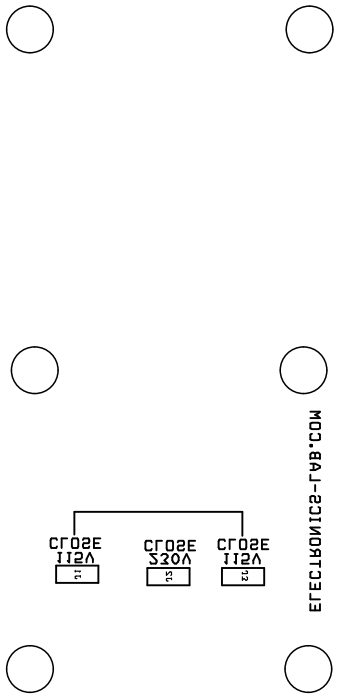
- Input 230V or 115V AC (Use Jumpers to Select 230V or 115V AC)
- Output +/-1.2V to 12V DC (Dual Output)
- Output Ripple Approx. 5mV
- Maximum Load Current 500mA (250mA + 250mA)
- 2 X Power LEDs, for +V and -V
- Screw Terminal for AC Input
- Screw Terminal for Regulated DC Output
- PCB Dimensions 91.76MM X 43.82MM


230V AC OR 115V AC IN
CN1
J1
115V
J2
230V
J3
115V
T1
TRANSFORMER TAMURA 3FD-424
BRIDGE W10M
BR1
C3
1000uF/25V
C5
1000uF/25V
R1
1.5K
R2
1.5K
D1
RED LED
D2
GREEN LED
LM317
ADJ
U1
IN
OUT
R3
220E
PR1
5K
PR2
5K
R4
220E
C1
10uF/25V
C2
0.1uF
C4
0.1uF
C6
10uF/25V
LM337 U2
CN2
+V
GND
-V
1.2V TO 12V DC
ADJUSTABLE OP

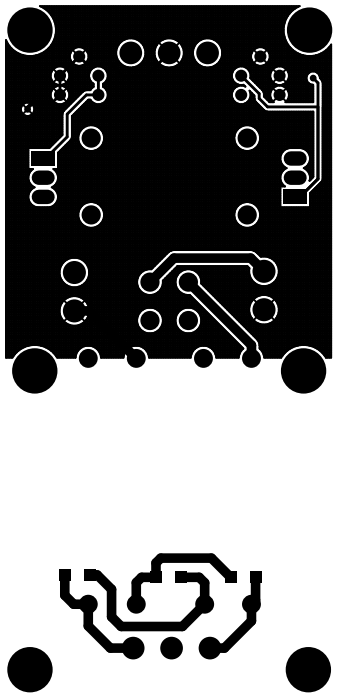

+V LED
T1
TAMURA 3FD-424
AC-L
AC230V
OR
AC115V
AC-N
CN1
PRIMARY
SECONDARY
C3
C5
BR1
U1
U2
PR1
PR2
+V-ADJ
-V-ADJ
CN2
+V OUT-ADJ
+1.2V-12V OP
GND
-1.2V-12V OP
-V OUT-ADJ
-V LED
ELECTRONICS-LAB.COM
115V AC IN= CLOSE JUMPER J1
OPEN J2
230V AC IN= CLOSE JUMPER J2
OPEN J1 AND J2
115V AC IN= CLOSE JUMPER J3
OPEN J2
CLOSE J12V
CLOSE S230V
CLOSE J12V



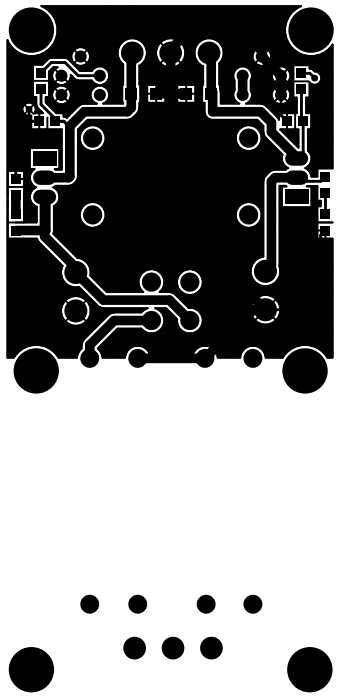
SILK SCREEN TOP



SILK SCREEN BOTTOM



BOTTOM LAYER



TOP LAYER

PCB DIMENSIONS 91.76MM X 43.82MM

BOM						
NO	QNTY.	REF.	DESC.	MANUFACTURER	SUPPLIER	SUPPLIER PART NO
1	1	BR1	BRIDGE RECTIFIER W10M	MICRO COMM	DIGIKEY	W10M-BPMS-ND
2	1	CN1	3 PIN SCREW TERMINAL PITCH 5.08MM	PHOENINX	DIGIKEY	277-1248-ND
3	1	CN2	3 PIN SCREW TERMINAL PITCH 5.08MM	PHOENIX	DIGIKEY	277-1248-ND
4	2	C1,C6	10uF/25V SMD SIZE 1206	MURATA/YAGEO	DIGIKEY	
5	2	C2,C4	0.1uF/50V SMD SIZE 0805	MURATA/YAGEO	DIGIKEY	
6	2	C3,C5	1000uF/25V OR 2200/25V	PANASONIC	DIGIKEY	P13121-ND
7	1	D1	RED LED SMD SIZE 0805	LITE ON	DIGIKEY	160-1427-1-ND
8	1	D2	GREEN LED SMD SIZE 0805	DIALIGHT	DIGIKEY	350-2044-1-ND
9	3	J1,J2,J3	JUMPER(PCB SOLDER) USE SMD 0-OHM RESISTOR SIZE 1206		DIGIKEY	PCB JUMPERS
10	2	PR1,PR2	5K TRIMMER POT	BOURNS	DIGIKEY	3362H-502LF-ND
11	2	R1,R2	1.5K 5% SMD SIZE 0805	MURATA/YAGEO	DIGIKEY	
12	2	R3,R4	220E 1% SMD SIZE 0805	MURATA/YAGEO	DIGIKEY	
13	1	T1	TRANSFORMER 3FD-424	TAMURA	DIGIKEY	MT2115-ND
14	1	U1	LM317-ADJ TO 220	ST	DIGIKEY	497-1575-5-ND
15	1	U2	LM337-ADJ TO 220	ST	DIGIKEY	497-1585-5-ND
16	2		HEATSINK -TO220	AVID	DIGIKEY	HS106-ND
17	2		M3 X 10MM SCREW AND NUT FOR TO220 HEATSINK/REGULATOR	IO AUDIO	DIGIKEY	1937-IO-M3X10/M3HN-50-ND