BOJACK NE555

BOJACK NE555 Timer IC NE555P Pulse Generator DIP-8 Instruction Manual

Introduction

The BOJACK NE555 Timer IC is a highly versatile and widely used integrated circuit for precision timing and pulse generation applications. This manual provides essential information for the proper setup, operation, and maintenance of the NE555P DIP-8 package.

The NE555 can operate in three primary modes: astable (free-running oscillator), monostable (one-shot timer), and bistable (flip-flop). Its robust design and broad operating voltage range make it suitable for a variety of electronic projects and industrial applications.

Product Overview

This package contains 50 units of the BOJACK NE555 Timer IC in a DIP-8 (Dual In-line Package) format, designed for easy integration into breadboards and printed circuit boards (PCBs).

Image showing multiple BOJACK NE555 Timer ICs in a clear plastic storage box, as supplied.

Key Features

- **Model:** NE555
- **Voltage:** 4.5V-18V
- **Current:** 10~15 mA
- **Output current (maximum):** 225 mA
- **Rise/fall time:** 100 ns

Close-up view of several BOJACK NE555 Timer ICs, highlighting the DIP-8 package and markings.

Specifications

Specification	Value
Model	NE555
Voltage Range	4.5V - 18V

Specification	Value
Operating Current	10 - 15 mA
Max Output Current	225 mA
Rise/Fall Time	100 ns
Package Type	DIP-8
Number of Positions	8
Circuit Type	Digital
Compatible Devices	Electronic devices and circuits requiring timing functions

NE555 Pinout and Function

Understanding the pin configuration is crucial for proper integration and operation of the NE555 Timer IC. The DIP-8 package has 8 pins, each with a specific function.

Pin No.	Name	Function
1	GND (Ground)	Connects to the negative supply rail (0V).
2	TR (Trigger)	Input to the lower comparator. A negative pulse here (below 1/3 VCC) sets the internal flip-flop, triggering the timer.
3	OUT (Output)	The output of the timer, which can source or sink current.
4	RST (Reset)	Resets the internal flip-flop and forces the output low. Typically connected to VCC if not used.
5	CV (Control Voltage)	Allows external control of the threshold and trigger levels. Often connected to ground via a small capacitor (e.g., 0.01µF) to bypass noise.
6	TH (Threshold)	Input to the upper comparator. When voltage here exceeds 2/3 VCC, it resets the internal flip-flop.
7	DIS (Discharge)	Open collector output that discharges the timing capacitor in astable and monostable modes.
8	VCC (Power Supply)	Connects to the positive supply rail (4.5V to 18V).

Setup Instructions

Handling Precautions

- **Electrostatic Discharge (ESD):** Integrated circuits are sensitive to static electricity. Always handle the NE555 ICs by their body, not the pins. Use an anti-static mat and wrist strap when working with electronic components.
- **Pin Alignment:** Before inserting the IC into a breadboard or PCB socket, ensure all pins are straight. Gently bend any misaligned pins using small pliers if necessary.
- **Orientation:** The NE555 IC has a notch or a dot on one end to indicate Pin 1. Ensure correct orientation when inserting to prevent damage.

Basic Connection

For any application, the NE555 requires a power supply connection:

- Connect Pin 8 (VCC) to the positive terminal of your DC power supply (4.5V to 18V).
- Connect Pin 1 (GND) to the negative terminal (ground) of your DC power supply.
- For stable operation, it is recommended to place a decoupling capacitor (e.g., 0.1µF ceramic) between Pin 8 (VCC) and Pin 1 (GND), as close to the IC as possible.
- If Pin 4 (Reset) is not actively used, connect it directly to Pin 8 (VCC) to prevent accidental resets.

Operating Modes

The NE555 Timer IC can be configured for various timing and oscillation applications.

Astable Multivibrator (Oscillator Mode)

In astable mode, the NE555 generates a continuous, free-running output square wave. This configuration requires two resistors and one capacitor to set the frequency and duty cycle. The output continuously switches between high and low states without external triggering.

Monostable Multivibrator (One-Shot Timer Mode)

In monostable mode, the NE555 produces a single output pulse of a specific duration when triggered by an external event. This configuration requires one resistor and one capacitor to determine the pulse width. Once triggered, the output goes high for a set period and then returns low.

Maintenance

The BOJACK NE555 Timer ICs are robust electronic components that require minimal maintenance. Proper handling and storage are key to their longevity.

- **Storage:** Store ICs in their original anti-static packaging or in anti-static foam/trays to protect against ESD and physical damage. Keep them in a dry environment away from extreme temperatures.
- **Cleaning:** If pins become tarnished, a gentle wipe with an electronics-safe contact cleaner can be used. Avoid harsh chemicals or abrasive materials.
- **Inspection:** Periodically inspect pins for bending or corrosion before use.

