Transistor tester circuit

ABSTRACT

Simple transistor tester is a transistor analyzer circuit which is suitable for testing both NPN and PNP transistors. This is a very simple circuit as compared to other transistor testers. This circuit is very useful for both technicians and students. This circuit can be easily assembled on a general purpose PCB. A basic electronic component like resistors, LED's, diode and transformer is used for developing this circuit. Using this circuit, we can check whether a transistor is in good condition or not, is it opened or shorted, and so on.

working

- Let us start by connecting an NPN transistor to the circuit with the corresponding Emitter, Base, and Collector terminals and the switch on the circuit.
- During the first half cycle of the transformer input , the emitter base junction of the transistor is forward biased and collector base junction is reverse biased and the transistor is in ON state and diode D1 is in forward biased The current starts flow through the D1 and the red LED begins to glow. During the next half cycle, the transistor is reverse biased and is in OFF state.
- By the alternative nature of the input AC , we can see that the red LED is in ON state and the transistor is in good working condition(Diode D2 and Green Led is in reverse biased and in OFF state). By using the variable resistor, we can check the transistor with various base currents.
- If the NPN transistor is in an open state, the transistor does not conduct and no current flows through the LED. If the transistor is in shorted condition, the transistor acts as a closed switch. And both diodes conduct alternatively and both LED's start glowing.

Components

- +9V supply voltage
- 555 IC
- 1KΩ resistors (2 pieces), 2K2Ω resistors
- 10KΩ pot or variable resistor
- 100µF capacitor
- LED
- Transistor (that needed to be tested)

Circuit Diagram