

# High-Integration Programmable Protocol Controller with Internal Feedback Compensation and Built-in Blocking N-MOSFETs

## General Description

The RT7206KDA is a programmable controller with a high integration of the internal feedback compensation, blocking N-MOSFETs and the current sense. An internal MCU is designed to handle various the proprietary protocols via the D+/D- interface.

This controller is a specific design for off-line AC-DC converters to achieve the high power density of a fast charge system. The RT7206KDA integrates a constant voltage loop, a constant current loop and the built-in compensation in the feedback control so as to regulate output voltage and current. With the proprietary design, this controller not only possesses the feature of component-count saving via the built-in feedback compensation, but also provides the performance of enhanced transient response and safety level via the integration of diverse functions and protections.

In applications requiring high-precision control, a dual operational amplifier is adopted in the Digital-to-Analog Converter (DAC) to serve reference voltages used for regulation of voltage loop and current loop in programming the constant voltage (CV) and the constant current (CC).

## Marking Information

For marking information, contact our sales representative directly or through a Richtek distributor located in your area.

## Features

- **Protocol Support**
  - ▶ **Proprietary Protocols**
- **Highly Integrated**
  - ▶ **Suited for 3V to 13V VDD Range**
  - ▶ **Embedded MCU with an Mask ROM of 16kB, an OTP-ROM of 8kB, and an SRAM of 0.75kB**
  - ▶ **Built-in Blocking N-MOSFET and Current Sense**
  - ▶ **Built-in Shunt Regulators for Constant Voltage and Constant Current Control**
  - ▶ **Built-in Internal Feedback Compensation**
  - ▶ **Programmable Linear Cable Compensation**
  - ▶ **CC Tolerance < 100mA**
  - ▶ **VDD Pin for Quick Discharge of Output Capacitor**
    - ▶ **< 5mA Operating Current in Normal Mode**
    - ▶ **< 1.5mA Operating Current in Sleep Mode**
    - ▶ **< 900μA Operating Current in Green Mode**
- **Protection**
  - ▶ **Adaptive Output Over-Voltage Protection**
  - ▶ **Adaptive Under-Voltage Protection**
  - ▶ **CC1/CC2/D+/D-/RT Over-Voltage Protection**
  - ▶ **Firmware-Programmable Over-Current Protection**
  - ▶ **Firmware-Programmable Over-Temperature Protection**

## Applications

- Travel Adapters with USB Type-C Control
- Travel Adapters with Fast Charge Protocols