Troubleshooting

If you encounter issues with your NE555 Timer IC, consider the following common troubleshooting steps:

- **No Output/Incorrect Timing:**

- Verify power supply connections (VCC and GND) and ensure the voltage is within the 4.5V-18V range.
- Check all external component values (resistors, capacitors) against your circuit design.
- Ensure Pin 4 (Reset) is connected to VCC if not actively used.
- Confirm correct IC orientation (Pin 1).
- Check for loose connections or shorts on the breadboard/PCB.

- **Unstable Operation:**
  - Add a decoupling capacitor (e.g., 0.1µF) between VCC and GND close to the IC.
  - Connect a small capacitor (e.g., 0.01µF) from Pin 5 (Control Voltage) to GND to filter noise.
- **IC Gets Hot:**
  - Ensure the output current does not exceed the maximum rating of 225 mA.
  - Check for short circuits on the output or other pins.

Warranty Information

Specific warranty details for the BOJACK NE555 Timer ICs are not provided in this manual. For information regarding warranty coverage, please refer to the product listing on the retailer's website or contact the seller directly at the time of purchase.

Technical Support

For technical assistance or inquiries regarding the BOJACK NE555 Timer ICs, please contact BOJACK ELECTRON. You may find contact information on the product packaging or through the retailer where the product was purchased.

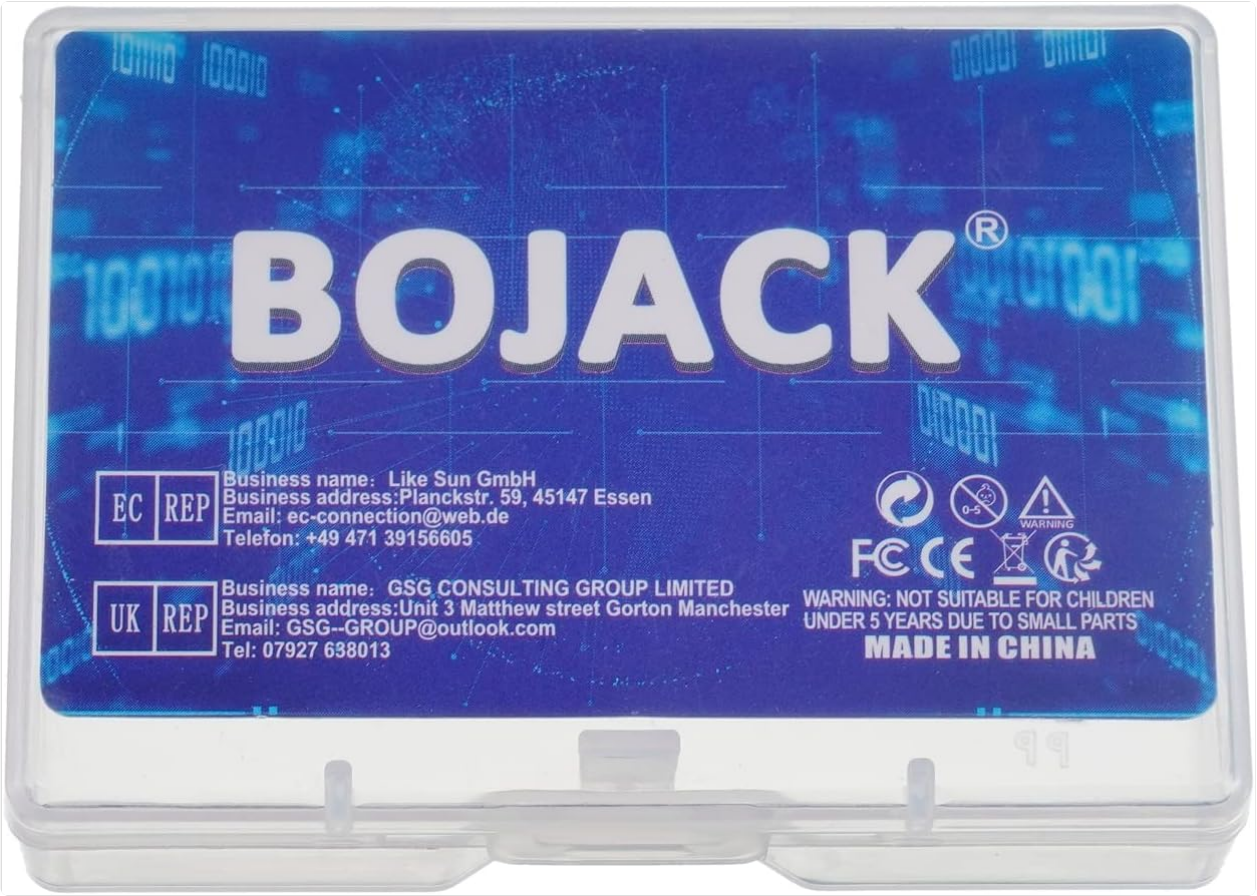

Image of the back of the BOJACK NE555 Timer ICs packaging, displaying manufacturer contact information and compliance logos.

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