ALITOVE 812B300WPBK-FBA

ALITOVE WS2812B Individually Addressable LED Strip Light User Manual

Model: 812B300WPBK-FBA

Brand: ALITOVE

PRODUCT OVERVIEW

The ALITOVE WS2812B Individually Addressable LED Strip Light is a versatile and flexible lighting solution featuring 5050 RGB LEDs with a built-in WS2812B driver IC. This 16.4ft (5m) strip contains 300 LEDs, allowing for individual control of each pixel's color and brightness. It supports 256 brightness levels and 24-bit full color, enabling dynamic lighting effects and custom animations. Designed for both indoor and outdoor use, the strip is waterproof with an IP67 rating and features a durable black PCB.

This LED strip is ideal for various applications, including custom lighting projects, LED screens, advertising boards, and decorative lighting for events like Christmas or weddings. Its flexible design allows for easy installation and customization, as each LED can be cut without affecting the rest of the strip.
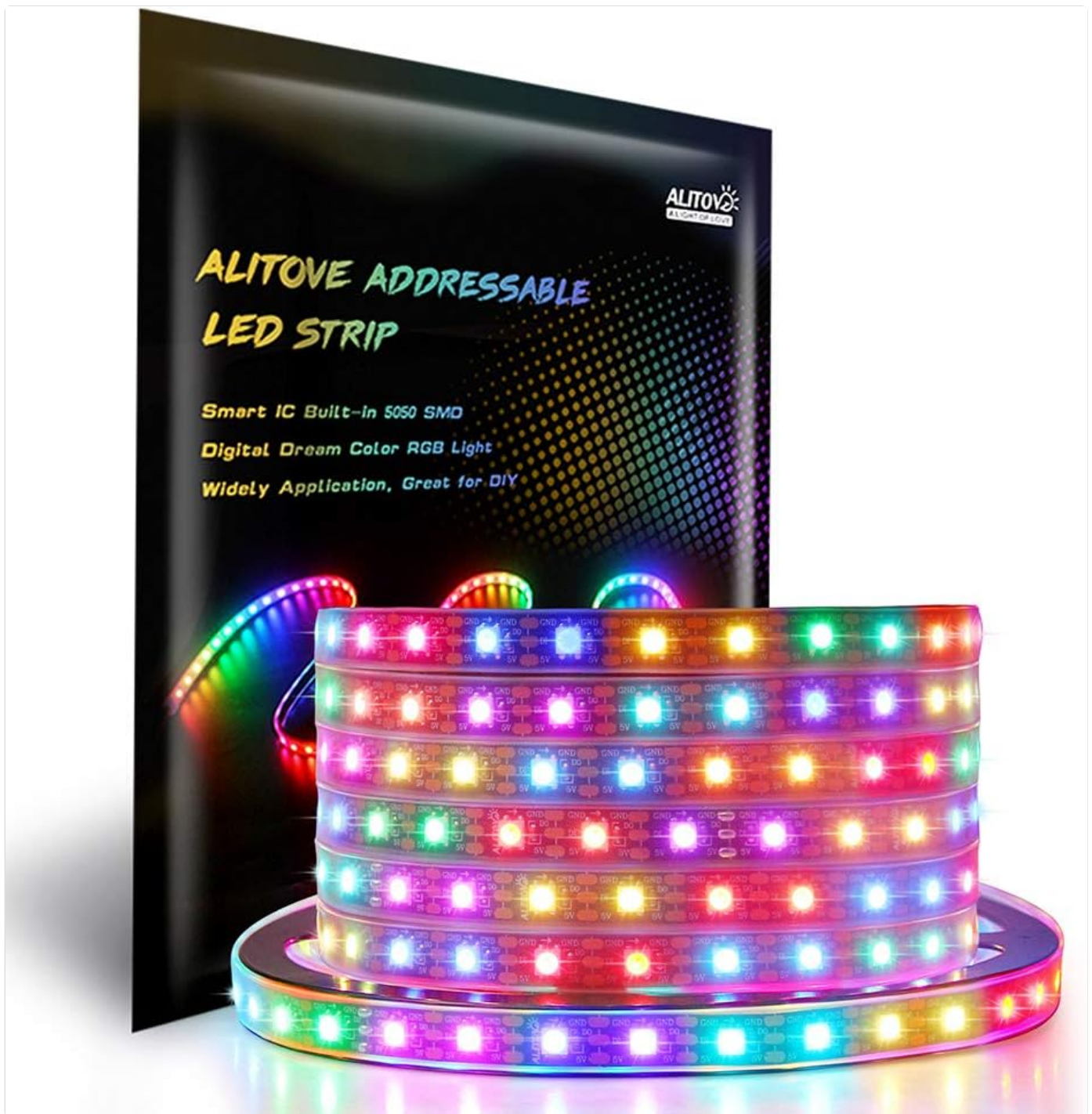
Image: ALITOVE WS2812B LED Strip Light packaging and the coiled LED strip, showcasing its vibrant colors.

