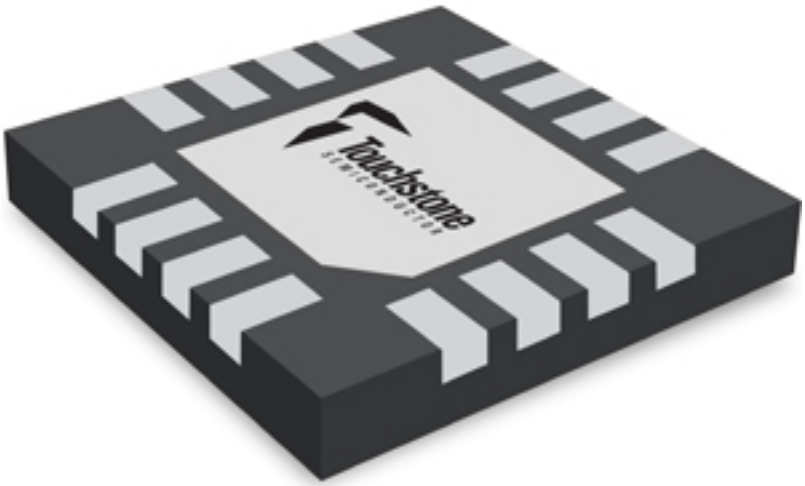
Boost regulator offers constant efficiency performance over a 100:1 span in output current



Touchstone Semiconductor announced the TS3300 boost regulator. The TS3300 uses only 3.5µA of supply current, and the TS3300's efficiency performance is constant over a 100:1 span in output current. No other low power boost converter offers this level of performance.

The TS3300 is the industry's first boost plus linear regulator that can operate from supply voltages as low as 0.6V up to 4.5V and can deliver at least 75mA of continuous output current. The TS3300 is ideally suited to be powered from a wide variety of power sources including single or multiple-cell alkaline or single Li-chemistry batteries. The boost regulator's output voltage range can be user-set from 1.8V to 5.25V to power an entire range of low-power analog circuits, microcontrollers and low-energy Bluetooth™ radios simultaneously. While configured to produce a 3V output from a 1.2V input source, the TS3300's efficiency performance is constant over a 100:1 span in output current – no other low-power boost converter offers this level of performance. For powering low-energy radios, its internal, low-dropout linear regulator can deliver up to 100mA output current while reducing boost-converter-generated output voltage ripple by 3x.

Drawing only 3.5µA no-load supply current, the TS3300 is ideal for "always on" and other battery-powered or portable applications where extended battery run-time is a major system requirement. When used in systems where the primary power source is non-ideal or when the power source is weak, the TS3300 includes an anti-crush feature that prevents the boost converter's input voltage from excessive

voltage drops; this, in turn, prevents the power source's voltage from degrading beyond usefulness.

Key specifications

· A Low-Power Boost + Linear Regulator in one PCB-saving TQFN package

· Boost Regulator Maintains 84% Efficiency over 100:1 Output Current Range

· Delivers >100 mA at 3VOUT from 1.8VIN

· Low No-load Supply Current: 3.5µA

· Includes Anti-Crush: Automatic Start-up Current Limiting from Weak Power Sources

· Adjustable VOUT Range: 1.8V to 5.25V

· Single-inductor Synchronous Rectifier

· 100-mA Internal Low-dropout Linear Regulator

Operating from very low power sources, such as photovoltaic cells to three alkaline cells, the TS3300 is ideally suited for handheld/portable applications such as wireless remote sensors, RFID tags, wireless microphones, solar cell post-regulator/chargers, post-regulators for energy harvesting, blood glucose meters and personal health-monitoring devices.

The TS3300 adds power management to Touchstone's expanding analog IC family of products that includes amplifiers, analog-to-digital converters, comparators, current-sense amplifiers, simple-to-use timers, voltage detectors and precision voltage references.

The TS3300 is priced at $0.85 in 1K-piece quantities. The TS3300 is fully specified over the -40°C to +85°C temperature range and is available in a low-profile, thermally-enhanced 16-pin 3x3mm TQFN package with an exposed back-side paddle. The TS3300 [1] is available now and ready to ship from Touchstone's authorized distributors, Digi-Key [2], WPGAmericas [3], and the WPI Group [4] in Asia.

For more information on Touchstone's TS3300 or to download a data sheet visit: http://touchstonesemi.com/products/power-management [5].

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