

## ***Highly Efficient Switch-Mode 3.5 A Charger for Type-C with Power-Path and 1.5 A USB OTG***

### ***Features***

- Max 3.5 A Switch-Mode Charger with Power-Path Operating
- OVP Threshold: 14 V typ. for SM5424
- Programmable Charge Parameters via I<sup>2</sup>C
  - . Fast-Charge Current
  - . Top-Off (End of Charge)
  - . Battery Floating (Regulation) Voltage
  - . Programmed Pre-charge Current
  - . Adaptive-Input Current Limit (AICL)
  - . VBUS Input Current Limit
- Max 1.5 A USB OTG Current
- Protections
  - . Thermal Protection
  - . Thermal Regulation
  - . VBUS Over-Voltage Protection
  - . Battery Over-Voltage Protection
  - . VSYS OVP and UVLO
  - . Charger Safety Timer
  - . Reverse Leakage Blocking
- 400 kHz Full-Speed I<sup>2</sup>C Interface
- 2.93 mm x 2.8 mm WLCSP Package

### ***Applications***

- Mobile and Smart Phones
- Tablets
- Portable Devices

### ***Description***

The SM5424 is a fully programmable switch-mode charger with power-path output for single-cell Li-Ion and Li-Polymer batteries. This power-path output allows mobile applications with fully discharged battery or dead battery to boot up the system. Switch-mode operation with high efficiency reduces power loss and allows for higher current capability for a given package size. In addition, the device features single input operating up to 13.5 V and charges the battery with a max current of 3.5 A. The charging related parameters and operating modes are fully programmable over an I<sup>2</sup>C serial interface that operates up to 400 kHz.

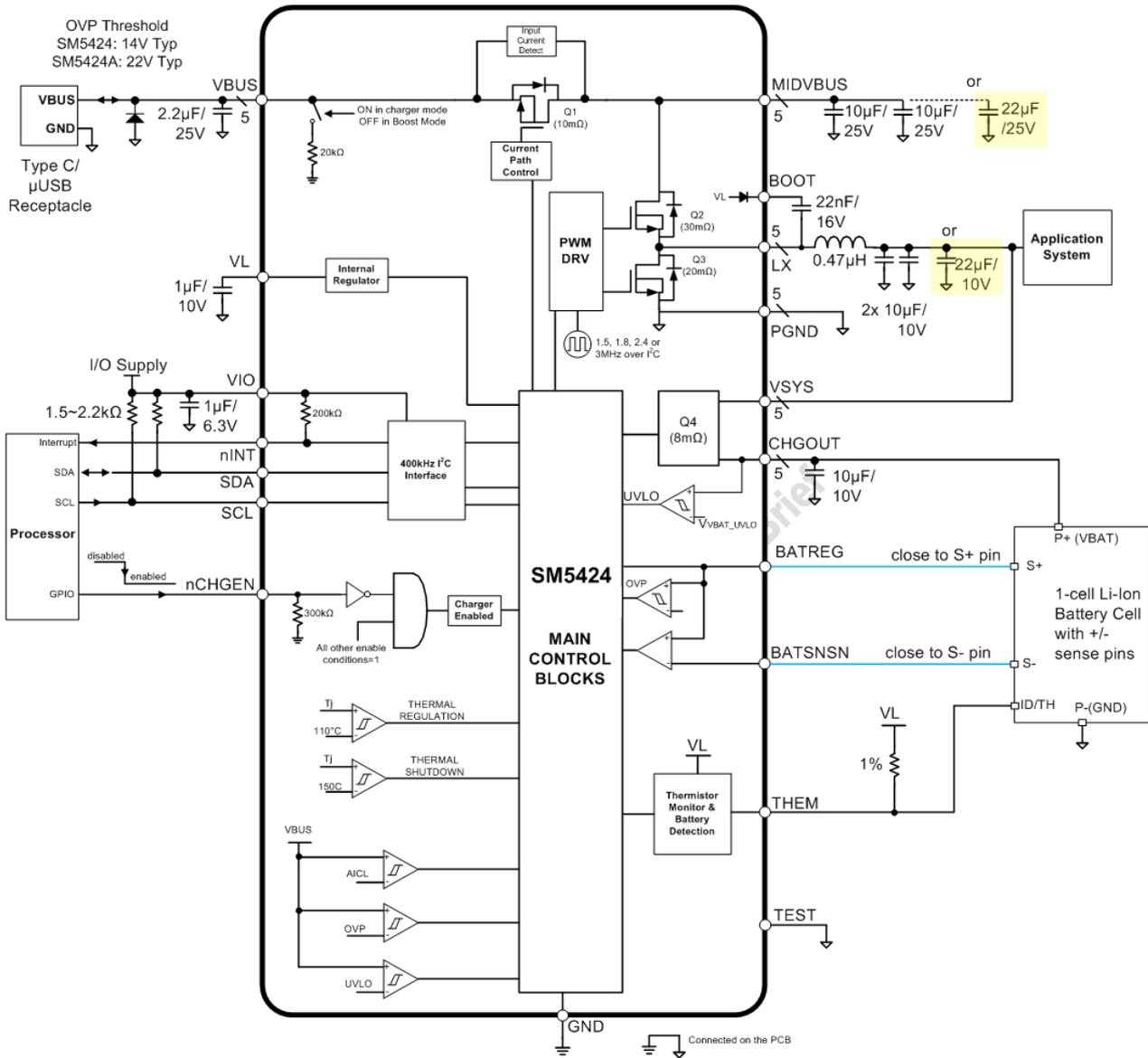
The SM5424 features fully integrated synchronous switch-mode charger with integrated OVP, Power FETs and sense FET. The charger and OTG operations are possible by sharing the same inductor, which minimizes the number of external passive components. The device features USB OTG function via I<sup>2</sup>C command from the host or processor. The SM5424 is available in a 42-bump, 2.93 mm x 2.8 mm, WLCSP package.

### ***Device Information***

Part	Package	Size
SM5424	42 WLCSP	2.93 mm x 2.8 mm

# SM5424

## Simplified Block Diagram



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