

# HT5531: USB-C PD 3.1 High-Voltage Low-Power RISC-V 140W Sink (Power Taker) Controller

## APPLICATIONS

- USB-C cables (with E-marker)
- USB PD sink devices
- Lithium battery appliances
- Wireless charger

## GENERAL DESCRIPTION

HT5531 is a highly integrated, low-power consumption USB PD sink controller designed for products with USB-C PD SINK. It supports as sink role for up to 140W (28V, 5A) power rating.

HT5531 can be configured to support multiple PDOs from source devices with programmable voltage and current for different applications, such as PPS PDOs. And it also supports to USB PD3.1 EPR FPDO (28V, 5A) and is compliant with USB PD3.1 source devices.

HT5531 also supports most legacy DPDM charging protocols, such as Apple 2.4A mode and BC 1.2 DCP mode by configuring the DP and DM pins which provides excellent compatibility for the legacy devices.

HT5531 integrates a GATE driver to enable the VBUS to charging devices such as Lithium battery to protect the devices connected with Type-C connector.

HT5531 incorporates various protections, such as VBUS's Under Voltage Protection (UVP), Over Voltage Protection (OVP), Over Current Protection (OCP), CC1 and CC2 pins Over Voltage Protection (CC\_OVP), and Over Temperature protection (I\_OTP).

## FEATURES

- 32-bit, RISC-V microcontroller
- USB-C PD 3.1 and Type-C 1.3
- Supports to sink PDO configurable profiles (up to 28V, 5A)
- Supports PPS with 20mV/step voltage and 50mA/step current
- Supports Legacy charging sink at DPDM protocols
  - Apple 5V, 2.4A mode
  - BC1.2 DCP detection
- Embeds protection schemes on VBUS, such as Under Voltage Protection (UVP), Over Voltage Protection (OVP), Over Current Protection (OCP)
- Supports Over Temperature protection (I\_OTP) from NTC resistor
- CC1 and CC2 pins Over Voltage Protection (CC\_OVP) and rating up to 28V
- Operating Voltage Range: 3.3V to 30V
- Supports Dead Battery Mode
- Supports Sleep Mode
- Low Power Consumption

## DEVICE INFORMATION

Part Number	Package	Dimensions (mm)
HT5531	QFN16	4.0 x 4.0 x 0.75

## TYPICAL APPLICATION

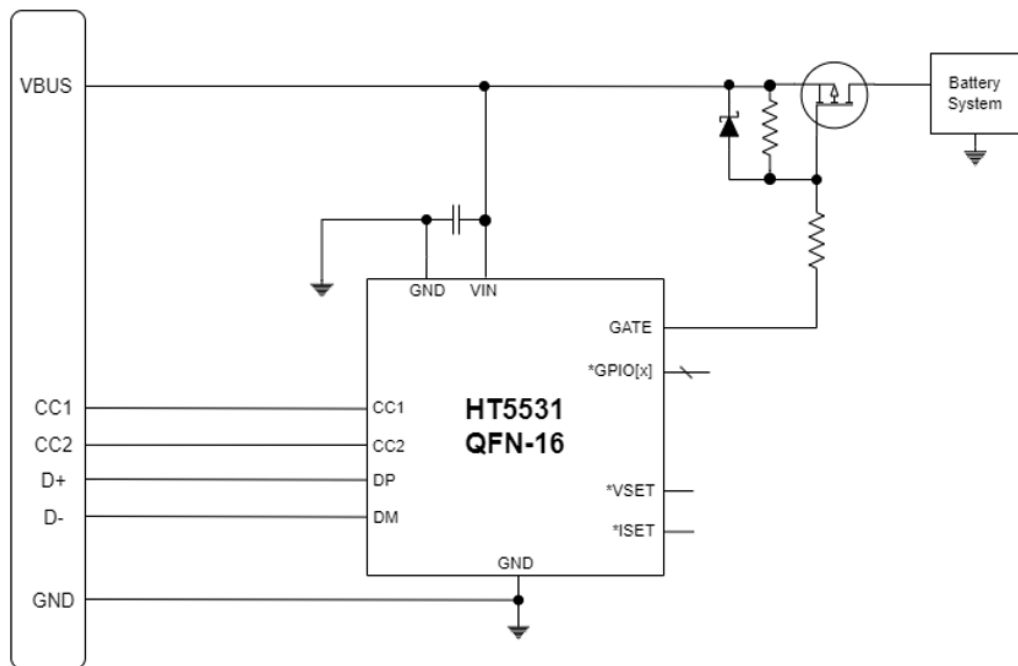


Figure 1. Typical Application Circuit of HT5531

### Remarks

\* Pins (GPIO[x], VSET, ISET) can be re-configured to the specific pins upon further requested and discussed



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