Comimark LY509

Comimark TP5000 Charger Module User Manual

Model: LY509

Introduction

The Comimark 3Pcs TP5000 3.6V/4.2V Charger Module is a versatile and efficient solution for charging 3.7V Lithium-ion and 3.2V LiFePO4 batteries. Utilizing the reliable TP5000 chip, this module provides stable and safe charging performance for various electronic projects and applications. This manual provides essential information for the proper setup, operation, and maintenance of your charger module.

Safety Information

Please read and understand all safety precautions before using the charger module. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- **Electrical Safety:** Always ensure correct polarity when connecting power input and batteries. Incorrect connections can damage the module and connected devices.
- **Voltage Compatibility:** Only connect batteries that are compatible with the module's supported charging voltages (3.6V for LiFePO4, 4.2V for Lithium-ion). Charging incompatible batteries can lead to overheating, fire, or explosion.
- **Ventilation:** Operate the module in a well-ventilated area. Avoid covering the module during operation to prevent overheating.
- **Handling:** Handle the module with care. Avoid static discharge, physical shock, or exposure to moisture.
- **Supervision:** Do not leave charging batteries unattended, especially during the initial charging cycles.
- **Children:** Keep the module and all components out of reach of children.

Product Overview

The Comimark TP5000 Charger Module is a compact circuit board designed for efficient battery charging. It features input terminals for power supply, output terminals for battery connection, and typically includes an LED indicator for charging status.

