Product Brief
DA9053 Flexible High Power System PMIC with 1.8A Switching USB Power Manager

General Description

The DA9053 is a quad buck PMIC subsystem with supply domain flexibility to support a wide range of application processors, associated peripherals and user interface functions.

Combined with a switched-mode DC input/USB compatible charger, full power path management and multiple sleep modes the device offers an energy-optimised solution suitable for portable handheld, wireless and infotainment applications. Interfacing directly to a Li-Ion/Polymer battery pack the high efficiency switching charger supports precise current/voltage charging as well as pre charge and USB modes without processor interaction. During charging the die temperature is thermally regulated enabling higher capacity batteries to be rapidly charged at currents up to 1.8A with minimum thermal impact to space-constrained PCB's.

USB suspend mode operation is supported and for robustness the USB power inputs are internally protected against over-voltage conditions. The autonomous power path controller seamlessly detects and manages energy flow between an AC adaptor, USB cable and battery whilst maintaining USB power specification compliance.

The internally-generated system power rail supports power scenarios such as instant-on with a full discharged battery. A reverse-protected backup battery charger is also integrated into the power path function.

The power efficiency and flexibility of the switching input stage is maintained to the generated supplies. Controlled by a programmable digital power manager the 14 user- programmable switched/linear regulators may be configured for a variety of start up sequences, levels and timings. For optimal processor energy-per-task performance dynamic voltage scaling is permissible on up to five supply domains. Dialog's patented Smart Mirror™ dynamic biasing is implemented on all linear regulators.

Features

- Switched DC/USB Charger with power path management
- 4 Buck Converters (3 with DVS) 0.5V-2.5V up to 2Amp
- 10 Programmable LDO's High PSRR, 1% accuracy.
- Low power Backup Charger 1.1-3.1V up to 6mA
- 32kHz RTC Oscillator
- 10 channel general Purpose ADC with touch screen interface with pen down detect
- High voltage Boost for white LED driver
- 16 bit GPIO bus for enhanced wakeup and peripheral control
- Dual serial control interfaces with arbitration
- Flexible autoboot and memory configurations
- Unique ID code capability with OTP memory

Available in VFBGA 7x7mm package,
VFBGA 11x11mm package
Consumer and Automotive grades

Applications

- Mobile Internet Devices
- Tablet PC's
- Personal Navigation devices
- Consumer & In-Vehicle Infotainment devices

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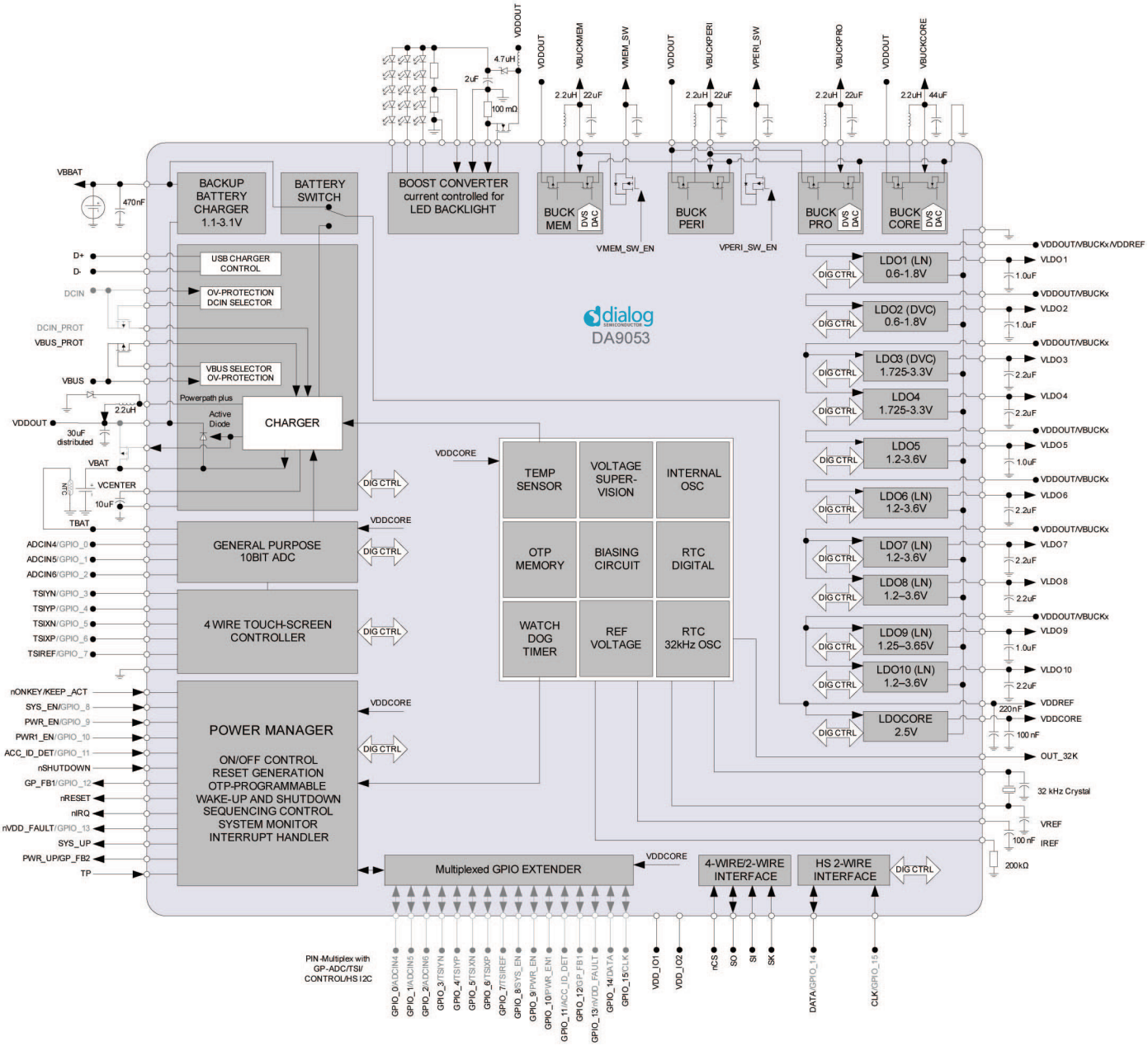
DA9053 Block Diagram



Dialog Semiconductor worldwide offices

Germany - Headquarters
Phone: +49 7021 805-0

The Netherlands
Phone: +31 73 640 88 22

Korea
Phone: +82 2 569 2301

Japan
Phone: +81 3 3769 8123
Phone: +81 3 5408 4330

China
Phone: +852 2607 4271

United Kingdom
Phone: +44 1793 757700

North America
Phone: +1 408 727 3200

Singapore
Phone: +65 64845419

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