

## NEW PRODUCT BULLETIN

### TPS63030/31

**95% Efficient, 0.8A Buck-Boost DC/DC Converter in 2.5x2.5mm<sup>2</sup> QFN**

#### DESCRIPTION

The TPS6303x series is a family of synchronous Buck-Boost DC/DC Converters that are ideally suited for applications powered from 1-cell Li-Ion/Li-Polymer battery or 2-/3-cell Alkaline/NiCd or NiMH batteries.

With its wide input voltage range starting at 1.8V up to 5.5V, the TPS6303x series can support future battery technologies with ultra-low battery discharge cycles. Featuring automatic transition between buck and boost mode, the device can provide up to 800mA output current in buck mode @ 3.3V or up to 500mA output current in boost mode @ 3.3V.

The TPS6303x is based on a fixed frequency, pulse-width-modulation (PWM) controller using synchronous rectification to obtain maximum efficiency, up to 96%.

#### KEY SPECIFICATIONS

- Efficiency: 96% (max)
- Input Voltage: 1.8V to 5.5V
- Output Voltage: 1.2V to 5.5V (adj, TPS63000)
- Output Voltage: 3.3V (fixed, TPS63001)
- Output Current: 0.8A (max) in buck mode @ 3.3V
- Output Current: 0.6A (max) in boost mode @ 3.3V
- Quiescent Current: 25µA (typ)
- Switching Frequency: 2.4MHz
- Package: 2.5x2.5 mm<sup>2</sup> QFN

#### ADDITIONAL SPECIFICATIONS

- Synchronizable to External Clock Signal
- Automatic Transition between Buck/Boost Mode

#### DEVICE OPTIONS

Order Number	Output Voltage
TPS63030DSKR/T	1.2V to 5.5V
TPS63031DSKR/T	3.3V

#### TYPICAL APPLICATIONS

TPS6303x is ideally suited for any portable Application powered by 1-cell Li-Ion or 2-/3-cell Alkaline batteries.

- Portable Audio Players
- PDAs & Smartphones
- Cellular Phones
- Personal Medical Products
- Standard and High-current White LEDs

#### FACTORY CONTACTS

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## QUICK COMPARISON TO COMPETITION AND OTHER TI PRODUCTS

### DC/DC Buck/Boost with <800mA output current

	TPS63030	LTC3440	LTC3444	ADP2503
Converter type	PWM/PFM	PWM/PFM	PWM/PFM	PWM/PFM
Topology	synchronous	synchronous	synchronous	synchronous
Efficiency (max)	96	96	~92%	~92%
Input Voltage	1.8V - 5.5V	2.5 - 5.5V	2.7 - 5.5V	2.3V-5.5V
Buck Current @ 3.3V	600mA	600mA	400mA	~600mA
Boost Current @ 3.3V	400mA	600mA	400mA	?
Output Voltage	1.2V - 5.5V	2.5 - 5.5V	0.5V to 5.5V	2.8V-5.5V
Quiescent current (typ)	40uA	600uA	700uA	38uA
Switching Frequency	2.4MHz	300kHz - 2MHz	1.2MHz - 1.8MHz	2.2MHz-2.8MHz
Inductor size	1.5uH	10uH	2.2uH	1uH
Softstart	yes	?	yes	yes
Package	2.5x2.5QFN	3x3DFN	3x3DFN	3x3LFCSP

### Product Positioning within TI Portfolio

TPS6303x with 0.8A output current is the extending TIs Buck/Boost DC/DC Converter series for lower current levels, comparing to the 1.2A output current TPS6300x series.

### Product Positioning within Market & Key Selling Points

- Main competition is LTC with a series of 2 Buck-Boost DC/DC Converter called LTC344x. They are very similar to each other; the main difference is the output current and therefore the inductor size.
- ADI is entering the market with new Buck/Boost devices; they are not released as of October 2008.
- Compared to TIs TPS63030, each competing device has certain drawbacks in output current, voltage range, quiescent current or package/inductor size, and none can reach TI's high efficiency curve over the input range.

The TPS6303x offers an overall unique combination of features, starting at the highest output current with smallest inductor, which contributes to the smallest solution size. A wide input range (starting as low as 1.8V) and unique efficiency curve over the wide battery voltage range make the TPS63030 to the leader in the Buck-Boost DC/DC converter market.

### TYPICAL APPLICATION CIRCUIT WITH 3.3V OUTPUT CONFIGURATION

