

HL9801

USB Power Delivery and Advanced Protocol Controller

Overview

The HL9801 is highly integrated, secondary-side power adaptor controller compatible with various protocols.

The HL9801 supports constant voltage (CV) and constant current (CC) regulations with the internal operational error amplifiers. In addition, it implements various adaptive output protections, such as under-voltage protection, over-voltage protection, over-current protection, as well as internal/external over-temperature protections.

The HL9801 can be designed as a source only USB type-C controller which is optimized for mobile chargers and power adapters. The N-channel MOSFET is compatible as a load switch and helps to reduce BOM cost.

Features

- Supports 3V to 24V operating voltage range
- Low power saving mode
- Precise current sensing resistor (5mΩ) for high efficiency
- Built-in output capacitor bleeding function for fast discharging during output mode change
- Communication protocols
 - USB Type-C and USB-PD
 - Supports PD3.0 included PPS
 - Integrated VCONN power and E-mark chip communication
 - Smart charge protocol
 - Qualcomm 3.0 and Qualcomm C2.0
 - Universal fast charging protocol (UFCS)
 - Apple 2.4A protocol
- Integrated shunt regulator
 - Constant voltage (CV) control
 - Constant current (CC) control
 - Regulation with two operational error amplifiers of open-drain type for dual-loop CV/CC control
 - Built-in cable-drop compensation
- MCU
 - RISC-V compatible MCU
 - 32K bytes multi-time programmable ROM
- Various protections
 - Adaptive output over-voltage protection (OVP)
 - Adaptive output under-voltage protection (UVP)
 - External over-temperature protection (NTC)
 - Internal over-temperature protection (OTP)
 - CC1/CC2/DP/DN over-voltage protection
- 10-bits ADC for voltage, current and temperature monitoring
- N-channel MOSFET control as a load switch
- General purpose I/O

Applications

- Adapters for Smartphones and Tablets
- AC-DC Adapters for Portable Devices that require CV/CC control

Simplified Application Diagram

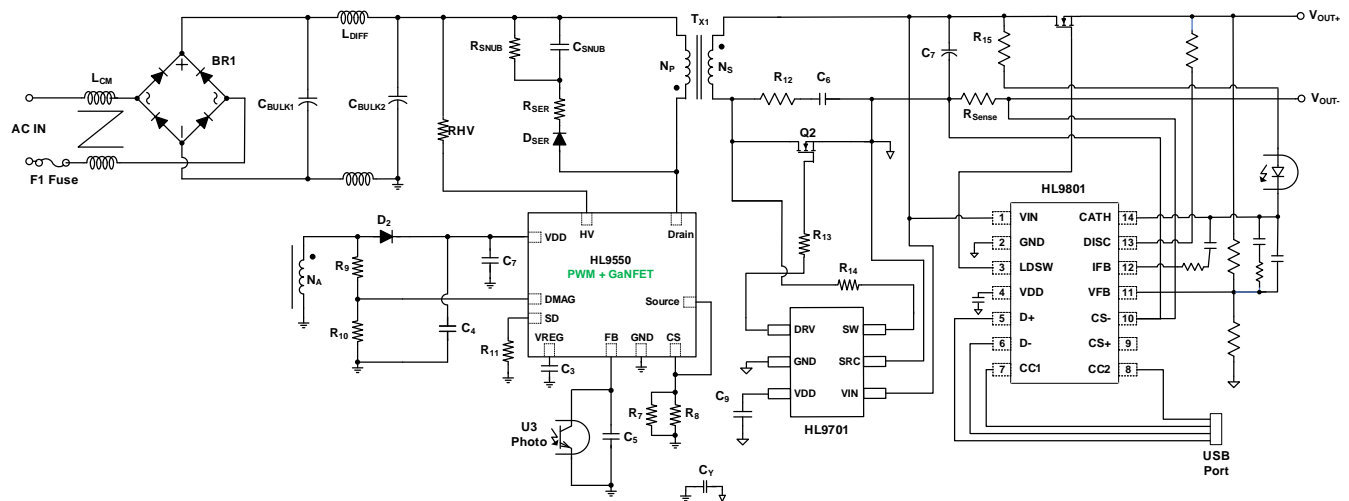


Figure: HL9801 Application Diagram

Ordering Information

Part Number	Operating Temperature Range	Package	Packing Method
HL9801	-40°C to +125°C	QFN16	Tape & Reel

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