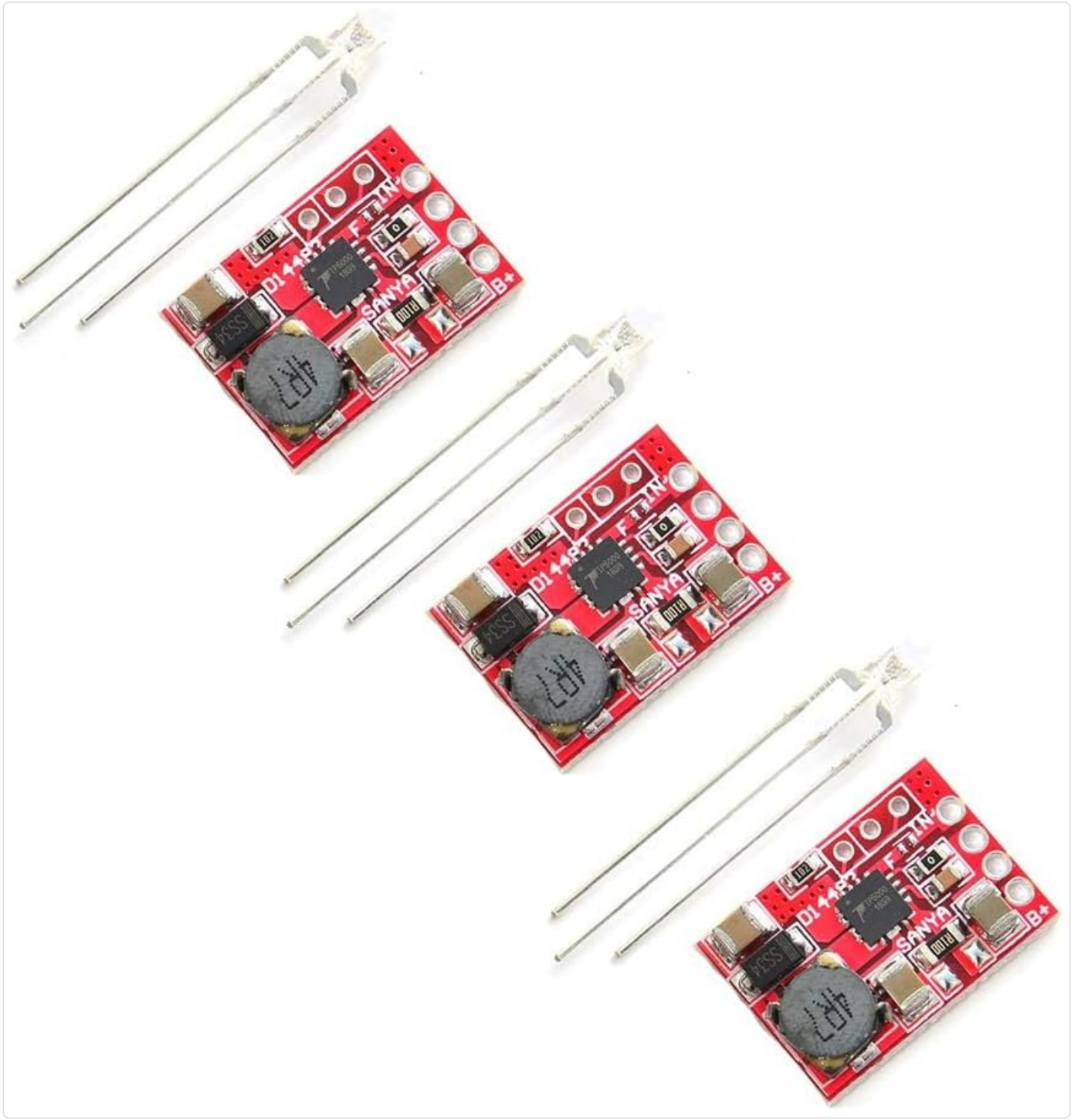

Figure 1: Three Comimark TP5000 Charger Modules as supplied in the package.

