

## SC9712 dual-port fast charging(1C1A) SoC with Buck controller Integrated, Supporting USB PD and multi DPDM fast charging protocols

### 1 Descriptions

SC9712 is a high integrated dual-port fast charging SoC, supporting multi fast charging protocols. SC9712 integrates 36V high-efficiency synchronous buck controller, and with a set of Type C interface and 2x DPDM fast charging protocols control interfaces. It minimizes external components to realize dual-USB port (1C1A, Type C+ USB A) fast charging. It provides up to 140W charging power for portable devices such as computers, tablets, and mobile phones. SC9712 can also supports dual-chip collaborative work to realize dual-Type C ports fast charging, including 2C1A configuration without MCU control. Two SC9712 ICs can communicate with each other, realizing the function of full power output when a single port is working and automatic power distribution when dual-Type C ports are working at the same time.

SC9712's Type C port is DFP port, which supports Type C protocol and USB PD 2.0/3.0/3.1 protocols. Its DPDM interface can also support apple 2.4A mode/BC1.2/ DCP/ HVDACP/ FCP/ SCP/UFCS and other fast charging protocols. USB-A port supports automatic detection of insertion and removal of charging devices, which can identify the state of Apple charging cable. It is intelligently compatible with various latest fast charging protocols, including Apple 2.4A mode/BC1.2/ DCP/ HVDACP/ AFC/ FCP/ SCP and other protocols.

SC9712 supports up to 140W total output power, dual port output all support CC/CV mode, NTC temperature monitoring, and provide multiple protection mechanisms, including over voltage protection, over current protection, short circuit protection, over temperature protection, to protect the chip and board level system effectively.

The SC9712 is available in 32-pin 4mm X 4mm QFN packages.

### 3 Applications

- USB PD multi-ports car charger
- USB PD multi-ports charger/ fast charging header
- Fast charging strip

### 4 Device Information

| ORDER NUMBER | PACKAGE    | BODY SIZE          |
|--------------|------------|--------------------|
| SC9712QDER   | 32 pin QFN | 4mm x 4mm x 0.75mm |

### 2 Features

- Integrated synchronous Buck controller
  - Up to 36V Input voltage, max 7A output current
  - Support up 140w power output
  - Configurable switching frequency: 80k~600kHz
  - Support output OVP, output UVP, OCP, SCP, OTP, and other protection
- Type C output
  - DFP/Source role, comply with USB Type-C interface specification
  - Support USB PD 2.0/3.0/3.1 latest protocols specification and PPS
  - Extensible support SOP', to meet the application requirements of E-Marker cables
  - Support DPDM protocol, including apple 2.4A mode/BC1.2/ DCP/ HVDACP/ FCP/ SCP/ UFCS and other fast charging protocols
- USB-A output
  - Support automatic detection of insertion and removal of charging devices, and identify the state of Apple charging cable
  - Support Apple 2.4A mode/BC1.2/ DCP/ HVDACP/ AFC/ FCP/ SCP/UFCS and other mainstream protocols.
- Multi-USB ports management
  - Integrate dual-port output path management function, single chip support 1C1A
  - Wake up when the charging device is plugged in, automatic sleep without device
  - Single port support full power operation; 1C1A outputs 5V while working
  - Dual-chip support dual-Type C port application, without MCU can realize the communication between the ICs, intelligent distribution of dual-Type C output power
- Voltage power level setting
  - Support external resistance to set the highest PDO voltage of Type C port
  - Support external resistance to set the maximum output power
  - Support fast charging indicator light
- Protection mechanism
  - Support NTC temperature monitoring, chip -level and board-level over temperature protection
  - Support input under voltage protection, output over voltage/under voltage protection, over current protection, short circuit protection
  - Support DPDM and CC over voltage protection, short circuit protection