

(TJ-56-207) LM317 Adjustable Power Supply

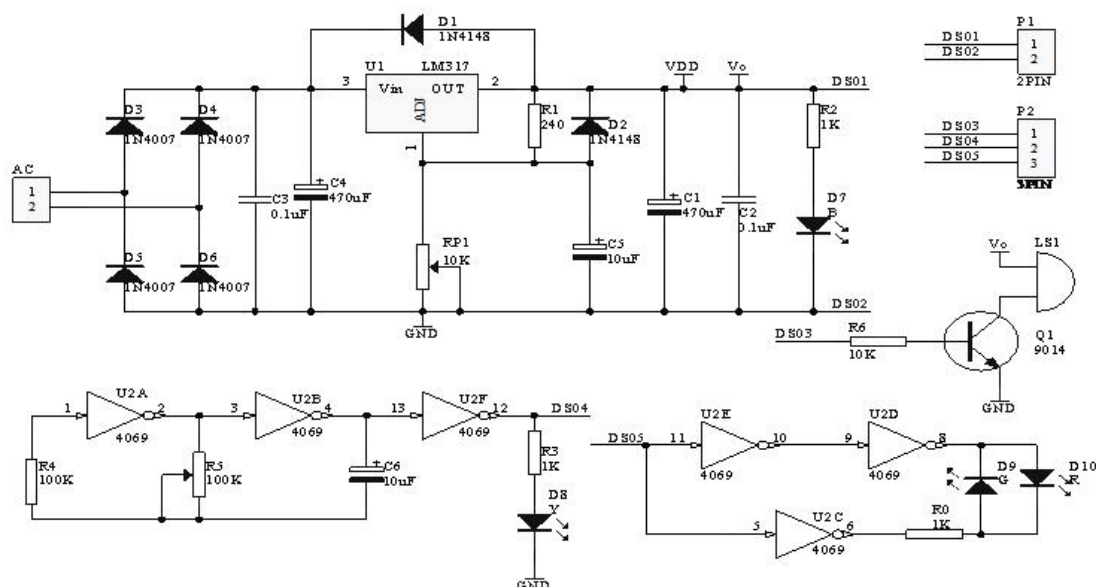
Installation Instructions

1. Introduction to the circuit

This circuit is mainly an adjustable voltage regulator circuit composed of integrated circuit LM317. LM317 is one of the most widely used power supply integrated circuits. It not only has the simplest form of a fixed three-terminal voltage regulator circuit, but also has adjustable output voltage. Features. In addition, it also has the advantages of wide voltage regulation range, good voltage regulation performance, low noise and high ripple rejection ratio. The lm317 is an adjustable 3 terminal positive voltage regulator capable of delivering over 1.5 amps over an output voltage range of 1.2 volts to 37 volts, this regulator is very easy to use.

The 220V AC power is stepped down to AC 12V by a transformer, rectified by diodes D3-D6, filtered by capacitors C3 and C4, and sent to the 3rd pin of LM317. After the voltage is stabilized, the voltage is output from 2 feet. RP1 constitutes a voltage regulator circuit, the output voltage can be changed by changing the resistance value of the potentiometer RP1, U2A, U2B, U2F constitute a square wave signal generating circuit, and R5 can be adjusted to change the frequency of the square wave signal, U2E, U2D are the input signal indication, through The light-emitting diodes D9 and D10 indicate the high and low levels of the input signal. When the input signal is high, D10 is on, and D9 is off. When the input signal is low, D10 is off and D9 is on. When the input signal is floating, it is a random state. Q1, R6 are buzzer drivers, the buzzer sounds when a high level is input.

