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› Elecbee Waterproof USB C Connector (IPX8, SMT 6 Pin) Instruction Manual

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Instruction Manual

1. PRODUCT OVERVIEW

The Elecbee Waterproof USB C Connector is a robust, surface-mount (SMT) female connector designed for applications requiring high-speed data transmission and power delivery in challenging environments. Featuring an IPX8 waterproof rating and a 6-pin configuration, this connector ensures reliable performance and durability.

Key Features:

- **Waterproof Design:** IPX8 rated, suitable for submersion under specified conditions.
- **USB Type C Female:** Standard reversible USB-C interface.
- **6-Pin SMT:** Surface Mount Technology for direct PCB integration.
- **High-Speed Performance:** Supports USB 3.1/3.0/2.0 speeds, up to 10Gb/s.
- **Power Delivery:** Extended 5A current rating for USB Power Delivery applications.
- **Durable Construction:** Made with excellent copper alloy terminals, waterproof glue, and an O-ring for enhanced sealing.



Figure 1.1: Side view of the USB C connector, highlighting the port and mounting points.



Figure 1.2: Angled view showing the 6 SMT pins for PCB integration.

2. SETUP AND INSTALLATION

This connector is designed for surface mount installation onto a Printed Circuit Board (PCB). Proper installation is crucial for achieving its rated performance and waterproof capabilities.

2.1 PCB Design Considerations:

- Refer to the technical drawing for recommended PCB footprint and dimensions.
- Ensure adequate clearance for the connector body and rubber ring.
- Design for proper thermal management during soldering.

2.2 Soldering Instructions:

1. **Preparation:** Ensure the PCB pads are clean and free from contaminants.
2. **Placement:** Carefully align the connector pins with the corresponding pads on the PCB. The mounting holes on the

connector can be used for mechanical stability if desired, though SMT pins provide electrical connection.

- 3. **Reflow Soldering:** Follow standard reflow soldering profiles suitable for SMT components. Avoid excessive heat or prolonged exposure, which can damage the connector or its waterproof seals.
- 4. **Inspection:** After soldering, visually inspect all 6 pins to ensure proper solder joints and no bridging. Verify that the connector is seated flush against the PCB.

2.3 Waterproof Seal Integration:

The connector includes a waterproof rubber ring and is designed for liquid insert-mold applications to achieve its IPX8 rating. For optimal waterproofing, integrate the connector into an enclosure design that utilizes the rubber ring for a tight seal against the enclosure wall.

