

PMICs Power Next-Generation Mobile Consumer Applications

With a pair of feature-rich, high-performance and scalable power-management ICs (PMICs) from [Maxim Integrated Products](#), designers of mobile systems can now maximize performance per watt while increasing system efficiency for computationally intensive deep-learning systems-on-chip (SoCs), FPGAs and application processors. The MAX77714 and MAX77752 address a broad spectrum of applications ranging from augmented reality/virtual reality (AR/VR), gaming, solid-state drives (SSDs), security and industrial internet of things (IoT) to handheld devices such as cameras and home automation hubs.

Architected to deliver numerous benefits, including consuming 40% less power than standard solutions, according to the company, the PMICs are said to extend battery life while providing the most compact form factor on the market. The MAX77714 is a high-performance PMIC for computationally intensive applications, while the MAX77752 is a high-performance, compact, multi-channel PMIC with hot-plugging capabilities.

The MAX77714 delivers a complete, efficient power-management solution in a compact package to enable multi-core processor-based systems to operate at maximum performance with greater than 90% efficiency at 3.6-V input, 1.1-V output. With a 70-bump, 4.1-mm x 3.25-mm x 0.7-mm WLP package, it enables thinner, smaller devices and extends battery life up to 40% compared to standalone solutions says the vendor.

It integrates 13 regulators, including nine low-dropout linear regulators (LDOs), a real-time clock (RTC), a backup battery charger, a watchdog timer, flexible power sequencing and eight general-purpose input/outputs (GPIOs) (Fig. 1). Applications for the MAX77714 include drones, smartphones/tablet PCs, handheld gaming devices, AR/VR headsets, streaming devices/set-top boxes, home automation hubs, digital cameras and automotive aftermarket accessories.

The MAX77752 is a multi-channel, compact and integrated PMIC designed for applications with multiple power rails and hot-plugging capabilities. It provides efficiency up to 90% at 3.6-V input 1.8-V output for longer battery life and includes a flexible power sequencer (FPS) to allow hardware- or software-controlled power-up.

This chip integrates three buck regulators (with high-accuracy brownout comparators), one LDO, two dedicated load switch controllers, one inrush current limiter, two enable outputs for external regulators, a voltage monitor for backup power control and a dedicated digital output resource for logic control. The MAX77752 comes in a compact 40-pin, 5-mm x 5-mm x 0.8-mm, 0.4mm-pitch TQFN (Fig. 2). Applications for the MAX77752 include automation systems, cameras, drones, gaming consoles, handheld devices and solid-state drive systems.

The MAX77714 is available for \$2.75 each in quantities of 1000 while the MAX77752 is available for \$1.40 each in quantities of 1000. Both are available at Maxim's website and from select authorized distributors. In addition, there are eval kits for each chip. For more information see the MAX77714 [product page](#) and the MAX77752 [product page](#).

