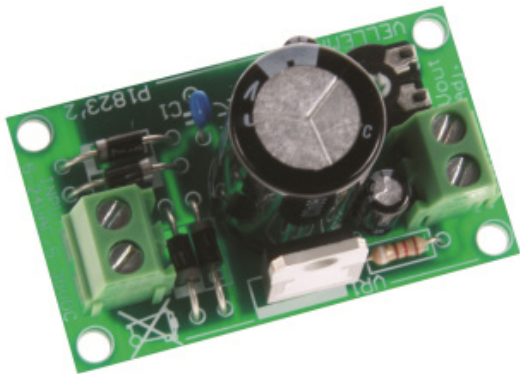


# 1 A POWER SUPPLY

## K1823



The easy way to power your projects.

### Specifications

- Great to power your projects and save money on batteries
- Suitable as an adjustable power supply for experiments
- Control DC motors, low voltage light bulbs, ...
- Short-circuit, thermal and overload protection
- Dimensions : 52x30mm (2.1" x 1.2")

## Features

- ☑ Just add a suitable transformer (see table)
- ☑ Great to power your projects and save money on batteries
- ☑ Suitable as an adjustable power supply for experiments
- ☑ Control DC motors, low voltage light bulbs, ...

## Specifications :

- Preset any voltage between 1.5 and 35V
- Very low ripple (80dB rejection)
- Short-circuit, thermal and overload protection
- Max input voltage : 28VAC or 40VDC
- Max dissipation : 15W (with heatsink)
- Dimensions : 52x30mm (2.1" x 1.2")

Choose the right transformer	
Max DC output voltage	Transformer rating
3..5V	9VAC / 15VA
5..8V	12VAC / 30VA
8..13V	15VAC / 30VA
13..15V	18VAC / 30VA
15..18V	22VAC / 30VA
18..22V	24VAC / 50VA
22..35V	28VAC / 50VA

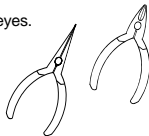


### 1. Assembly (Skipping this can lead to troubles !)

Ok, so we have your attention. These hints will help you to make this project successful. Read them carefully.

#### 1.1 Make sure you have the right tools:

- A good quality soldering iron (25-40W) with a small tip.
- Wipe it often on a wet sponge or cloth, to keep it clean; then apply solder to the tip, to give it a wet look. This is called 'thinning' and will protect the tip, and enables you to make good connections. When solder rolls off the tip, it needs cleaning.
- Thin raisin-core solder. Do not use any flux or grease.
- A diagonal cutter to trim excess wires. To avoid injury when cutting excess leads, hold the lead so they cannot fly towards the eyes.
- Needle nose pliers, for bending leads, or to hold components in place.
- Small blade and Phillips screwdrivers. A basic range is fine.



For some projects, a basic multi-meter is required, or might be handy



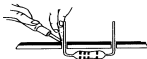
#### 1.2 Assembly Hints :

- ⇒ Make sure the skill level matches your experience, to avoid disappointments.
- ⇒ Follow the instructions carefully. Read and understand the entire step before you perform each operation.
- ⇒ Perform the assembly in the correct order as stated in this manual
- ⇒ Position all parts on the PCB (Printed Circuit Board) as shown on the drawings.
- ⇒ Values on the circuit diagram are subject to changes, the values in this assembly guide are correct\*
- ⇒ Use the check-boxes to mark your progress.
- ⇒ Please read the included information on safety and customer service

\* Typographical inaccuracies excluded. Always look for possible last minute manual updates, indicated as 'NOTE' on a separate leaflet.

#### 1.3 Soldering Hints :

1- Mount the component against the PCB surface and carefully solder the leads

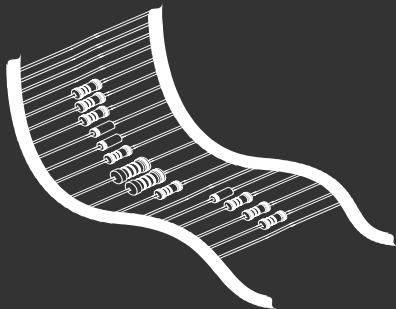


2- Make sure the solder joints are cone-shaped and shiny



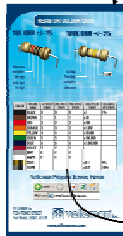
3- Trim excess leads as close as possible to the solder joint



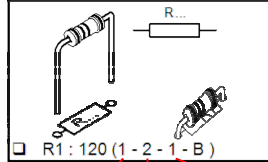


REMOVE THEM FROM THE TAPE ONE AT A TIME !