SETUP AND INSTALLATION

Proper setup is crucial for the optimal performance and longevity of your ALITOVE WS2812B LED strip. Follow these steps carefully:

1. **Power Supply Connection:** The LED strip requires a 5V DC power supply. **Do not use a voltage higher than 6V**, as this can permanently damage the strip. The power supply capacity should be selected based on the total power consumption of your LED strip. For a single 5m strip, an ALITOVE 5V 10A or 15A power supply is recommended.

2. **Wiring:** The strip comes with 3-pin JST-SM connectors and separated power/ground wires on both ends.
   - **Red wire:** 5V+ (Positive power)
   - **Black wire:** GDN (Ground)
   - **Green wire:** Data (Signal input)

Ensure correct polarity when connecting to your controller and power supply. The RGB order for this strip is GRB, not RGB. Adjust your controller settings accordingly.

3. **Voltage Drop Management:** When connecting multiple strips in series, it is advisable to inject power between each 5-meter segment to prevent voltage drop, which can lead to inconsistent color and brightness along the strip.

4. **Physical Installation:** The strip is flexible and can be shortened, lengthened, or bent as needed. It comes with silicone clips and mini screws for easy mounting. Secure the strip firmly to your desired surface using these accessories.

Wiring diagram

AC85-265V

AC to DC
Power Adapter

直流供电，两路任选
一路即可（不可接到5V上）
（7.5~24V接到5V上）

保存（set）
模式（mode）
速度+（Speed+）
速度−（Speed−）

7.5~24V
GND
5V
错误灯（Error）
电源灯（Power）
SD卡（SD CARD）
GND
DAT
CLK
B
A
INPUT A
INPUT B
OUT A
OUT B

L N
+ + +
− − −

Note:
Please use a 5V output power supply. If the output power more than 6V, the led strips will burn out. Power supply need to be selected according to the total power of LED Strip.

It is better to inject power between each 5 meters when connect them in series in case of voltage drop.

