

RICHTEK

FOR HIGH-EFFICIENT, HIGH-POWER-DENSITY AND COST-EFFECTIVE DESIGNS

Richtek USB Power Delivery Type-C Adapter Solutions: RT7752 and RT7207K

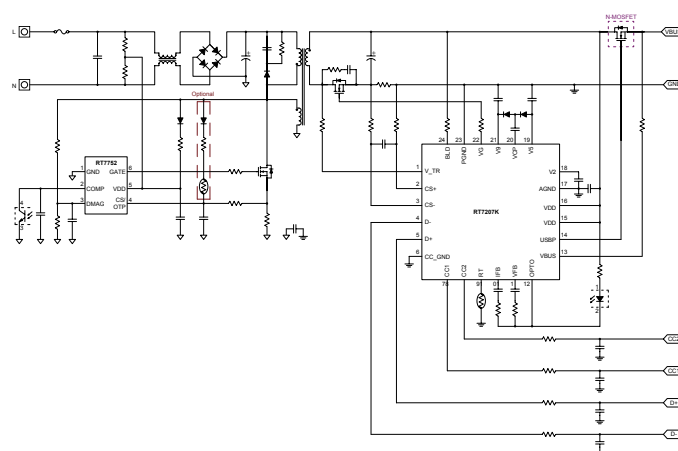
The USB PD Type-C is the next-generation universal interface to revolutionize the way we charge our devices. It provides significantly more power along with higher data transfer speeds. Industry standardization around USB PD Type-C means a single adapter can be shared among different devices from various manufacturers, thus reducing multiple purchases and greatly contributes to reducing electronic waste.

Designing a cost-effective USB PD adapter solution with high efficiency and high power-density can be a challenge. The adapter output voltage should be varied over a wide range and implemented on programmable power supply(PPS) in 20mV/step and 50mA/step. It also needs to provide +/- 150mA constant current accuracy. Richtek's new USB PD adapter combo solution: The RT7752 working together with the RT7207K realizes a robust and safe design which satisfies all these requirements.

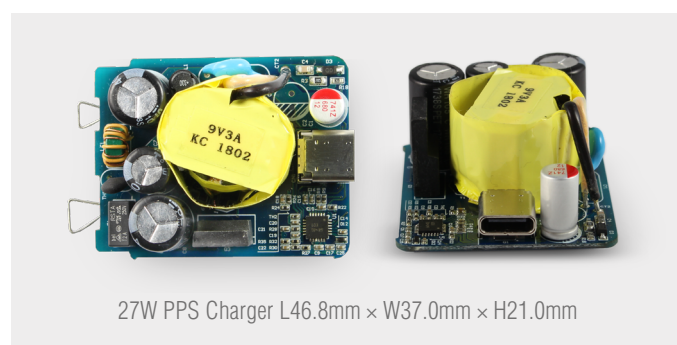
The RT7752 PWM controller is specially optimized for USB with power delivery in a SOT-23-6 package. It delivers a wide output voltage range, with adaptive loop gain control for maintaining stability, adaptive over-current and over-voltage protection. A wide VDD range allows wider Vaux range and higher driver capability for driving large MOSFETs. It has 50mW low power standby and SmartJitter™ for low EMI emission.

In addition, the RT7207K controller at secondary side takes care of the flyback converter output voltage control by controlling an opto-coupler based on output voltage and current sensing. It also integrates an MCU to handle the USB PD protocol, including BMC coding transceiver. The RT7207K is the first USB type-C controller to meet the latest Programmable Power Supply specifications.

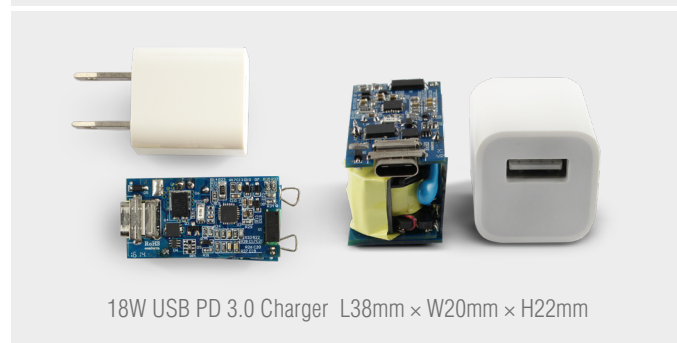
The RT7752 and RT7207K is Richtek's new generation of USB PD adapter combo solution following on from the RT7786 and RT7207 solutions. It is compact with less external components, making it easier to implement into your designs.



▼ Design example



27W PPS Charger L46.8mm × W37.0mm × H21.0mm



18W USB PD 3.0 Charger L38mm × W20mm × H22mm

Contact US

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RT7752 Key Features

- Optimized for Adaptive Output Power
 - Wide VDD Range : 10V to 40V
 - Adaptive Output Over-Voltage Protection
 - Adaptive Over-Current Protection
 - Adaptive Loop Gain Control for Loop Stability
- < 50mW in 5V Standby Mode for Power Saving
- SmartJitter™ Technology for low EMI emission
- Comprehensive Protection
 - Bulk-Capacitor Brown-In and Brown-Out Protection
 - VDD Over-Voltage Protection
 - Output Over-Voltage and Under-Voltage Protection
 - External Over-Temperature Protection
 - Secondary Rectifier Short-Circuit Protection
 - Programmable Line Compensation
- SOT-23-6 package

RT7207K Key Features

- Protocols Support USB PD 3.0 and PPS specifications (TID:1061016)
- Support D+/D- Fast Charge Communication Protocol Function
- Built-in Synchronous Rectifier Driver and Controller
- Built-in Charge Pump for a Wide VDD Operation Range of 3V to 22V
- Built-in Shunt Regulator for Constant-Voltage and Constant-Current Control
- Programmable Cable Compensation
- BLD Pin for Quick Discharge of Output Capacitor
- VBUS Pin for VBUS Voltage Detection and VBUS Capacitor Fast Voltage Discharge
- USBP Pin for Direct Drive of External Blocking N-MOSFET
- Comprehensive Protection
 - Adaptive Output Over-Voltage Protection
 - Adaptive Under-Voltage Protection CC1/CC2/D+/D- Over-Voltage Protection
 - Firmware-Programmable Over-Current Protection
 - Firmware-Programmable Over-Temperature Protection
- QFN4x4-24L Package

TOOLS AND SUPPORT

We also provide product design tools and documents to accelerate your design process, and support any quality-related requirements. Please [contact us](#) for more information.

AVAILABILITY, PACKAGING AND PRICING

The RT7752 and RT7207K products are now available through the Richtek regional offices and authorized distributors. Please [contact us](#) for pricing.

FIND OUT MORE ABOUT RICHTEK USB PD SOLUTIONS

Richtek is continuously expanding the power management solutions for various [USB Type-C with Power Delivery applications](#), from Type-C power adapter, Car charger, Display, Power Bank, Cable ID to full function Dual Role Power applications such as Smart Phones.

For more information, please see the application note "[Introduction to Richtek USB Type-C Power Delivery Solutions](#)". You can also find other Richtek USB PD solution on the [application page](#) and the list of USB PD products on the [product page](#). If you would like to have more information on the USB Type-C PD samples and design kits, please contact your nearest [Richtek sales office](#).