

First 100 V Fully Integrated Buck Bias Regulator for High-Voltage Systems

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Today, telecom equipment manufacturers and other makers of higher-voltage systems are demanding greater power efficiency from their power systems.

National Semiconductor Corporation announced the industry's first 100 V Buck bias regulator, which operates at up to 90 percent power efficiency and delivers significant power savings for customers' designs.

The LM5008 has an integrated 100 V, 500 mA N-Channel power MOSFET and all the functions needed to implement a compact, highly efficient bias power supply. It is the latest addition to National's LM5000 family of high-voltage power solutions and is the company's second generation high-voltage Buck bias regulator. The LM5008 leverages National's latest advanced 100 V analog-BiCMOS-DMOS IC (ABCDXV-2) process technology to extend the voltage range of the popular LM5007 80 V Buck bias regulator, which was introduced last year. It is ideal for use in 48 V power converters, and in

telecommunication, automotive and battery-powered applications.

The LM5008 is used to step down a primary-side distributed voltage bus (up to 100 V input) and produces a low-voltage (12 V typical) bias supply for primary-side control and drive devices. Using the LM5008, a power supply designer can replace a complex, inefficient flyback converter with a simple, efficient Buck regulator. Additionally, as the Buck regulator switches at a higher frequency, filter components are smaller, liberating much-needed board space.

“National Semiconductor’s LM5008 builds on the success of our LM5000 family of high-voltage power products and showcases National’s process, packaging and manufacturing strengths, as well as our high-voltage IC design capabilities. The LM5008 combines our advanced ABCDXV-2 process and LLP® thermal packaging technologies to provide our customers with leading-edge power management products,” said Paul Greenland, marketing director of National Semiconductor’s power management group. “The LM5008 operates at high frequencies while providing efficiencies up to 90 percent, compared to competitive solutions with 150 kHz typical operating frequency and 50-to-65 percent power efficiency. This increased switching frequency and efficiency translates into significant space and power savings in our customers’ designs.”

The LM5008’s Unique Integration Features

- Integrated 500 mA_{pk}, 100 V VDMOS transistor, ideal for today’s high-density and high-efficiency power converters
- Integrated wide-range 9.5 V to 95 V start-up bias regulator, useful for numerous battery-powered applications
- Intelligent current limit timers ensure short circuit protection while providing minimum foldback
- Protective features include integrated over-temperature shutdown and

thermal shutdown circuitry

More information: <http://www.national.com/appinfo/power/hv.html>

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