GND GND
DO DI
5V 5V

5000mm

Dimension

16.54mm   16.54mm

12mm

GND
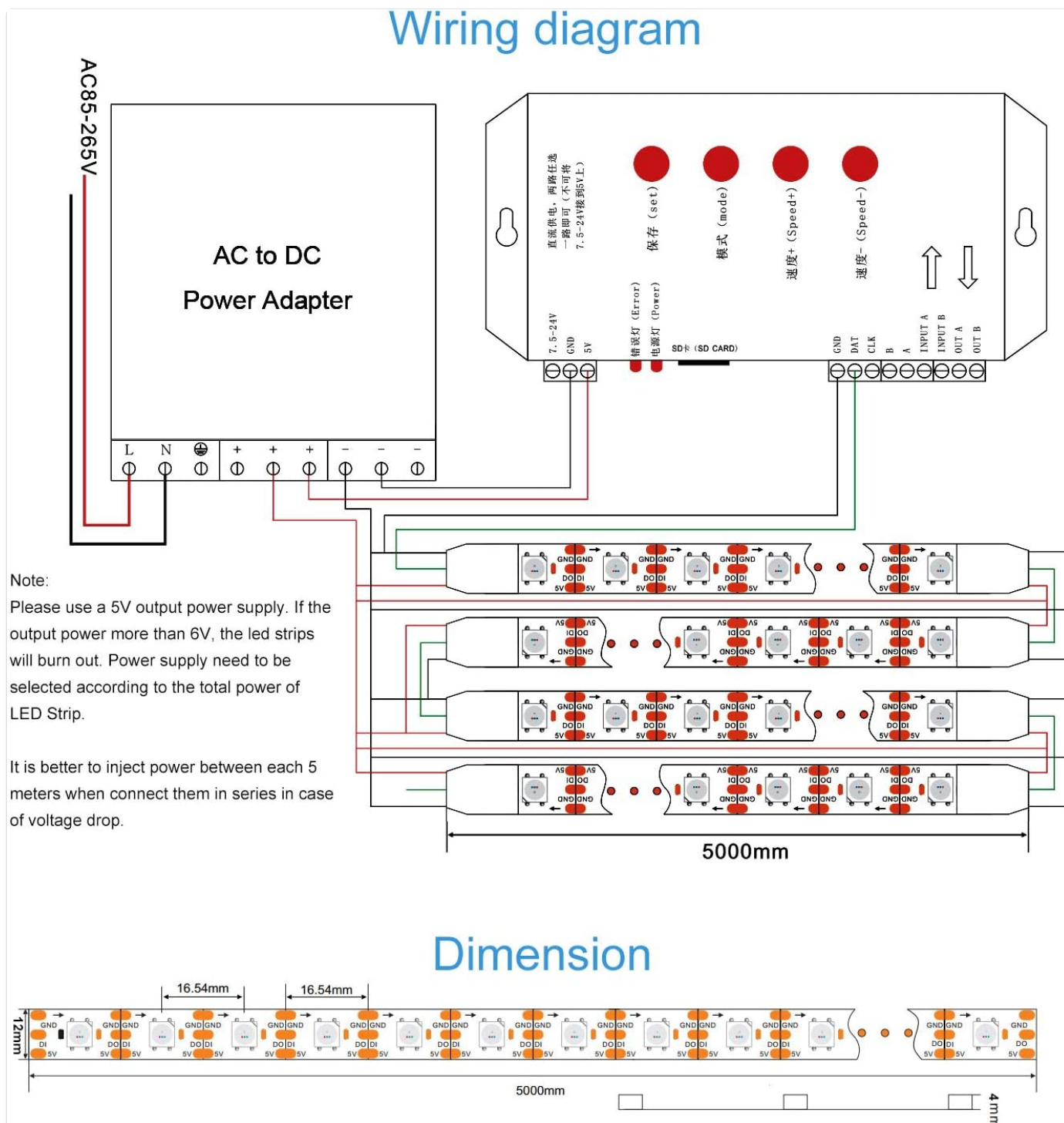DI
5V

GND GND
DO DI
5V 5V

5000mm

4mm

Image: Detailed wiring diagram illustrating how to connect the ALITOVE WS2812B LED strip to a power adapter and controller, including power injection points.

