

PMB 6821

SM-Power3 - Highly Integrated Power Management Units for Feature Rich Mobile Devices



SM-POWER3 extends the SM-Power family with a new highly integrated power management IC. It is optimized to support mobile devices based upon S-Gold3 and S-Gold3H, with features ranging from EDGE up to 3G and HSDPA.

SM-POWER3 is designed for mobile systems composed of digital or mixed signal baseband ICs, analog components, RF transceiver ICs, LCD/TFT graphic displays with backlight, camera, loudspeaker, and USB interface.

SM-POWER3 also supports charging for mobile rechargeable batteries like Li-Ion or Li-Polymer. It provides the different supply voltages for the system using highly efficient DC/DC buck and boost converters and linear low-dropout regulators (LDO's).

IN ADDITION, the SM-Power3 generates a power on reset, stand-by voltages, and supports various low power modes.

THE SM-POWER3 provides all functions needed for the system power management with a minimized bill of material and size of external components.

Features

- General
 - Software-controlled charging of Lithium-Ion or Li-Polymer batteries
 - Different low-power modes with very low power consumption
 - Temperature monitoring with built-in over-temperature warning
- Switching converters
 - SD1: Fully integrated high-efficiency step-down converter with dynamic output voltage scaling and PFM low-power mode
 - SD2: Fully integrated high-efficiency step-down converter with PFM low-power mode
 - SU1: 5.6 ... 25 V Step-up converter driving white LED for backlight and flashlight
- Linear Low-Dropout (LDO) regulators
 - 7 General-Purpose LDO's
 - 5 Low-Noise LDO's
 - 3 low-power LDO's
- LED Control
 - 3x PWM-modulated control signal
 - Driver for white LEDs, e.g. for flashlight
 - Support for LEDs connected in series
 - Support for trickle charging LED and indicator LED
- Charger Section
 - Fast charging
 - Constant-current charging (active trickle-charge mode)
 - Pre-charge for deeply discharged batteries (trickle-charge mode)
 - Charging through USB
 - Charging with up to 10 V charger voltage
 - Withstands charger voltages up to 15 V
- Motor Driver
 - Single ended linear controlled vibrator motor driver
 - Optionally PWM controlled
- USB Transceiver 2.0
 - USB 2.0 transceiver
 - Integrated pull-up/pull-down resistors
- Audio Amplifier
 - Battery-driven 700 mW differential audio amplifier capable of driving 8 Ω loudspeakers
 - Two gain stages including overdrive for ringing tones. PSRR @ 4 kHz > 90 dB.
 - Low-power consumption
- Interfaces
 - I²C control interface for device configuration
 - Hardware-controlled LDO and SD1 voltage setting
 - Power-On reset generation. Interrupt (event) line for indication of status change.
 - Digital interface to USB transceiver and RS232 serial interface
- Control Unit
 - Pulse width modulated (PWM) LED driver for dimmed light. On/off switch.
 - Over-temperature warning
 - State machine to control System Start-Up
 - Under-voltage shutdown with defined system behaviour
 - Charger detection
 - Detection of battery insertion/removal
 - Independent LDO control (switch on/off, standby)
 - Voltages programmable by software and hardware
 - ID registers
 - System watchdog timer
 - On-chip oscillator
- Package
 - Ultra-thin PG-WFSGA 121 (7 × 7 × 0.8 mm)
- Evaluation kits

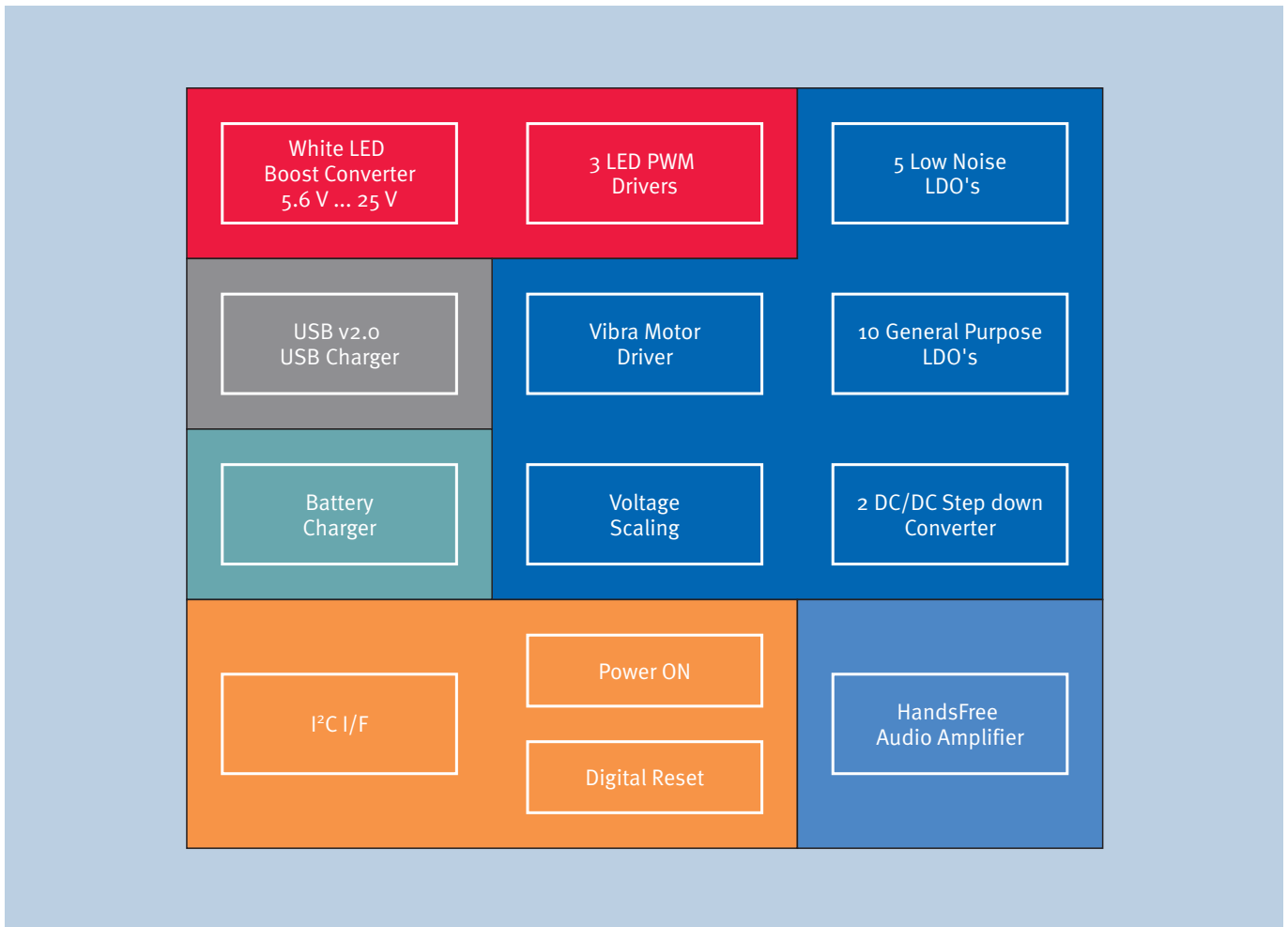
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Mobile Solutions



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Block Diagram



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