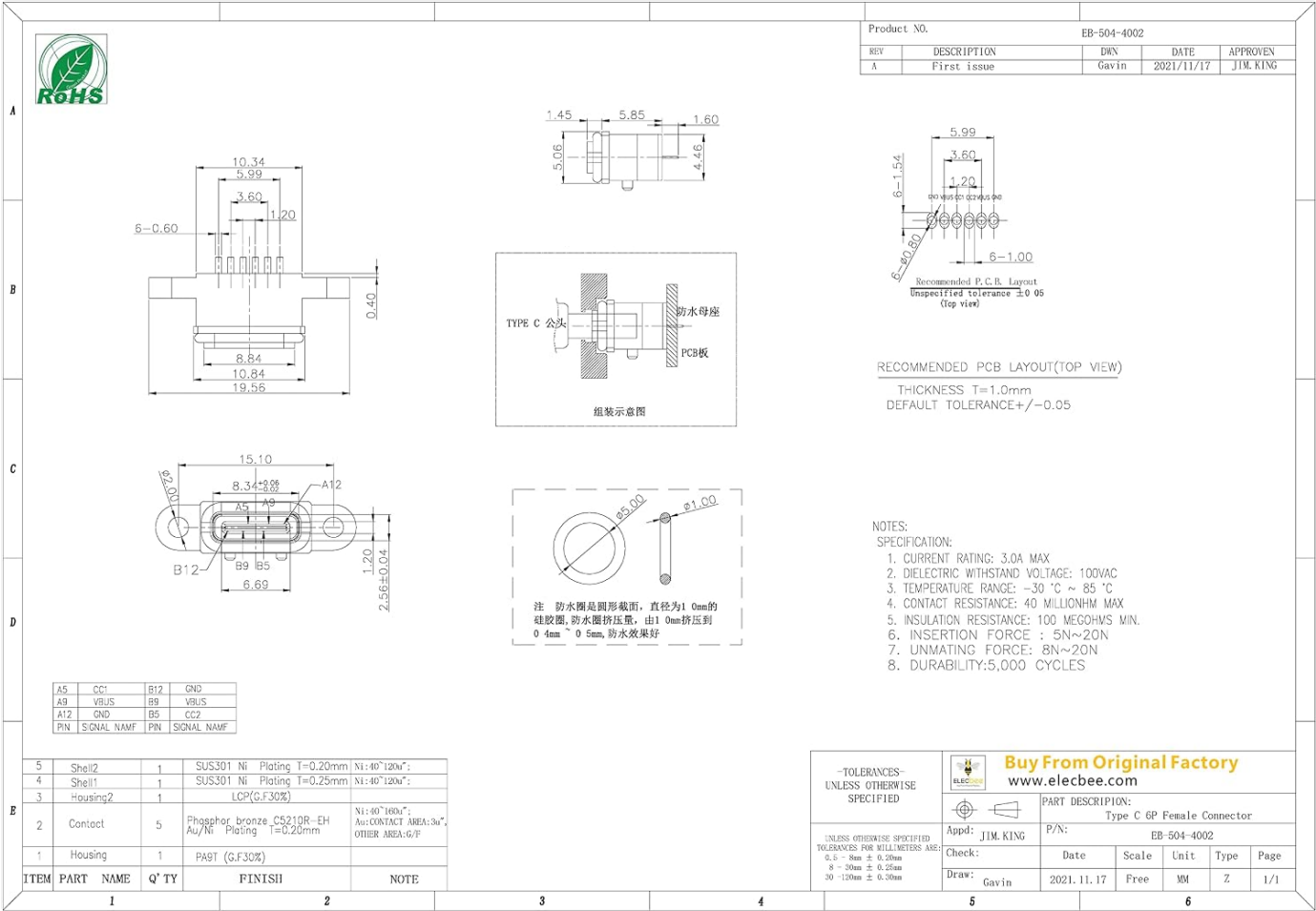


Figure 2.1: Technical drawing with dimensions and recommended PCB layout.



Figure 2.2: Front view of the connector, showing the integrated waterproof rubber ring.



Figure 2.3: Rear view of the connector, displaying the SMT pins.

3. OPERATING INSTRUCTIONS

Once installed, the USB C connector functions as a standard USB-C port, providing data transfer and power delivery capabilities.

3.1 Connecting a USB-C Device:

1. Ensure the USB-C cable is compatible with the desired data speed and power requirements.
2. Align the USB-C cable connector with the port on the Elecbee connector. The USB-C standard is reversible, so orientation does not matter.
3. Gently insert the cable until it clicks into place, indicating a secure connection. Avoid excessive force.

3.2 Disconnecting a USB-C Device:

1. Grasp the cable connector firmly.
2. Pull the cable straight out from the port. Do not twist or yank the cable at an angle, as this can damage the connector or cable.

3.3 Data Transfer and Power Delivery:

The connector supports data transfer speeds up to 10Gb/s (USB 3.1/3.0/2.0 compatible) and power delivery up to 5A, depending on the connected devices and power source. Ensure all connected components (cable, device, power supply) are rated for the desired performance.

4. MAINTENANCE

The Elecbee Waterproof USB C Connector is designed for durability and requires minimal maintenance. However, periodic checks can help ensure long-term reliability.

4.1 Cleaning:

- If the connector port becomes dirty, gently clean it with a soft, dry, lint-free cloth or a small brush.
- For stubborn dirt, a small amount of isopropyl alcohol can be applied to the cloth, ensuring the connector is completely dry before use.
- Avoid using abrasive materials or harsh chemicals that could damage the connector or its seals.

4.2 Inspection:

- Periodically inspect the connector for any visible signs of damage, such as bent pins, cracks in the housing, or degradation of the rubber seal.
- Ensure the connector remains securely mounted to the PCB.

4.3 Maintaining Waterproofing:

- The IPX8 rating relies on proper integration into an enclosure. Ensure the enclosure's seal around the connector remains intact.
- Avoid physical damage to the rubber ring or the connector housing, as this can compromise the waterproof seal.

5. TROUBLESHOOTING

If you encounter issues with your Elecbee Waterproof USB C Connector, consider the following troubleshooting steps:

5.1 No Connection / Device Not Recognized:

- **Check Cable:** Ensure the USB-C cable is fully inserted and not damaged. Try a different, known-good USB-C cable.
- **Check Device:** Verify that the connected USB-C device is functioning correctly.
- **Inspect Port:** Look for any debris or bent pins inside the connector port. Clean if necessary (refer to Maintenance section).
- **Power Cycle:** Disconnect and reconnect the device and power source.

5.2 Slow Data Transfer:

- **Cable Compatibility:** Ensure your USB-C cable supports the desired data transfer speed (e.g., USB 3.1 Gen 2 for 10Gb/s).
- **Device Compatibility:** Verify that both the host and peripheral devices support the higher data speeds.
- **Software/Drivers:** Ensure all necessary drivers are installed and up to date on the host system.

5.3 No Power Delivery:

- **Power Source:** Confirm the power source (e.g., charger, host port) is capable of providing the required power.
- **Cable Rating:** Ensure the USB-C cable is rated for the necessary current (e.g., 5A for extended power delivery).
- **Device Requirements:** Check the power requirements of the connected device.

6. SPECIFICATIONS

Feature	Specification
Connector Type	USB Type C, Female

Feature	Specification
Pin Configuration	6 Pin
Mounting Type	SMT (Surface Mount Technology)
Waterproof Rating	IPX8
Data Transmission Speed	Up to 10Gb/s (USB 3.1/3.0/2.0 compatible)
Current Rating	Extended 5A for USB Power Delivery
Material	Excellent copper alloy for terminals, waterproof glue, O-ring
Manufacturer	Elecbee
Item Weight	0.16 ounces
Package Dimensions	9.84 x 7.87 x 3.94 inches

7. OFFICIAL PRODUCT VIDEO

Your browser does not support the video tag.

This video demonstrates the features and potential applications of the Elecbee Waterproof USB C Connector, highlighting its robust design and waterproof capabilities.

8. WARRANTY INFORMATION

Elecbee products are manufactured to high-quality standards. For specific warranty terms and conditions applicable to your purchase, please refer to the documentation provided at the time of purchase or contact Elecbee customer support directly. Warranty coverage typically addresses manufacturing defects under normal use.

9. SUPPORT

For technical assistance, product inquiries, or support regarding the Elecbee Waterproof USB C Connector, please contact Elecbee customer service through their official channels. You can often find contact information on the product packaging, the seller's website, or the official Elecbee brand store.

Visit the Elecbee Store: [Elecbee Official Store](#)

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