

# All-in-One USB PD and Bidirectional PWM Buck-Boost Controller

## General Description

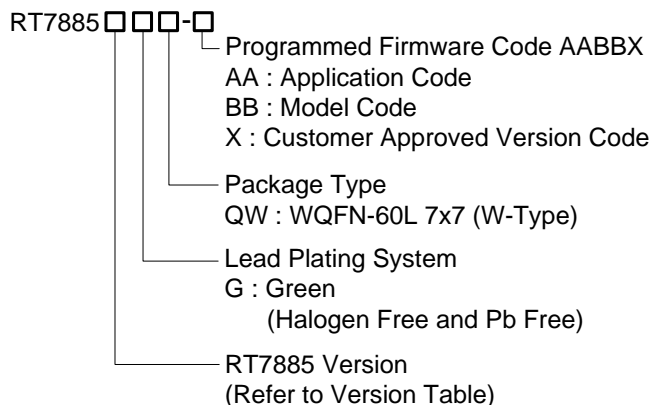
The RT7885 is a USB Power Delivery (USB PD) controller adopting Buck-Boost PWM control scheme and highly integrating functions specially for USB power bank applications, with that this controller is designed to operate in peak current mode with programmable current limit and switching frequency.

The RT7885 embeds an ARM Cortex<sup>™</sup>-M0 MCU so as to facilitate various functions of communication protocol, protections and customized requirements. Moreover, this RT7885 has built-in charge pumps for driving low-cost NMOS to control the power path. Therefore this IC provides the best USB PD solution for a power bank application with the lowest count of external components.

## Applications

- USB PD Type-C Power Bank

## Ordering Information



Note :

The products are :

- ▶ RoHS compliant and compatible with the current requirements of IPC/JEDEC J-STD-020.
- ▶ Suitable for use in SnPb or Pb-free soldering processes.

## Features

- **Communication Protocols**
  - ▶ Support Type-C and USB Power Delivery (PD) Communication
  - ▶ Support Dual-Role Power (DRP) Application
  - ▶ Support Proprietary Protocols via DP and DM Interfaces
- **Charging Operation for 2S to 4S Battery**
  - ▶ CC and CV Charge, End of Charge, Re-Charge, and Charging Timeout Protection
  - ▶ Cell Balance Control
- **Bi-directional Buck-or-Boost Operation :**
  - ▶ Peak-Current Mode PWM Operation
  - ▶ Programmable PWM Switching Frequency
  - ▶ Programmable Constant Voltage and Constant Current Settings for Charger/Provider Mode Output
  - ▶ Pulse-Skipping Mode (PSM) for Light-Load Efficiency
  - ▶ Programmable Cable Voltage Drop Compensation
- **2 Charge Pump Gate Drivers for N-MOSFETs**
- **Hardware and Firmware-Based Protections :**
  - ▶ Adjustable Converter Input Current-Limit
  - ▶ Programmable Over-Voltage Protections (OVP) and Under-Voltage Protections (UVP)
  - ▶ Adjustable External OTP
- **Master/Slave I<sup>2</sup>C Interface, LED Drivers, GPIOs**
- **Built-in Bleeders for Quick VBUS Discharge**
- **Online Firmware Update via CC1/2 or Slave I<sup>2</sup>C Interfaces**
- **WQFN-60L 7x7 Package**