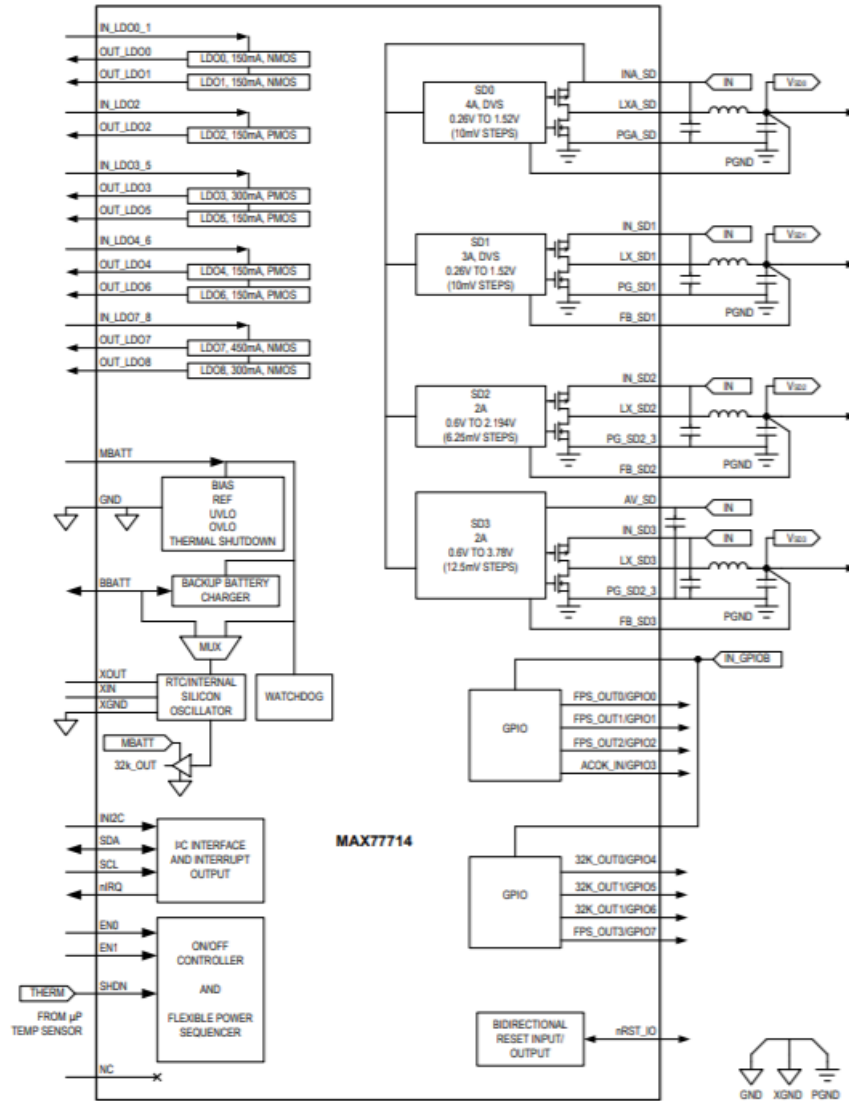


Fig. 1. The MAX77714 is a complete power-management IC (PMIC) for portable devices using system-on-chip (SoC) applications processors. It features 13 regulators, 8 GPIOs, an RTC, and flexible power sequencing for multicore applications.

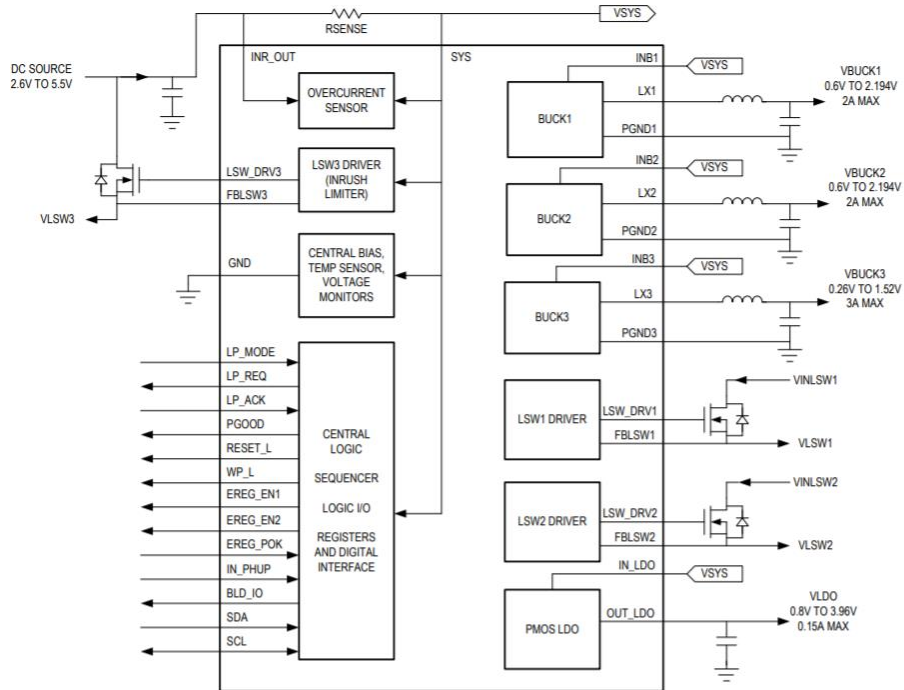


Fig. 2. The MAX77752 is a highly-integrated power management solution including three step-down converters, a low-dropout linear regulator, two enable outputs for external regulators, two dedicated load-switch controllers, and an inrush-current limiter, which can be configured as a third load-switch controller using OTP.