

USB Type-C VBUS Combo Switch with Protection**Features**

- USB Type-C VBUS Sink/Source Combo Switch with Protection
- Wide operation voltage range
 - VSYS operation voltage range: 2.7V to 5.5V
 - VBUS operation voltage range: 2.8V to 20V
 - VOTG operation voltage range: 4.0V to 9V
- Integrated two ultra-Low RDSON switches
 - VBUS to VCHG bi-directional switch: 22mΩ (typical)
 - VOTG to VBUS switch: 33mΩ (typical)
- Integrated high voltage LDO powered by VBUS and VOTG
- Support high voltage sink mode: VBUS to VCHG, up to 20V/5A with I2C programmable OVP
- Built in 2-Stage SCP for supporting Intel CPU turbo boost mode
 - 1st SCP: 7.5A with 1ms debounce time
 - 2nd SCP: 13A without debounce time
- Support high voltage source modes
 - VCHG to VBUS, I2C programmable over current protection up to 20V/3.4A
 - VOTG to VBUS, I2C programmable over current limiting up to 9V/3.4A
- Support Fast plus I2C interface bus
- Ultra-fast OVP Response Time: 30ns
- Protections: Over Voltage Protection, Short Circuit Protection, Reverse Current Blocking Protection, Thermal Shutdown Temperature
- Compliance to IEC61000-4-2 (ESD) on VBUS
 - Air: ±15kV, Contact: ±8kV
- Compliance to IEC61000-4-5 (Surge): ±100V
- UL 62368-1: File No. E517258
- IEC 62368-1: File No. DK-105540-UL
- 42-Bump, WLCSP 2.51mm x 2.91mm

Applications

- Smartphones, Tablet PC, Note PC, Mobile IOT Devices

Description

The SM5360/SM5360A provides a dual-channel VBUS power switch and high voltage LDO for USB PD application. The device integrates a bidirectional power switch for 20V sink and source, a 9V power switch for OTG and a 100mA LDO for USB PD PHY and EC power supply.

The device integrates two back-to-back switches. Between VBUS and VCHG, a bi-directional high voltage switch (HVSW) is integrated with 28V AMR voltage for both terminals, it could be used as a bi-directional switch with I2C control. In the sink mode, current flows from VBUS to VCHG and the maximum current is 5A. In the source mode, current flows from VCHG to VBUS and the maximum current is 3.4A. From VOTG to VBUS, a back-to-back uni-directional lower voltage switch (LVSW) is equipped with 12V AMR voltage for VOTG pin and 28V AMR for VBUS pin. It provides OTG source capability up to 9V/3.4A. It has a Forward Voltage Control feature and supports Fast Role Swap for USB PD3.0.

The device features Over Voltage Protection and Reverse Current Blocking Protection features on SINK mode. It supports adjustable Over Current Protection and Reverse Current Blocking Protection on SRC and OTG mode. The in-rush current is limited by the built-in slew rate control for all modes. It has discharging circuit on VBUS to meet USB Type C VBUS discharging spec.

I2C-interface bus is supported. It provides flexibility to control and configure the product.

The SM5360/SM5360A is available in a 42 bumps WLCSP package.

Device Information

Part	Package	Size
SM5360	42 WLCSP	2.51mm x 2.91mm
SM5360A	42 WLCSP	2.51mm x 2.91mm

SM5360/SM5360A

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