ICs provide multi-channel operation and low quiescent current in portable applications

ON Semiconductor has introduced two new power management integrated circuits [1] (PMICs) optimized for battery powered systems such as smartphones, tablets, digital cameras, GPS systems and other portable electronics. Utilizing the latest power management techniques, the NCP6924 [2] and NCP6914 [3] optimize system efficiency and save battery life.

The NCP6924 integrates two high efficiency 800 milliamp (mA), 3 megahertz (MHz) step down DC-DC converters [4] and four low dropout (LDO) voltage regulators for a total quiescent current of just 105 microamps (µA). The NCP6914 integrates a single high efficiency 800 mA, 3 MHz step down DC- DC converter and four LDO regulators to deliver a low quiescent current of just 72 µA. Featuring five and six voltage rails, both of these devices are perfectly sized to supply power to mixed signal modules such as cameras, or to complement power distribution to an application processor (AP) under minimum supervision.

“As part of ON Semiconductor’s expanding family of ultra small PMICs, the NCP6924 and NCP6914 offer design engineers flexibility and performance, making them an ideal solution in power distribution for portable applications,” said Thibault Kassir, director of ON Semiconductor’s Interface and Power products. “Both devices save on-board real estate by providing multiple strings of power distribution and allowing higher power densities to be distributed across the system, helping to solve thermal challenges.”

Programming flexibility is offered through a 400 kHz/3.4 MHz I²C interface which controls power up sequencing, enables and disables output power and controls individual active output discharges. Dynamic Voltage Scaling of the DC-DC converters allows the system to adjust core or IO voltages to load profiles when, for instance, the system goes into sleep mode. In addition, the on-board LDO regulators can be directly supplied by one of the integrated DC-DC converters, considerably reducing overall power losses.

The DC-DC converters' output voltage can be programmed from 0.6 volts (V) to 3.3 V in 12.5 millivolts (mV) steps and LDO regulators from 1.0 V to 3.3 V in 50 mV steps. Dedicated pins and registers for power good and interrupt complete the feature set, providing the necessary supervision to report power failure.

Packaging and pricing

The two devices are both offered in 2.45 mm x 2.05 mm and 1.76 mm x 2.05 mm respectively wafer level chip scale packages (WLCSPs) with 0.4 mm pitch. The NCP6924 is priced at $1.85 per unit and NCP6914 is priced at $1.35 per unit in 10,000 unit quantities.

For more information, visit http://www.onsemi.com [5]

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