

TI UNVEILS HIGH-PERFORMANCE PWM CONTROLLER THAT SIMPLIFIES DESIGN OF MULTIPLE OUTPUT POWER SUPPLIES

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New Synchronous Buck Controller with Dual Rectifier Outputs
Redefines Power Management for Secondary-Side Post Regulation

DALLAS (June 8, 2004) - Leveraging its leading high performance analog manufacturing capabilities, Texas Instruments Incorporated (TI) announced today an innovative power management integrated circuit (IC) for high density, low output voltage converters. The new secondary-side, synchronous pulse-width modulation (PWM) controller simplifies design of applications with multiple output power supplies, such as telecom and data communications modules, industrial supplies, computer, test and medical instrumentation and merchant power supplies.

TI's UCC2540 voltage-mode, synchronous buck controller is the first secondary-side control device with dual +/- 3A TrueDrive™ outputs to allow design of multiple power stages that can deliver currents up to 50 A and output voltages as low as 0.7 V. Capable of supporting a wide input supply voltage range of 2.7 V to 35 V, the flexible controller can operate from a 3.3 V bus, versus competing devices that run from a 5 V or higher voltages. The device drives two external N-channel MOSFETs synchronously at a switching frequency up to 1 MHz to deliver high current at high efficiencies, while minimizing sizes of inductors and capacitors.

Delivering High Performance and Unparalleled Versatility

Ideal for generating auxiliary outputs as a secondary-side post regulator (SSPR) for multiple output power supplies, the UCC2540 controller achieves higher power efficiency than today's designs that use a single SSPR transistor or magnetic amplifier (MagAmp) designs. In addition, the UCC2540 can be used in two-stage, cascaded topologies as the local secondary-side controller for the main output in isolated, high-performance DC/DC converters. The controller can take synchronization input directly from a pulsed-rectified voltage from the secondary winding device or from a pulse transmission from the primary side PWM controller.

The UCC2540 is the first device to include a tracking function to allow sequencing of two or more outputs, an essential feature needed for multiple-output power supplies. Multiple UCC2540 controllers can be stacked to provide multiple outputs, and each output can be sequenced to another in simultaneous, ratio-metric or sequential modes.

Incorporating TI's proprietary Predictive Gate Drive™ technology, the UCC2540 improves overall power efficiency by up to four percent, and helps eliminate body diode conduction and reverse recovery losses in synchronous rectifiers. The UCC2540 also has a one percent accuracy reference tolerance over line, load and temperature variations. The controller also attains optimum compensation and fast transient response by integrating a high-speed error amplifier.

Key Features of UCC2540:

Wide Input Supply Voltage Range: 2.7 V to 35 V

On-Chip Predictive Gate Drive for High Efficiency Synchronous Buck Operation

Dual +/- 3 A TrueDrive Outputs

Tracking Function for Sequencing Multiple Outputs

1 MHz High Frequency Operation

Over Current Protection Using a Parallel Average Current Mode Control Loop

Reverse Current Protection for Output Stage

User Programmable Shutdown

+/- One Percent Overall Tolerance Bandgap Reference

Availability, Packaging and Pricing

The UCC2540 is shipping in volume today from TI and its authorized distributors. The device is rated for operation from -40 degrees C to 105 degrees C, and is available in a 20-pin, thermally enhanced, HTSSOP PowerPAD™ package with 1.4 degrees C/W 0jc. Suggested resale pricing is \$1.85 in quantities of 1,000 units. TI's new VIP online selection tool, evaluation modules, user guides and application notes on Predictive Gate Drive and synchronous buck drivers are currently available at power.ti.com.

Find the original press release on www.ti.com

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