WS2812B LED Strip
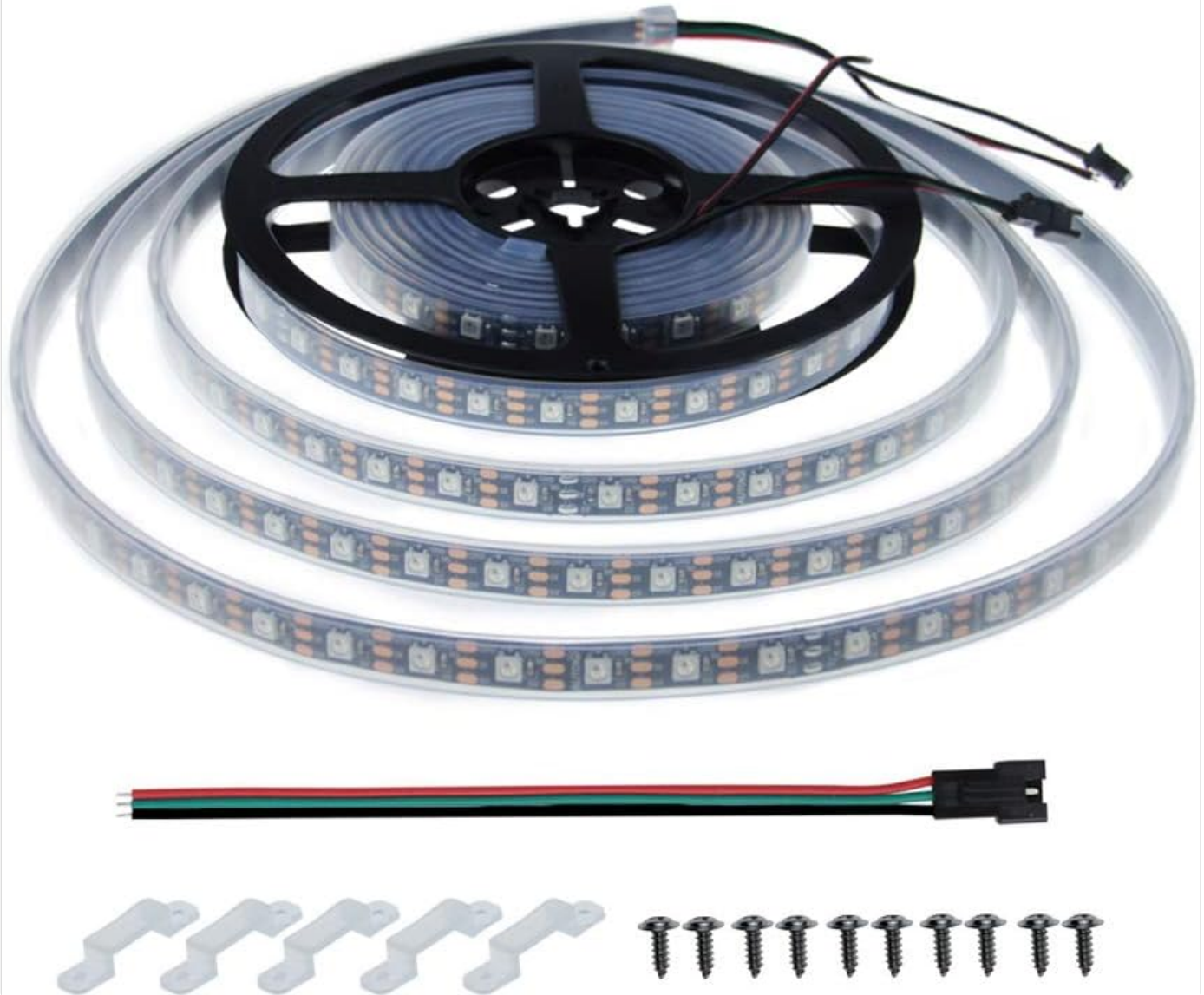## 16.4ft / 300 LEDs / Black FPCB / IP67 Waterproof

Image: The ALITOVE WS2812B LED strip uncoiled, showing the included JST connector, silicone clips, and screws for installation.

OPERATING INSTRUCTIONS

The ALITOVE WS2812B LED strip offers extensive control capabilities due to its individually addressable pixels. To operate the strip, you will need a compatible controller:

- **Programmable Control:** The strip can be programmed using various platforms and libraries, including Arduino (with FastLED library), Raspberry Pi, Fadecandy, and T1000S. This allows for custom light patterns, animations, and interactive displays.

