2.5A CurrentPath Charger IC Enables Safe, Ultrafast Charging in Smartphones and Tablets

San Jose, Calif. – December 08, 2011 – Summit Microelectronics has expanded its fourth-generation family of programmable Li-Ion battery charger integrated circuits (ICs) with the introduction of two new products. The SMB346 and SMB347 deliver up to 2.5A charge/system current with dual input/dual output CurrentPath technology for operation with a dead or missing battery. Dual inputs accept both USB and AC/DC with automatic selection and support for all battery charging standards: USB 2.0 specification, USB on-the-go supplement, USB battery charging specification 1.2, IEEE1725 standard, Chinese USB charging specification, and others. Furthermore, the SMB346 and SMB347 are the only battery charger ICs with CurrentPath to detect the input source type (USB host/hub/charger, AC/DC, etc.) and automatically optimize operation for the fastest and safest battery charging.

The SMB346 and SMB347 are based on a 3MHz, switch-mode DC-DC architecture, with minimal external components, which allows for over 90 % efficient conversion and extremely compact solution size. The devices enable fast charging due to higher charge currents, while reduced thermal dissipation improves user comfort, system reliability and Green operation (www.summitmicro.com/MobileGreen). Furthermore, Summit’s proprietary TurboCharge patent-pending technology enables high charge current, even from relatively low-power sources (example: up to 750mA output from 500mA USB source). As consumer devices continue to employ larger batteries, the SMB346 and SMB347 reduce charge time for consumer convenience.

The SMB346 and SMB347 are ideal for a wide range of portable devices such as smartphones, tablets, digital still cameras, digital camcorders, wireless routers,

portable media/MP3 players (PMP), portable GPS navigation equipment, and portable game consoles/controllers. The features and integration of the SMB346 and SMB347 make them especially suited for portable devices that utilize high capacity batteries, for example….. desire short charging time and feature very compact industrial designs.

The SMB346 and SMB347 simplify system designs by integrating a robust set of system functions, thereby eliminating a significant number of external components and software requirements. Furthermore, both products offer a wide programmable range of parametric and functional configurability, thereby allowing optimized designs and faster time to markets. Unlike many traditional charging solutions, these products enable cost-effective and slim industrial designs without compromising performance and safety.

Features

The SMB346 and SMB347 products incorporate Summit's CurrentPath functionality with independent output current paths for the system and the battery, allowing the system to power up with a missing or deeply-discharged battery. This configuration also reduces the charge and discharge cycles on the battery, thereby extending its operating life. CurrentPath functionality also allows accurate charge termination, since the devices can detect the current flowing into the battery vs. traditional solutions that can only detect the combined current for battery and system. The devices also include input current limit which allows USB500/100, USB900/150 or AC/DC operation (300mA – 2500mA).

Like all products in Summit's 3rd and 4th generation family, the SMB346 and SMB347 devices provide the means to accomplish true, universal USB charging and to meet the various USB industry standards without the need for additional hardware and software support. The products incorporate Automatic Power Source Detection, adhering to the latest USB Battery Charging Specification 1.2. The SMB346 and SMB347 devices can also detect non-USB compliant wall adapters, thereby maximizing system reliability and performance. A patented Automatic Input Current Limit capability detects the maximum current capability of the AC/DC adapter and automatically programs the devices' input current limit accordingly. This unique functionality addresses system issues associated with the fact that "USB" AC/DC adapters can vary widely in current rating, while eliminating the need for additional software support or external components. The resulting improved user experience translates into fewer service calls, fewer merchandise returns and increased subscriber revenue for wireless carriers.

Like its predecessors, both products support USB On-the-Go (OTG) and MHL/HDMI with integrated VBUS power and a current capability up to 750mA, without additional components or cost. A full set of programmable and redundant safety features are also integrated to support the strictest safety standards, including JEITA, IEEE1725™ and JISC8714™. These include dual redundant protection for input/output current and voltage, chip and battery thermal protection, hardware and software safety timers, battery missing detection and a variety of status and fault registers. In addition, the chips' parametric programmability allows the

implementation of sophisticated embedded charging algorithms, further increasing system performance and reliability. Programmable thermal regulation is also available for preventing system over-heating. The SMB346 and SMB347 also provide an integrated low-battery voltage detector with programmable voltage thresholds. This function allows the system to receive real-time battery voltage level information and take appropriate actions.

The ideal Battery Charger for Fast Charging

“Summit has once again set a new standard for safe, high performance charging as battery capacities continue to grow with increased system performance and run-time goals. Consumers will be delighted to find that Summit has enabled the first sub-one-hour smartphone charging solution,” stated George Paparrizos, Summit Marketing Director. “OEM’s will benefit from dense functional integration reducing BoM cost and solution size while built-in flexibility reduces hardware/software design effort to cut time-to-market.”

The SMB346 and SMB347 operate with an input range from +3.7V to +6.2V input and safely withstand continuous input over-voltage up to +20V (non-operating), while protecting downstream circuitry.

Package, Price and Availability

The SMB346 and SMB347 are offered in tiny 2.46mm x 2.96mm, 30-ball, lead-free chip-scale (CSP) packages. Both products have an operating temperature range of –30C to +85C. Available now in production quantities, the SMB346 is priced at $1.27 and the SMB347 is priced at $1.36, each in quantities of 10,000 units.

For more information visit www.summitmicro.com [1]

Links:
[1] http://www.summitmicro.com