

Low Noise, Regulated Charge Pump DC/DC Converter

General Description

The PN2204B is a low noise, constant frequency (400kHz) switched capacitor voltage doubler. It produce a regulated output voltage from a 2.5V to 5.5V input with up to 250mA of output current. Low external parts count (one flying capacitor and two small bypass capacitors at VIN and VOUT) make the PN2204B ideally suited for small, battery-powered applications.

A new charge-pump architecture maintains constant switching frequency to zero load and reduces both output and input ripple. The PN2204B have thermal shutdown capability and can survive a continuous short circuit from VOUT to GND. Built-in soft-start circuitry prevents excessive inrush current during start-up.

High switching frequency enables the use of small ceramic capacitors. A low current shutdown feature disconnects the load from VIN and reduces quiescent current to <1uA.

The PN2204B is available in the 6-pin SOT23.

Applications

- White LED Backlighting
- Li-Ion Battery Backup Supplies
- Local 3V to 5V Conversion

Typical Application Circuit

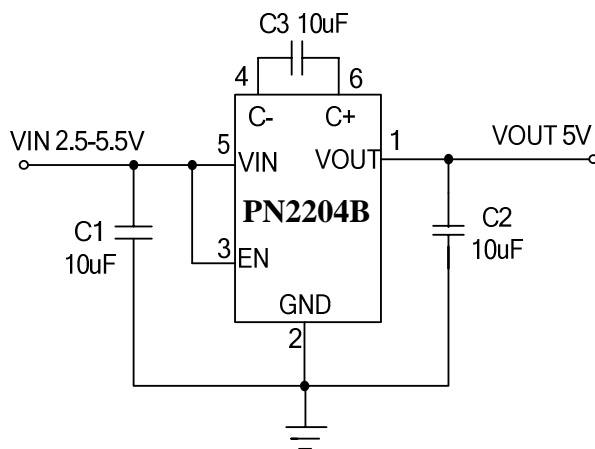


Figure 1. Basic Application Circuit with PN2204B

- Smart Card Readers
- PCMCIA Local 5V Supplies

Features

- Fixed 5V ± 4% Output
- VIN Range: 2.5V to 5.5V
- Output Current: Up to 250mA
- Constant Frequency Operation at All Loads
- Low Noise Constant Frequency (400kHz) Operation
- Automatic Soft-Start Reduces Inrush Current
- Shutdown Current <1uA
- Short-Circuit Protection
- No Inductors
- Available in Low Profile 6-Lead SOT23 Package

Package

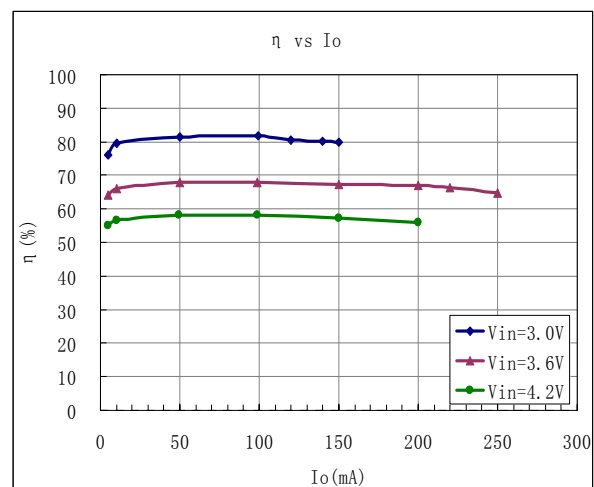
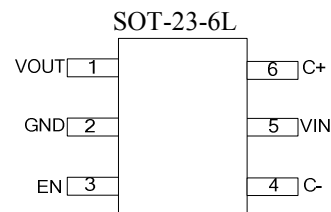


Figure 2. Typical Efficiency Curve