- **Pre-programmed Controllers:** For simpler operation, the strip is compatible with pre-programmed WS2811 controllers such as SP105E, SP103E, and HC008. These controllers typically offer a range of built-in modes and effects.

- **Individual Pixel Control:** Each LED on the strip can be set to its own color and brightness, providing 256 gray levels and 24-bit full color display. This enables highly detailed and dynamic lighting effects.

Image: A collage of ALITOVE WS2812B LED strips showcasing a wide range of vibrant colors and dynamic lighting effects.

Image: Various application examples of the ALITOVE WS2812B LED strip, including stage lighting, outdoor building illumination, and festive decorations.

MAINTENANCE

The ALITOVE WS2812B LED strip is designed for durability and ease of maintenance:

- **Waterproof Design:** With an IP67 waterproof rating, the strip is protected by a silicone weatherproof sheathing. This makes it suitable for outdoor use and simplifies cleaning.

- **Cleaning:** To clean the strip, gently wipe it with a damp cloth. Avoid using harsh chemicals or abrasive materials that could damage the silicone coating.

- **Longevity:** The product has a life span of ≥50,000 hours under normal operating conditions.

TROUBLESHOOTING

If you encounter issues with your ALITOVE WS2812B LED strip, consider the following common problems and solutions:

- **Inconsistent Color or Dimming at End of Strip:**

  This is typically caused by voltage drop over longer lengths.
  Solution: Inject power at regular intervals (e.g., every 5 meters) along the strip. Ensure your power supply has sufficient amperage for the total length of LEDs.

- **No Lights or Partial Lighting:**
  - **Check Power Supply:** Verify that the 5V DC power supply is correctly connected and providing power. Ensure it is not overloaded.
  - **Check Wiring:** Confirm that the Red (5V+), Black (GDN), and Green (Data) wires are connected correctly and securely. Incorrect polarity or loose connections can prevent operation.
  - **Controller Issues:** Ensure your controller is properly configured for WS2812B LEDs and that the data signal is being sent correctly. Verify the GRB color order setting on your controller.
  - **Damaged Segment:** Although rare, a damaged LED or segment can interrupt the data signal. Since each LED can be cut, you may isolate a faulty section by cutting and re-connecting the strip.

- **Flickering or Unstable Colors:**

  This can be due to insufficient power, noise on the data line, or an overloaded controller.
  Solution: Ensure adequate power supply. Consider adding a 220-470 ohm resistor between the data pin of your controller and the green data wire of the LED strip to reduce noise. Avoid running the strip at maximum brightness for all LEDs simultaneously if your power supply is borderline.

- **Strip Not Responding to Controller:**
  - **Data Line Connection:** Double-check the connection of the green data wire.
  - **Controller Compatibility:** Ensure your controller is specifically designed for WS2812B or WS2811 addressable LEDs.
  - **Software/Firmware:** If using a programmable controller (e.g., Arduino), verify that the correct library and code are uploaded and configured for the WS2812B.
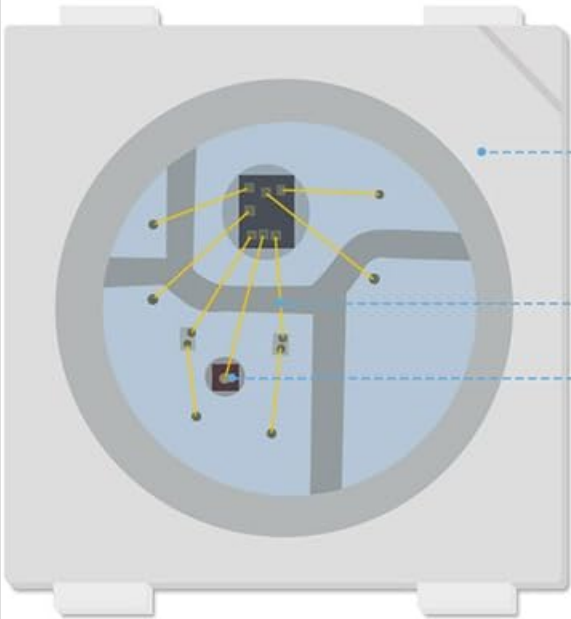
SPECIFICATIONS