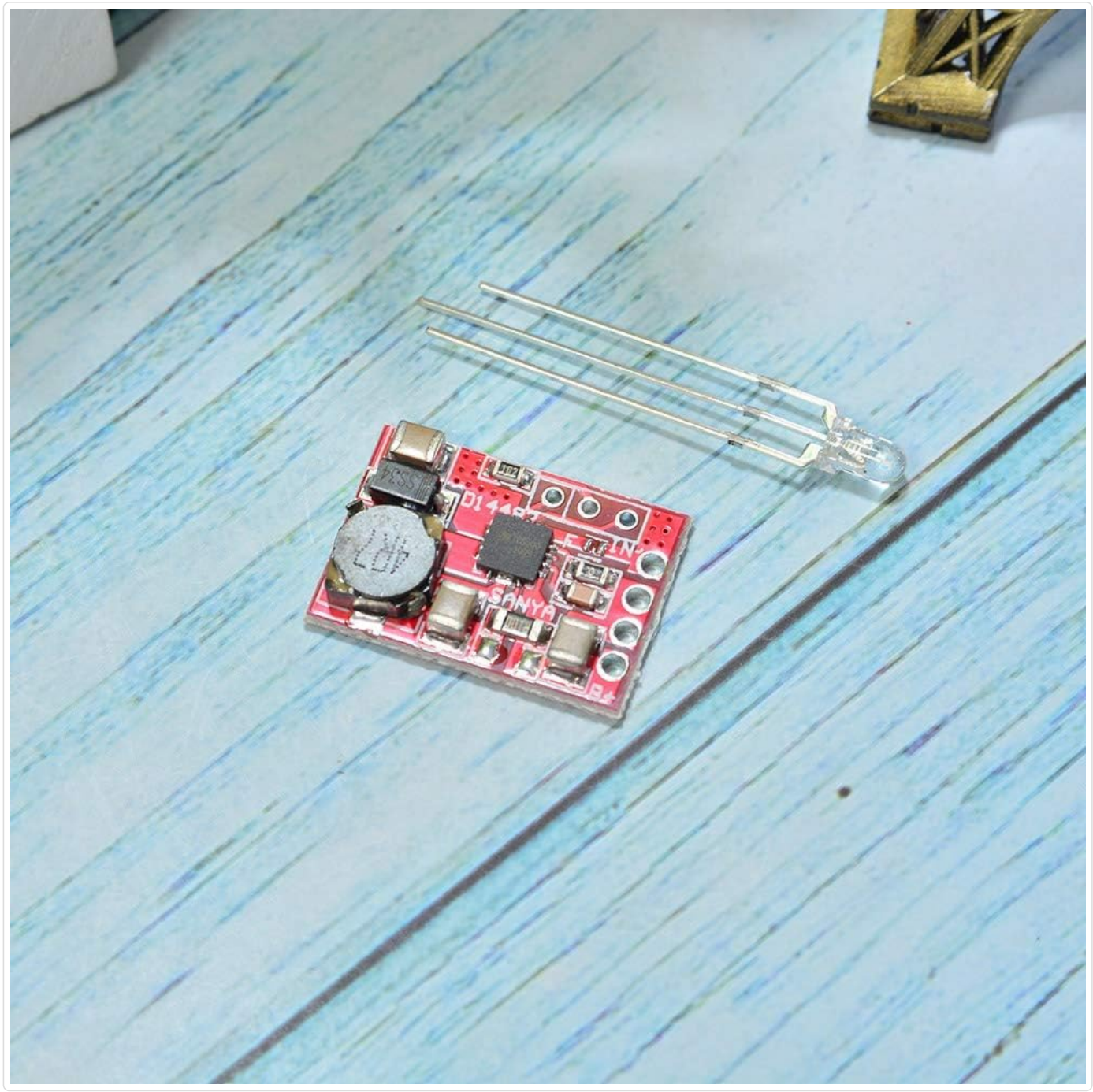

Figure 2: Detailed view of the TP5000 module's top side, showing the TP5000 chip, inductor, capacitors, and connection pads.