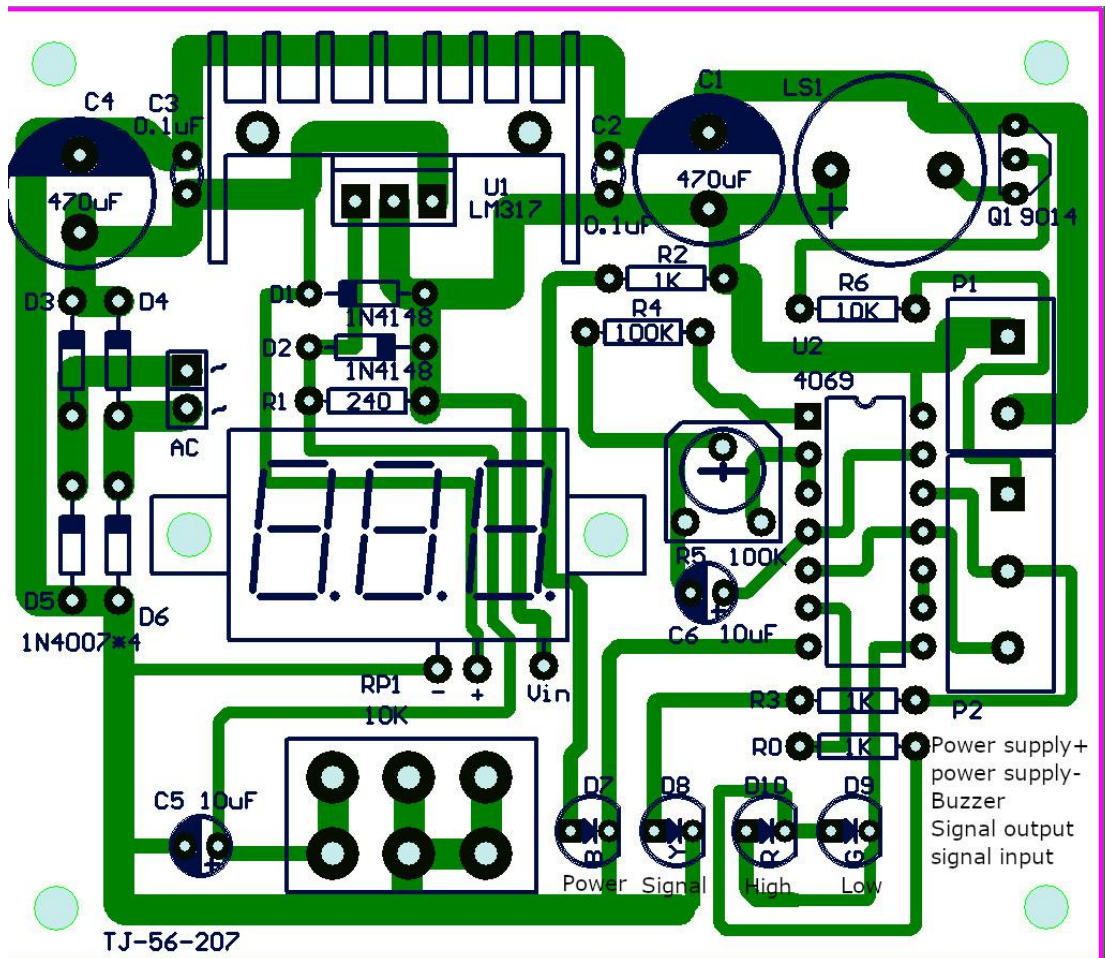
2. Circuit diagram



3. Component list

Label	Name	Specification	QTY.
R1	Color ring resistance	240	1
R0, R2, R3	Color ring resistance	1K	3
R4	Color ring resistance	100K	1
R5	Blue and white adjustable resistor	100K	1
R6	Color ring resistance	10K	1
Rp1	Potentiometer	10K	1
D1, D2	Diode	1N4148	2
U1	Integrated circuit	LM317	1
P1	Terminals	2P	1
	IC holder	14P	1
D3, D4, D5, D6	Diode	1N4007	4
D7, D8, D9, D10	LED	5MM (red, green, yellow and blue)	4
C1, C4	Electrolytic capacitor	470uF	2
C2, C3	Ceramic capacitor	0.1uF	2
C5, C6	Electrolytic capacitor	10uF	2
Q1	Triode	9014	1
LS1	Buzzer	5V active	1
U2	Integrated circuit	CD4069	1
P2	Terminals	3P	1
	Heat sink	25*35*15mm	1
	Heat shrink tube	2MM	1
	220V power cord	250V5A	1
	Potentiometer knob		1
	Digital voltmeter		1
	Transformer	12V	1
	Screw	M3*6	7
	Nut	M3	6
	Nylon column	M3*5	2
	Screw	M1.7*10	10
	Nut	M1.7	10

4. Installation Instructions



- Install short components first, then install tall components, pay attention to the positive and negative poles of the electrolytic capacitor, and the shadow side is the negative pole and the short pin
- Installation method of the digital voltmeter: cut the lead of the digital voltmeter short, the red line is connected to the "+" of the PCB, the black line is connected to "-", and the white line is connected to "Vin". Put a nylon column at the installation position of the round holes on both sides of the voltmeter, pass it through with 1.7*10 screws, and fix it on the PCB together.
- The installation of the transformer, the two red wires of the transformer are connected to 220V, and the two blue wires are the 12V AC output after step-down. The DC resistance of the primary coil (220V) of the transformer is much larger than the DC resistance of the secondary coil (12V). The two 12V output lines of the transformer are connected to the AC position of the PCB, regardless of the positive and negative poles. The two wires of the transformer connected to 220V are welded to the 220 board wire, and insulating tape or heat-shrinkable tube is used to insulate the connection.
- The role of light-emitting diodes: D7, power indicator, the higher the output voltage, the brighter it will be. D8, square wave signal frequency indication. D10, high level indication, D9, low level indication.