Included in  
this kit



## 2. RESISTOR

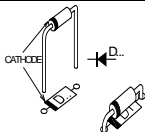


COLOUR	COLOUR NAME	1ST DIGIT/ STRIPE	2ND DIGIT/ STRIPE	3RD DIGIT/ STRIPE	MULTIPLIER STRIPE	TOLERANCE
	BLACK	0	0	0	x1	1%
	BROWN	1	1	1	x10	
	RED	2	2	2	x100	
	ORANGE	3	3	3	x1.000	
	YELLOW	4	4	4	x10.000	
	GREEN	5	5	5	x100.000	
	BLUE	6	6	6	x1.000.000	

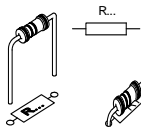
**DO NOT BLINDLY FOLLOW THE ORDER OF THE COMPONENTS ONTO THE TAPE.  
ALWAYS CHECK THEIR VALUE ON THE PARTS LIST!**

### 1. Diodes. Watch the polarity !

- D1 : 1N4007
- D2 : 1N4007
- D3 : 1N4007
- D4 : 1N4007

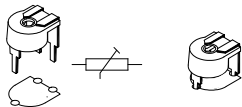


### 2. Resistor



- R1 : 120 (1 - 2 - 1 - B)

### 3. Trim potentiometer



- RV1 : 4K7

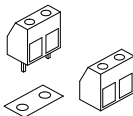
### 4. Capacitors.



- C1 : 0,1 $\mu$ F, 100nF (104)

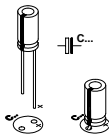
### 5. Terminal blocks

- SK1
- SK2



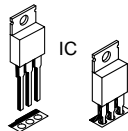
### 6. Electrolytic Capacitor. Watch the polarity !

- C2 : 1 $\mu$ F
- C3 : 10 $\mu$ F



### 7. Voltage regulator

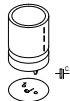
- VR1 : LM317



It has not to be cooled if used for small powers.

### 8. Electrolytic Capacitor. Watch the polarity !

- C4 : 2200 $\mu$ F



## 9. Connection example

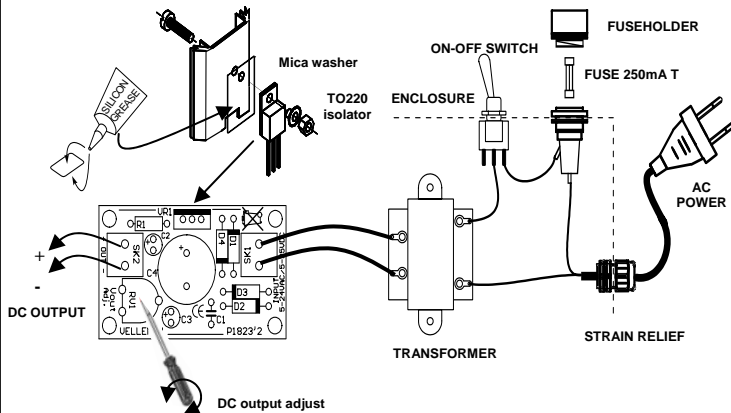


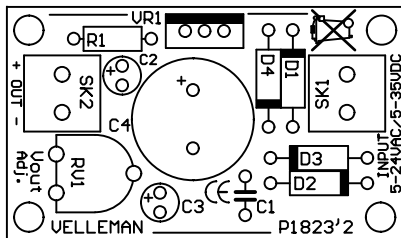
Fig. 1.0

Execute the connection as depicted in the figure. Connect the alternating voltage of a transformer with the 'AC IN' connections. Connect the output voltage with the '+' and '-' connections. Set the desired output voltage with trimmer RV1. Mount VR1 on a suitable heatsink for applications requiring more power.

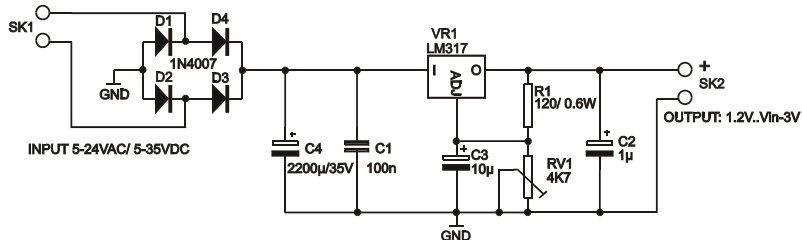
Be sure to provide sufficient electric insulation: fit an insulator and a plastic insulation ring between the VR1 and the heatsink because the metal side of the VR1 is electrically connected with the rest of the circuit.

Replace the trimmer with a potentiometer of the same rating if you want to use the circuit as a permanently adjustable power supply.

## 10. PCB layout.



## 11. Diagram





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