Detailed technical specifications for the ALITOVE WS2812B LED Strip Light:

Feature	Specification
Light Source	5050 RGB LED with built-in WS2812B driver IC
LED Quantity	60 LEDs/meter, 300 LEDs/roll (16.4ft/5m)
Wavelength (approx.)	Red: 620-625nm; Green: 515-525nm; Blue: 465-475nm
Color Depth	24-bit full color; 256 gray levels per color
Working Voltage	DC 5V
Power Consumption	0.2W/LED; 12W/meter; 60W/roll (max)
Waterproof Level	IP67 (Waterproof)
Dimensions (L x W x H)	5000mm x 12mm x 4mm (16.4ft x 0.47in x 0.16in)
Port Scanning Frequency	Up to 2KHz/s
Data Transmitting Speed	Up to 800Kbps

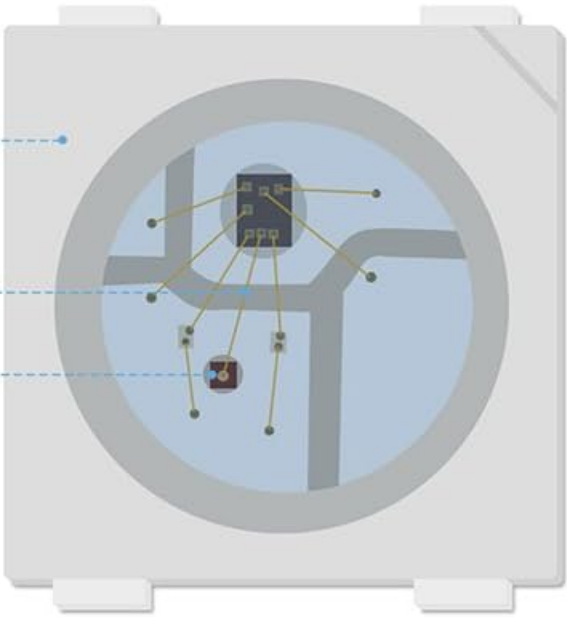| Feature	Specification
RGB Order	GRB (Green, Red, Blue)
Wire Instruction	Red: 5V+; Black: GDN; Green: Data
Life Span	≥50,000 hours
Item Weight	7.8 ounces
UPC	678425399414

Image: A diagram comparing the internal structure and brightness of ALITOVE's WS2812B LED chip (featuring copper bracket and 9 pure gold wires) against another brand's chip.

Better Flexible PCB Board

ALITOVE | Others

ALITOVE:

PB-free welding

There is a resistance before each 50cm LED strip. Have reverse connection protection and hot swap protection functions.

0805 larger capacitance protects the LEDs better.

Double-sided film coating

35um copper foil for both sides

Others:

Lead welding

No rsistance before each 50cm LED strip
No reverse connection protection
No hot swap protection

