

**Interface PMIC with Type-C and PD, 3:1 MUX, 3.5 A SW Charger, QC2.0,
1.5 A OTG, 1.5 A Flash LED Driver
and Fuel Gauge with a Selectable External Sensing Resistor**

Features

- ❖ Type-C with Non MCU-based PD and Water Detection
 - . Super Speed Polarity Indicator
- ❖ 3:1 MUX Switches with Built-in BC1.2 Scheme and TA Hiccup control
- ❖ Max. 3.5 A Switch-Mode Charger with Dual-output and Embedded QC2.0 Protocol
- ❖ Programmable Charge Parameters via I²C
 - . Fast-Charge Current
 - . Top-Off (end of charge)
 - . Battery Floating (regulation) Voltage
 - . Trickle-Charge Current
 - . Adaptive-Input Current Limit (AICL)
 - . VBUS Input Current Limit
- ❖ Fuel Gauge with Flexibility in Current Sensing Resistor
 - . External High-Side Current Sensing
 - . 5 mΩ or 2 mΩ Selectable Sensing Resistor
- ❖ A nVBUSPOK pin for Touch Sensor
- ❖ 1.5 A Flash LED Driver
- ❖ Protections
 - . Thermal Protection
 - . Thermal Regulation
 - . VBUS Overvoltage Protection
 - . Battery Overvoltage Protection
 - . VSYS OVP
 - . Discharge Overcurrent Protection
 - . Charger Safety Timers
 - . Reverse Leakage Blocking
 - . Charger = Off (or PWM = OFF) in DP / DM OVP
 - . CC1, CC2 Overvoltage Protection
 - . SBU1, SBU2 Overvoltage Protection
 - . Water Detection with 8-bit ADC
 - . DP_CON / DM_CON Short Detection
- ❖ Ship Mode to Minimize Leakage Current during System OFF
- ❖ Up to 400kHz Full-Speed I²C Interface
- ❖ 81-Bump, 3.72 mm x 3.72 mm WLCSP Package

Applications

- Mobile and Smart Phones
- Tablets
- Portable Devices

Description

The SM5038 is a highly-integrated interface power management IC that integrates Type-C and non MCU-based PD, 3:1 USB switches, a max. 3.5 A switch-mode charger with QC2.0, one-channel source-type flash LED driver and a very accurate fuel gauge for handheld applications. The device features Type-C with non MCU based PD and advanced water detection scheme, 3:1 switches for managing switching signals multiplexing between an application processor, a communication processor and its accessory through a Type-C connector.

The single-input switch-mode charger with a very low R_{DS_ON} resistance reduces thermal dissipation and allows the charger to operate in a stable switching operation, which results in a shorter charging time. The function of the VBUS supply voltage limit, also called AICL, is able to make the most of the maximum power from a Travel Adapter (TA). The high-side flash driver features an easy PCB layout, and the built-in sophisticated algorithm for the fuel gauge measures the State-Of-Charge (SOC) of the 1-cell battery. The SM5038 is available in 3.72 mm x 3.72 mm, 81-Bump WLCSP package.

Ordering Information

Part	Temp. Range	Pb-Free	Package
SM5038	-40°C to +85°C	Yes	81-Bump WLCSP 0.4 mm Pitch

SM5038

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