Micro PMIC features programmable start-up sequences

Unterpremstaetten, Austria (May 9, 2011) – austriamicrosystems (SIX: AMS) has introduced the AS3605, a highly integrated power management integrated circuit (PMIC) designed specifically for portable devices powered by a single-cell Li-Ion battery. The device integrates seven low dropout regulators (LDOs), a DC/DC converter, a complete battery charger, LED backlight driver and an audio power amplifier on one die.

The features and performance of the cost-efficient AS3605 Micro PMIC allow it to be used in many portable devices powered by one Li-Ion battery such as high-end blood glucose meters, high-end remote controls, GPS equipment, mobile meters, e-dictionaries and entry level mobile phones. It can be used for any entry level mobile phone handset standard, including CDMA, WCDMA, GSM, GPRS, EDGE, UTMS and other American and Japanese standards.

The seven high-performance programmable LDOs feature low noise – typically 30 ?V RMS from 100 Hz to 100 kHz -- as well as line/load regulation < 1 mV static, < 10 mV transient, and power supply rejection less than 70 dB @ 1 kHz. The integrated step-down DC/DC converter requires no external Schottky diode yet provides very high efficiency (up to 95%) throughout the whole operating range. The DC/DC converter’s 2.2 MHz switching frequency saves PCB space by enabling the use of a tiny, low-profile inductor. In addition, a 60 mA 5 V charge pump together with 5 programmable current sinks is included to supply LEDs for backlighting the display. The on-chip low-distortion audio power amplifier provides 1 W @ 8? for speaker-phone operation, Hi-Fi ringtones or other audio uses. The AS3605 Micro PMIC also features a battery charger for Li-Ion batteries, including the charging algorithms for automatic trickle charging, programmable constant voltage and constant current

charging.

Processor and memory power supplies must follow precise start-up sequences to prevent serious damage. Therefore it is critical that the voltages are switched on and off in the correct order. Compared to a discrete solution consisting of a collection of standalone DC/DC converters, LDOs and chargers, the task is greatly simplified with the AS3605. With its software-programmable start-up sequences, the AS3605 brings new flexibility to the market for Micro PMICs. Other competitors offer PMICs with fixed start-up sequences that must be selected with external resistors.

The AS3605's output voltage and the timing of all regulators are programmed via software. With the software and demo board, the AS3605's OTP memory can be easily programmed enabling fast prototype runs for quick market introduction. The slope of the ramp can be set for the step-down converters. The user can program the start-up sequence with timing steps of 1 ms or 4 ms. In order to control other parts of the system, the general purpose I/O pins can be programmed to a specific timing.

The AS3605 is controlled via an easy-to-use serial interface and integrates all necessary system specific functions such as Reset, Watchdog, and Power-On Detection. Output voltages and start-up timings can be programmed via the internal OTP memory.

Manfred Kogler, marketing manager for power management products at austriamicrosystems, said, "The demands placed on power management ICs in mobile devices continues to increase but at the same time the market requires application-specific cost-optimized solutions. So the level of integration of the AS3605 Micro PMIC perfectly fulfills the requirements of entry level mobile phones, but also suits applications which are becoming more feature-rich such as high-end blood glucose meters or remote controls, where customers use Li-Ion batteries, color displays and wireless connectivity."

Housed in a 40-pin 5x5 mm QFN package, the AS3605 Micro Power Management Unit is specified for operation from a battery supply range of 3.0 to 5.5 V volts over an ambient temperature range of -40 to +85°C.

Price & Availability

The AS3605 Micro PMIC is available now and is priced at $1.90 in 1000-piece quantities.

Technical Support

A demonstration board for the AS3605 is available. Contact austriamicrosystems for price. For further information on the AS3605 Micro Power Management Unit or to request samples, please visit www.austriamicrosystems.com/PMIC/AS3605 [1]

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[1] http://www.austriamicrosystems.com/PMIC/AS3605