STEREN 11

STEREN 5MM Light Amber LED Instruction Manual

Introduction

This manual provides essential information for the proper installation, operation, and maintenance of your STEREN 5MM Light Amber LED. Please read these instructions carefully before use to ensure safe and effective application of the product.

This image displays the STEREN 5MM Light Amber LED, highlighting its physical form factor and amber color. The two metal leads for electrical connection are visible at the bottom.

Product Overview

The STEREN 5MM Light Amber LED is a versatile light-emitting diode designed for various electronic projects, illuminated signs, and instrument repair. Its compact size and specific electrical characteristics make it suitable for integration into custom circuits requiring an amber light source.

Key Features:

- 5mm Light-Emitting Diode (LED)
- Voltage: 2.1 V
- Power: 31.5 mW
- Luminosity: 80 mcd
- Current: 15 mA
- Light Amber Color

Setup and Installation

Safety Precautions:

- Ensure power is disconnected from the circuit before handling the LED or making any connections.
- Observe correct polarity to prevent damage to the LED. Connecting an LED with reverse polarity can destroy it.
- Always use an appropriate current-limiting resistor in series with the LED to protect it from excessive current, which can cause overheating and failure.

Connecting the LED:

1. **Identify Polarity:** The LED has two leads: the anode (positive, typically longer) and the cathode (negative, typically shorter or indicated by a flat edge on the LED casing).
2. **Calculate Resistor Value:** Determine the required current-limiting resistor value. The formula is R = (Vs - Vf) / If, where Vs is the supply voltage, Vf is the LED's forward voltage (2.1V for this model), and If is the desired forward current (15mA or 0.015A for this model). For example, with a 5V supply: R = (5V - 2.1V) / 0.015A = 193.3 Ohms. A standard 200 Ohm resistor would be suitable.
3. **Connect Resistor:** Solder or connect the calculated current-limiting resistor in series with the anode (positive) lead of the LED.
4. **Connect to Power:** Connect the free end of the resistor to the positive (+) terminal of your power supply. Connect the cathode (negative) lead of the LED directly to the negative (-) or ground terminal of your power supply.
5. **Verify Connections:** Double-check all connections for correctness and security before applying power to the circuit.

Operation

Once properly installed and connected to a suitable power source with a current-limiting resistor, the STEREN 5MM Light Amber LED will illuminate. The brightness of the LED is primarily determined by the current flowing through it, which is controlled by the resistor value and the supply voltage.

Optimal Operating Conditions:

- **Forward Voltage (Vf):** 2.1 V (typical)
- **Forward Current (If):** 15 mA (recommended for optimal performance and longevity)
- **Operating Temperature:** Refer to the specific datasheet for the full operating temperature range. Generally, LEDs perform best within a moderate temperature range, typically -20°C to +80°C.

Avoid exceeding the maximum specified forward current or voltage to prevent premature failure or permanent damage to the LED. Prolonged operation at maximum limits can reduce the LED's lifespan.

Maintenance

The STEREN 5MM Light Amber LED is a solid-state device designed for long-term reliability and requires minimal maintenance. Proper handling and environmental conditions will ensure its longevity.

Cleaning:

- If the LED lens accumulates dust or debris, gently wipe it with a soft, dry, lint-free cloth.
- For more stubborn dirt, a slightly damp cloth with distilled water can be used. Ensure no moisture enters the LED housing or comes into contact with electrical connections.
- Avoid using abrasive cleaners, solvents, or harsh chemicals, as these can damage the LED's lens or casing.

Protect the LED from physical impact and extreme temperatures, as these can compromise its performance and structural integrity.

Troubleshooting

LED Does Not Light Up:

- **Check Power Supply:** Ensure the power supply is active and providing the correct voltage to the circuit.
- **Verify Polarity:** Confirm that the LED is connected with the correct polarity (anode to positive, cathode to negative). Reverse polarity will prevent the LED from lighting.
- **Inspect Resistor:** Ensure the current-limiting resistor is correctly sized and not damaged. A resistor that is too large may prevent the LED from lighting or make it very dim. An open-circuit resistor will prevent current flow.
- **Check Connections:** Verify all electrical connections are secure and free from shorts or breaks in the circuit.
- **LED Damage:** If all other checks pass, the LED itself may be faulty or damaged. Replace with a new LED to test.

LED is Too Dim or Too Bright:

- **Resistor Value:** The brightness of the LED is directly related to the current. Adjust the current-limiting resistor value. A lower resistance will increase brightness (and current), while a higher resistance will decrease it. Always ensure the current remains within the LED's safe operating limits (15mA recommended).
- **Power Supply Voltage:** Confirm that the power supply voltage matches the design specifications for your circuit. Fluctuations in supply voltage can affect LED brightness.

Specifications

Feature	Value
Model Number	11
ASIN	B07HFMJMH8
Manufacturer	STEREN
Date First Available	September 17, 2018
LED Type	5mm Light-Emitting Diode
Color	Light Amber
Forward Voltage (Vf)	2.1 V
Forward Current (If)	15 mA
Luminosity	80 mcd
Power Consumption	31.5 mW

Warranty and Support

For warranty information or technical support regarding your STEREN 5MM Light Amber LED, please contact STEREN customer service directly. Keep your purchase receipt as proof of purchase.
You can visit the official STEREN store on Amazon for additional resources and contact information: STEREN Official Store on Amazon