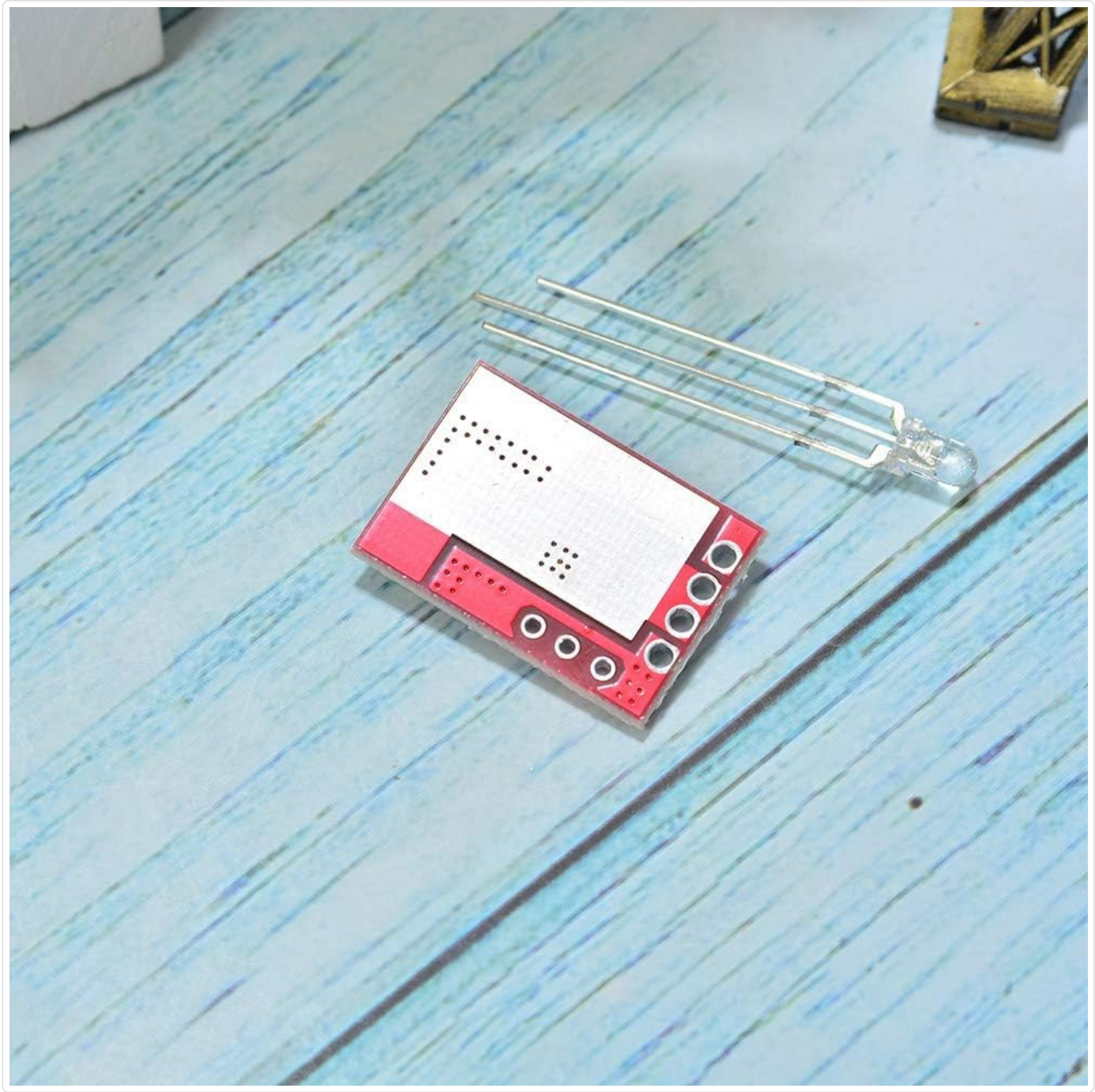

Figure 3: Rear view of the TP5000 module, indicating solder points for input and output connections.

Specifications

Feature	Value
Chipset	TP5000
Compatible Battery Types	3.7V Lithium-ion, 3.2V LiFePO4
Charging Voltages Supported	3.6V, 4.2V
Product Dimensions	1.02 x 2.6 x 0.71 inches (2.6 x 6.6 x 1.8 cm)
Item Weight	0.317 ounces (9 grams)
Color	Green PCB

Model Number	LY509

Setup

Before connecting the module, ensure all power sources are disconnected. The module has clearly marked pads for input power and battery connections.

1. **Input Power Connection:** Connect your DC power supply (e.g., 5V USB charger) to the **IN+** and **IN-** pads. Ensure correct polarity.
2. **Battery Connection:** Connect the battery to be charged to the **B+** and **B-** pads. **B+** connects to the positive terminal of the battery, and **B-** to the negative terminal.
3. **Output Connection (Optional):** If using the module to power a load while charging, connect your load to the **OUT+** and **OUT-** pads. Note that this module is primarily for charging, and direct load connection might affect charging performance.
4. **Voltage Selection:** The TP5000 module typically has solder pads or jumpers to select between 3.6V (for LiFePO4) and 4.2V (for Lithium-ion) charging. Refer to the module's specific markings or datasheet for proper voltage selection. Incorrect voltage selection can damage the battery.

Operating Instructions

Once the module is correctly wired and the appropriate charging voltage is selected:

1. **Initiate Charging:** Apply power to the **IN+** and **IN-** terminals. The module will automatically begin charging the connected battery.
2. **Charging Indicator:** The module typically includes an LED indicator. A red LED usually indicates charging in progress, while a blue or green LED indicates charging is complete. (Note: LED colors may vary by batch; refer to specific module markings if available).
3. **Charging Cycle:** The TP5000 chip manages the charging process, including constant current (CC) and constant voltage (CV) phases, and automatically terminates charging when the battery is full.
4. **Monitoring:** While the module handles charging automatically, it is good practice to periodically monitor the battery voltage, especially during initial use, to ensure proper operation.

Maintenance

- Keep the module clean and free from dust and debris.
- Avoid exposing the module to moisture or extreme temperatures.
- Regularly inspect connections for any signs of wear or corrosion.
- Do not attempt to modify the module's circuitry, as this can lead to damage or unsafe operation.

Troubleshooting

Problem	Possible Cause	Solution

Module not charging / No LED activity	Incorrect input power, reversed polarity, faulty connections, or damaged module.	Verify input voltage and polarity. Check all wiring connections. Ensure the power supply is functional. Inspect the module for visible damage.
Battery not fully charging	Incorrect voltage selection (e.g., 3.6V selected for a 4.2V battery), faulty battery, or insufficient input current.	Confirm the correct charging voltage is selected on the module for your battery type. Test the battery's health. Ensure the input power supply can provide sufficient current (e.g., 1A or more).
Module overheating	Excessive charging current, short circuit, or poor ventilation.	Ensure the charging current is within the module's limits. Check for any short circuits in the wiring. Provide adequate airflow around the module.

Warranty and Support

For warranty information or technical support regarding your Comimark TP5000 Charger Module, please refer to the retailer or vendor from whom you purchased the product. Keep your proof of purchase for any warranty claims. Comimark strives to provide reliable electronic components. For general inquiries or further assistance, please visit the official Comimark website or contact their customer service if available.