BOJACK BJ-SBR-560

BOJACK SR560 Schottky Barrier Rectifier Diodes User Manual

Model: BJ-SBR-560

1. Introduction

This manual provides essential information for the proper use, installation, and maintenance of BOJACK SR560 Schottky Barrier Rectifier Diodes. These high-quality electronic components are designed for various applications requiring efficient rectification and low power loss.
The BOJACK SR560 (SB560) is a 5 Amp, 60 Volt axial diode, compliant with Lead-Free and RoHS standards. It is suitable for product development, student experiments, maintenance, and production environments.

2. Safety Information

Always observe the following safety precautions when handling and working with electronic components:

- **Electrical Safety:** Ensure power is disconnected from circuits before installing or removing components. Work in a dry environment.
- **Static Discharge:** Electronic components can be sensitive to electrostatic discharge (ESD). Use appropriate ESD protection measures, such as anti-static mats and wrist straps, when handling diodes.
- **Heat:** Diodes can generate heat during operation. Ensure proper heat dissipation in your circuit design. Soldering irons are hot; use caution to avoid burns.
- **Polarity:** Incorrect polarity can damage the diode and other circuit components. Always verify the anode and cathode before installation.
- **Storage:** Store diodes in their original packaging or in anti-static bags in a cool, dry place to prevent damage from moisture or static.

3. Product Features

The BOJACK SR560 Schottky Barrier Rectifier Diodes offer the following key features:

- **Part Number:** SR560 (also known as SB560)
- **Forward Rectified Current:** 5 Amperes (5A)
- **Maximum Recurrent Peak Reverse Voltage:** 60 Volts (60V)
- **Package Type:** DO-201AD (Axial Diodes)

- **Key Characteristics:** Low Reverse Leakage Current, Low Power Loss, High Efficiency
- **Terminals:** Plated Leads, Solderable per MIL-STD-202, Method 208
- **Compliance:** Lead-Free and RoHS Compliant
- **Quantity:** Available in packs of 30 pieces

4. Specifications

Specification	Value
Manufacturer	BOJACK
Model Number	BJ-SBR-560
Part Number	SR560 (SB560)
Forward Current (IF)	5A
Peak Reverse Voltage (VRRM)	60V
Package Case	DO-201AD
Item Weight	Approximately 0.81 ounces (for the pack)
Package Dimensions	6.75 x 4 x 0.25 inches
Compliance	Lead-Free / RoHS Compliant

5. Setup and Installation

Integrating the SR560 diodes into your circuit requires careful attention to polarity and soldering techniques.

5.1. Identifying Polarity

The SR560 diode has a specific polarity. The cathode (negative) end is typically marked with a band or stripe on the diode body. The unmarked end is the anode (positive).

Image: BOJACK SR560 Schottky Diodes. Note the silver band on one end, which denotes the cathode (negative) terminal.

5.2. Soldering Instructions

1. **Prepare Leads:** Ensure the diode leads are clean and free of oxidation.
2. **Positioning:** Insert the diode into the circuit board, ensuring the correct polarity matches your circuit design. The cathode band should align with the negative side of the circuit.
3. **Soldering:** Use a soldering iron with appropriate temperature for electronic components (typically 300-350°C or 570-660°F). Apply solder to the joint, ensuring a good electrical connection and mechanical bond. Avoid excessive heat, which can damage the diode.
4. **Cooling:** Allow the solder joint to cool naturally. Do not move the component until the solder has solidified.
5. **Inspect:** Visually inspect the solder joints for proper formation (shiny, smooth, concave fillet).

Image: Packaging of BOJACK SR560 Schottky Diodes. The packaging protects the diodes during transport and storage.

6. Operating Principles

The SR560 is a Schottky Barrier Rectifier diode. Unlike conventional PN junction diodes, Schottky diodes utilize a metal-semiconductor junction, which results in several advantages:

- **Low Forward Voltage Drop:** This means less power is dissipated as heat when current flows through the diode in the forward direction, leading to higher efficiency.
- **Fast Switching Speed:** Schottky diodes have very little reverse recovery charge, allowing them to switch from conducting to non-conducting states much faster than standard diodes. This makes them ideal for high-frequency applications.
- **Rectification:** Their primary function is to allow current to flow in one direction (forward bias) and block it in the opposite direction (reverse bias), converting AC to DC or isolating parts of a circuit.

These characteristics make the SR560 suitable for power supplies, DC-DC converters, and other applications where efficiency and speed are critical.

7. Maintenance

BOJACK SR560 diodes are passive components and require minimal maintenance. However, proper handling and storage are crucial for their longevity and performance.

- **Storage:** Keep unused diodes in their original anti-static packaging in a cool, dry environment, away from direct sunlight and extreme temperatures.
- **Handling:** Avoid bending the leads excessively or applying undue mechanical stress to the diode body. Always use ESD precautions.
- **Cleaning:** If necessary, clean the diode body with a soft, dry cloth. Avoid using harsh chemicals or abrasive materials.
- **Environmental Factors:** Protect installed diodes from moisture, dust, and corrosive substances, which can degrade performance over time.

8. Troubleshooting

If you encounter issues with the SR560 diodes in your application, consider the following common troubleshooting steps:

- **No Current Flow / Open Circuit:**
  - Check for incorrect polarity.
  - Verify solder joints for cold joints or bridges.
  - Ensure the diode is not damaged (e.g., cracked body, bent leads).
- **Short Circuit / Excessive Current:**
  - Confirm the diode's voltage and current ratings are not exceeded by the circuit.
  - Check for external short circuits in the surrounding components or traces.
  - The diode may have failed due to overvoltage or overcurrent.
- **Overheating:**
  - Ensure adequate heat dissipation (e.g., proper PCB layout, heatsinking if necessary for higher power applications).
  - Verify that the forward current is within the diode's specifications.
- **Incorrect Output Voltage/Current:**

- Re-check the circuit design and component values.
- Test the diode using a multimeter's diode test function to confirm it is functioning correctly (forward voltage drop, no reverse conduction).

9. Warranty Information

For specific warranty details regarding BOJACK SR560 Schottky Barrier Rectifier Diodes, please refer to the purchase documentation or contact the seller directly. As electronic components, warranties typically cover manufacturing defects under normal operating conditions.

10. Support

If you require further assistance or have technical questions about the BOJACK SR560 diodes, please contact your point of purchase or the manufacturer, BOJACK, through their official support channels. Provide your product model number (BJ-SBR-560) and a detailed description of your inquiry for efficient support.