



QFN-24 EP
(4 x 4 mm²)

Features

- Power role: provider, consumer, dual role
- Configurable startup profiles
- V_{CONN} support
 - Adjustable current limit (600 mA max)
 - OVP, OCP, UVP protections
- Direct interface to MCU through I²C + interrupt
- Integrated voltage monitoring
- Dead-battery support
- Dual power supply: V_{BUS} or system V_{DD}
- Nominal operating supply [4.6 V - 22 V]
- Temperature range: -40 °C up to 85 °C

Applications

- AC adapters, power supplies
- Smart plugs, wall adapters
- Power hubs, docking stations
- Smartphones, tablets
- Gaming, PNDs
- Displays
- Wearables, Internet of Things (IoT)
- Cameras, camcorders, MP3 players
- Any provider device (source role)
- Any consumer device (sink role)

Description

The STUSB1600 is a generic IC designed in 20 V technology, addressing USB Type-C™ port management both on host and/or device sides and is suited for a broad range of applications. It is fully compatible with the USB Type-C cable and connector specifications (rev 1.1)

The STUSB1600 is able to handle all functions from Type-C attach detection, plug orientation detection, host-to-device connection, V_{CONN} support, V_{BUS} configuration and so on.

Additionally, the STUSB1600 provides support for dead-battery operation and is fully customizable (thanks to an integrated non-volatile memory).

Table 1. Device summary

Order code	Description	Package	Marking
STUSB1600QTR	Dual-role Type-C™ interface	QFN-24 EP (4 x 4 mm ²)	USB0X

1 General description

The STUSB1600's major role is:

1. Detect the connection between two USB ports (attach detection)
2. Resolve cable orientation and twist connections to establish USB data routing (mux control)
3. Establish a valid host-to-device connection
4. Discover and configure V_{BUS} : Type-C Medium or High current mode
5. Configure V_{CONN} .

Additional features:

- I²C interface
- Dead-battery support
- Non-volatile default startup configuration (user-defined parameters)
- V_{BUS} voltage monitoring
- High-voltage protection on interface pins
- V_{CONN} protections:
 - Soft-start to limit inrush current
 - Constant current mode overcurrent protection
 - Adjustable current limit
 - Thermal protection
 - Undervoltage and overvoltage protections
 - Reverse-current and reverse-voltage protections
 - Fault blanking

2 Revision history

Table 2. Document revision history

Date	Revision	Changes
11-Dec-2015	1	Initial release.

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