

# USB-C PD3.0 100W Source (Power Giver) Controller

## 1. FEATURES

- USB PD3.0 and Type-C 1.3
- Support up to Five FPDOs
  - Typical 5V, 9V, 12V, 15V and 20V FPDOs
- Support up to three APDOs
  - Support 5V-Prog, 9V-Prog, 15V-Prog and 20V-Prog
  - 20mV LSB Voltage Regulation and 50mA LSB for Current Regulation
  - Constant power limit
- Support QC2.0/QC3.0, BC1.2 DCP protocols
  - Apple 5V, 2.4A mode
  - BC1.2 DCP mode
  - QC2.0 5V/9V/12V and 20V
  - QC3.0 3.6V~20V continuous model voltage mode with 200mV step adjustment
  - Support Fast Charging Protocol, FCP
  - Support Adaptive Fast Charging, AFC
- Constant Voltage (CV) and Constant Current Limit (CC) Regulation
  - Integrated secondary side compensation circuit, such as TL431
- Built-in VIN and VBUS pins fast discharge scheme
- Small Current Sensing Resistor (5mΩ) for High Efficiency application
- CC1/CC2 Pin Protection up to 28V
- Support cable drop compensation with 0, 50m, 100m/200mΩ selection
- Support Smart Power Derating function at two ports USB application (USB-C or USB-A)
- Integrated VCONN power and eMarker detection
- Built-in adaptive UVP, adaptive OVP, I\_OTP, E\_OTP, CC\_OVP and VCONN\_OCP Fault Detections

## 2. APPLICATIONS

- AC-DC PD Compliant power adapters
- DC-DC Car chargers
- USB-PD converter

## 3. GENERAL DESCRIPTION

The HT5350 is a highly integrated PD source controller that support USB PD3.0, PD2.0, PPS, QC2.0/3.0, FCP, AFC, BC1.2 DCP etc.

The HT5350 incorporates various protections, such as Under Voltage Protection (UVP), Over Voltage Protection (OVP), Over Current Protection (OCP), CC1 and CC2 Over Voltage Protection (CC\_OVP), VCONN Over Current Protection (VCONN\_OCP), and internal and external Over Temperature protection (I\_OTP and E\_OTP). With a 10-bit A/D converter, output voltage, output current, IC internal temperature and external temperature via an NTC resistor can be monitored. The HT5350 provides the smart power derating function for dual-port charger application.

The HT5350 is designed to operate with general ACDC, DCDC controller or I<sup>2</sup>C interface ACDC, DCDC controller.

## 4. PART NUMBER INFORMATION

PART NO.	PACKAGE	Dimensions (mm)
HT5350	QFN16	4.0 x 4.0 x 0.75

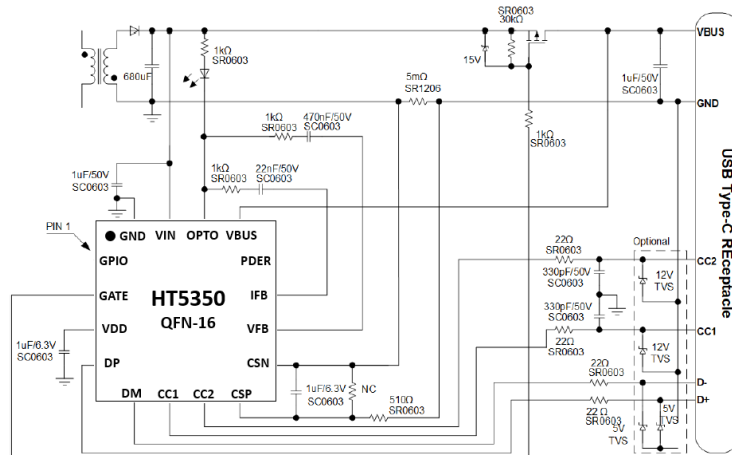


Figure 1. Typical Application Circuit of HT5350

## 5. PIN CONFIGURATION AND DESCRIPTIONS

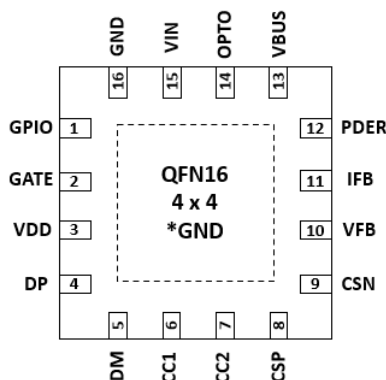


Figure 2. HT5350 Pin Diagram (Bottom View)

### Pin Descriptions

Pin No.	Pin Name	Pin Type	Voltage Type	Pin Description
1	GPIO	Open Drain IO	LV	General purpose IO
2	GATE	Open Drain IO	HV	Open drain gate driver to the gate of PMOS load switch
3	VDD	Supply	LV	Internal LDO output voltage. Connect this pin to GND via an 1uF ceramic capacitor
4	DP	Analog IO	HV	USB D+ line
5	DM	Analog IO	HV	USB D- line
6	CC1	Analog IO	HV	USB Type-C Configuration Channel 1
7	CC2	Analog IO	HV	USB Type-C Configuration Channel 2
8	CSP	Analog I	LV	Positive input of the current sense amplifier
9	CSN	Analog I	LV	Negative input of the current sense amplifier. Provide a low ohmic connection to GND
10	VFB	Analog I	LV	Voltage loop feedback & compensation.
11	IFB	Analog I	LV	Current loop feedback & compensation.
12	PDER	Analog I	LV	Power derating control pin. It is pulled high internally. Connect different resistors to GND to achieve power derating
13	VBUS	Analog I	HV	VBUS sense and discharge
14	OPTO	Analog I	HV	Opto-coupler cathode pin on the secondary side provides feedback signal to the primary side PWM controller.
15	VIN	Supply	HV	Supply input voltage. Connect this pin to GND via an 1uF ceramic capacitor
16	GND	Ground	HV	Power ground
17	-	Ground	-	Exposed ground if available

\*Exposed pad is connected to GND if available