First Synchronous, Switch-Mode Battery Charge Integrated Circuit (IC) with Internal Power FETs

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Solving the design challenge to efficiently deliver higher battery charge current in small portable applications, Texas Instruments Incorporated (TI) (NYSE: TXN) announced the first synchronous, switch-mode battery charge integrated circuit (IC) with internal power FETs capable of supplying up to 2 A of charge current. The new battery management IC enables higher charge current while reducing the amount of heat generated, making it ideal for use in systems that incorporate one-, two- and three-series cell lithium-ion (Li-Ion) or lithium-polymer (Li-Poly) battery packs, such as portable DVD and media players, smart handhelds, medical, industrial and other portable equipment

TI's bq24100 battery charge IC, which comes in a small 3.5 mm x 4.5

mm QFN package, operates at a fixed frequency of 1.1 MHz from an input voltage up to 16 V. The new IC delivers high accuracy current and voltage regulation for precise battery charging, multiple charge status outputs for charge progress indication and automatic battery full charge detection and charge termination.

Providing safe and reliable charging of Li-Ion or Li-Polymer batteries, the bq24100 device charges in three phases: a low current conditioning phase for deeply discharged batteries, a fast charge constant current phase delivering up to 2 A and a constant voltage phase. In this final phase, the device terminates charge based on a minimum current level. A programmable charge timer provides a safety backup for termination. Separate versions of the IC also allow the portable system's micro-controller to control the battery charging profile and termination with digital inputs to the IC. The bq24100 automatically re-starts the charge if the battery voltage falls below a specific threshold.

As with other TI battery charge management devices, including the popular bqTINYTM family of linear control charge ICs, the new bq24100 integrates reverse-blocking protection to prevent battery drainage through the IC in the absence of the input charging supply.

Key Specifications of the bq24100:

Integrated Synchronous, 1.1 MHz Fixed-Frequency PWM Controller
Integrated PowerFETs for up to 2 A Charge Rate
High Accuracy Voltage and Current Regulation
Offered in Standalone (Built-in Charge Management and Control) and System-Controlled Versions
Status Outputs for LED or Host Processor Interface
20 V Input Voltage Rating
High-Side Current Sensing
Battery Temperature Monitoring

Automatic Sleep Mode for Low Power Consumption

More information: www.ti.com/