0603 samller capacitance

Coating film for the front side; Brushing oil for the back side

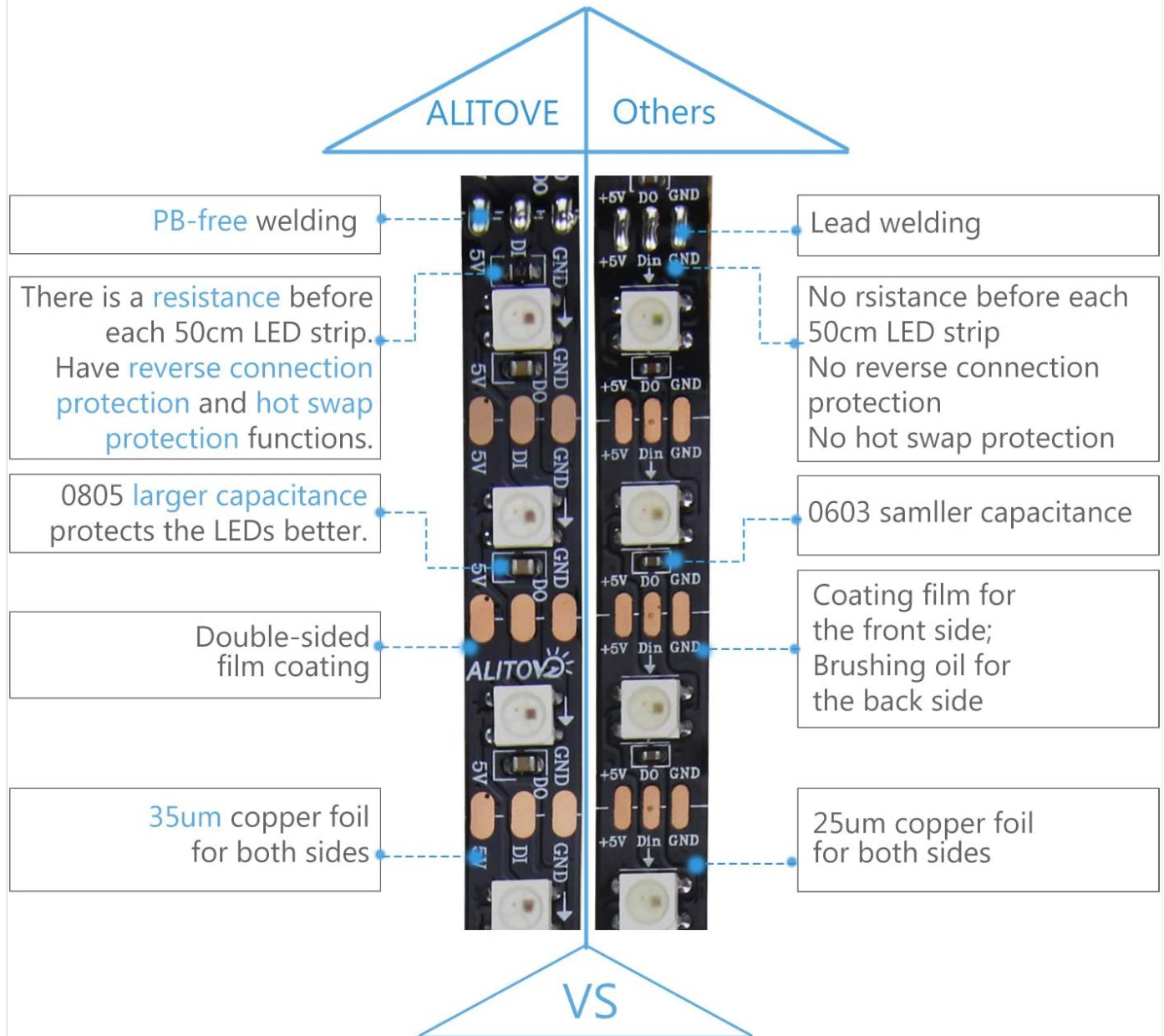25um copper foil for both sides

VS

Image: A comparison diagram highlighting the superior features of ALITOVE's flexible PCB board, including PB-free welding, resistance before each 50cm, reverse connection protection, and double-sided film coating, compared to other brands.

WARRANTY AND SUPPORT

For information regarding product warranty, please refer to the specific terms and conditions provided at the time of purchase or contact ALITOVE directly. ALITOVE is a professional manufacturer of LED lighting and control systems. If you require further assistance, technical support, or have questions about your ALITOVE WS2812B LED Strip Light, please visit the official ALITOVE store or contact their customer service department. You can find more information and contact details on their Amazon brand store page: ALITOVE Official Store.