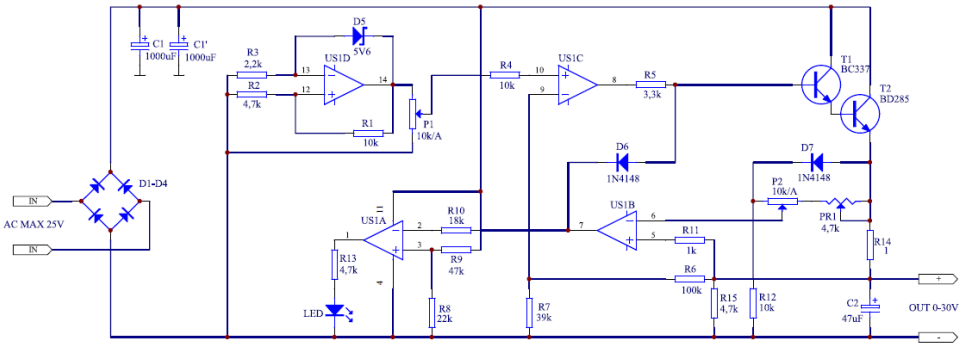
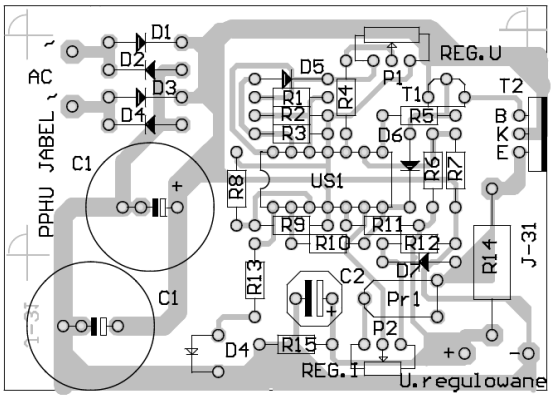
Package contains:

US1	.....	LM324	
T1	.....	BC337,BC338,SF827	
T2	.....	BD283,BD285,BD911,BD539	
D1-D4	.....	1N4001-1N4007	
D6,D7	.....	1N4148	
D5	.....	BZX683C5V6	
LED	.....	red LED 2/5	
C1,C1'	.....	2 x 1000µF/40V	
C2	.....	47-100µF/35V	
P1,P2	.....	reg. with axis	
PR1	.....	assembly reg. 4,7k	
DIL14 holder			
R1,R4,R12	.....	10k	
R2,R13,R15	.....	4,7k	
R3	.....	2,2k	
R5	.....	3,3k	
R6	.....	100k	
R7	.....	39k	
R8	.....	22k	
R9	.....	47k	
R10	.....	18k	
R11	.....	1k	
R14	.....	0,82 -1 / 5W	
PRINTED CIRCUIT BOARD			



Schematic diagram



Circuit diagram

J-31 Laboratory power supply 0 ... 30V/0 ... 1A

Adjustable power supply is one of basic tools in electronic laboratory, service or workshop. This power supply has very good parameters despite its simple design. It has continuous adjustable output voltage from 0V to 30V and continuous adjustable output current up to 1A.

Circuit is based on quad operational amplifier LM324 type. “D” amplifier works as reference voltage source. Power supply error amplifier is based on “C” circuit. Circuit “B” measures output voltage and circuit “A” works as a comparator controlling LED diode which indicates turning on current stabilization mode. P1 regulator adjusts output voltage. P2 regulator adjusts power supply current limit. Assembly regulator PR1 is used to set up upper current range limit as follows: set P2 regulator to maximum. Apply several Ohms load to power supply output. Connect ammeter in series with load. While adjusting output voltage set output current to 1A. Adjust PR1 regulator until LED lights. Power supply is based on one printed circuit board. Output transistor T2 should be screwed onto radiator with surface above 1dm^2. Feeding transistor should supply voltage maximum 25V that Cl capacitor voltage was below 33V (value allowed for LM324 circuit). Transformer load current should be equal or above maximum power supply load current. Circuit mounted as shown in the diagram works correctly immediately after powering up. Power supply output should be blocked by non-inductive capacitor (i.e. ceramic 100nF/50V) as close to output sockets as possible. Connecting voltmeter and ammeter to power supply makes operation much more convenient. Ideal for this application is J-25 (digital milli-voltmeter) manufactured by our company. Current measurement can be done by connecting milli-ammeter to R14 resistor connectors. Voltage measurement can be done by connecting milli-voltmeter to power supply output by 1:100 divider.