



SC2011C USB-PD Controller with Multiple Fast Charge Protocols PHY Integrated

1 Description

The SC2011C is a highly integrated USB PD controller. It complies with the latest USB Type-C and PD 3.0 and supports the most popular high voltage fast charge protocols with up to 2 DPDM interfaces. SC2011C is suitable for adapters, mobile chargers and car chargers applications.

The SC2011C has the voltage rating of 30V. It minimizes external components by integrating USB PD baseband PHY, Type-C detection, voltage and current sense, 10bit high performance ADC, PWM output for VBUS regulation, up to 2 channels NMOS gate driver, VBUS discharging path, I2C interface and protection circuits. It is embedded 32-bit high performance micro-controller with 32K-Bytes OTP, which provides cost effective solutions to many applications.

SC2011C supports various protection mechanisms, including over voltage protection, over current protection, short circuit protection, over temperature protection, DP/DM pin over voltage protection, and CC pin over voltage protection, so to effectively ensure the stable and reliable operation of the system.

The SC2011C is available in 20-pin QFN packages.

2 Features

- **USB Type-C**
 - Support Type-C DFP protocols
 - Configurable resistors R_P
- **USB Power Delivery**
 - Support DFP USB PD 3.0
 - Hardware BMC transmitter and receiver
 - Full feature physical layer
 - Hardware CRC
 - Hardware reset
 - Integrate PD 3.0 protocol engine
 - Support SOP' to be compatible with e-marker
- **Up to 2x DPDM Fast Charging Interface**
 - Up to 2x firmware controlled DPDM interface
 - Support Apple charging, BC1.2, DCP, HVDCP, FC, AFC, FCP, SCP, VOOC, UART and other proprietary charging protocols
- **Power**
 - Wide operation range: 2.7V to 24.5V (30V tolerant)
- **MCU Subsystem**
 - Integrated MCU core
 - 32-KB OTP and 1-KB RAM
 - Support I2C interface and multiple I/Os
- **Analog Block**
 - PWM for voltage regulation
 - Up to 8-channel 10-bit ADC to monitor the voltage / current / external signals
 - Integrated current sense amplifier
 - Integrated NMOS gate driver for isolation MOS
 - Integrated VBUS discharging paths at both sides of isolation MOS
 - Build-in NPN transistor driver for VCC regulation
- **Protections**
 - On chip OVP, DPDM OVP, CC OVP
 - VBUS to CC / DPDM short protection
 - GND to CC / DPDM short protection
- **Package**
 - 20-pin QFN, 3mm x 3mm x 0.75mm

3 Applications

- Wall adapters
- Car chargers

4 Device Information

Part Number	Package	BODY SIZE
SC2011CQDKR	QFN-20	3mm x 3mm x 0.75mm