

# High Efficiency Single Inductor Positive/Negative Power Supply

## ISL98608IIH

The ISL98608IIH is a high efficiency power supply for small size displays, such as smart phones and tablets requiring  $\pm$ supply rails. It integrates a boost regulator, LDO and inverting charge pump that are used to generate two output rails: +5V (default) and -5V (default). The  $\pm$ 5V output voltages can be adjusted from  $\pm$ 4.5V up to  $\pm$ 7V with 50mV steps using the I<sup>2</sup>C interface.

The device integrates synchronous rectification MOSFETs for the boost regulator and inverting charge pump, which maximizes conversion efficiency.

The ISL98608IIH integrates all compensation and feedback components, which minimizes BOM count and reduces the solution PCB size to 18mm<sup>2</sup>.

The input voltage range, high efficiency operation and very low shutdown current make the device ideal for use in single cell Li-ion battery operated applications.

The ISL98608IIH is offered in a 1.744mm x 1.744mm WLCSP package, and the device is specified for operation across the -40°C to +85°C ambient temperature range.

## Features

- Two outputs:
  - VP = +5V (default)
  - VN = -5V (default)
- 2.5V to 5.5V input voltage range
- $\pm$ 4.5 to  $\pm$ 7V wide output range
- Supports 200mA current between VP and VN
- >89% efficiency with 12mA load between VP and VN
- 18mm<sup>2</sup> solution PCB area
- Fully integrated FETs for synchronous rectification
- Integrated compensation and feedback circuits
- I<sup>2</sup>C adjustable output voltages and settings
- Integrated VP/VN discharge resistors
- 1 $\mu$ A shutdown supply current
- Programmable turn-on and turn-off sequencing
- 1.744mm x 1.744mm, 4x4 array WLCSP with 0.4mm pitch

## Applications

- TFT-LCD smart phone displays
- Small size/handheld displays
- Hi-Fi audio amplifier supply

## Typical Application Circuits

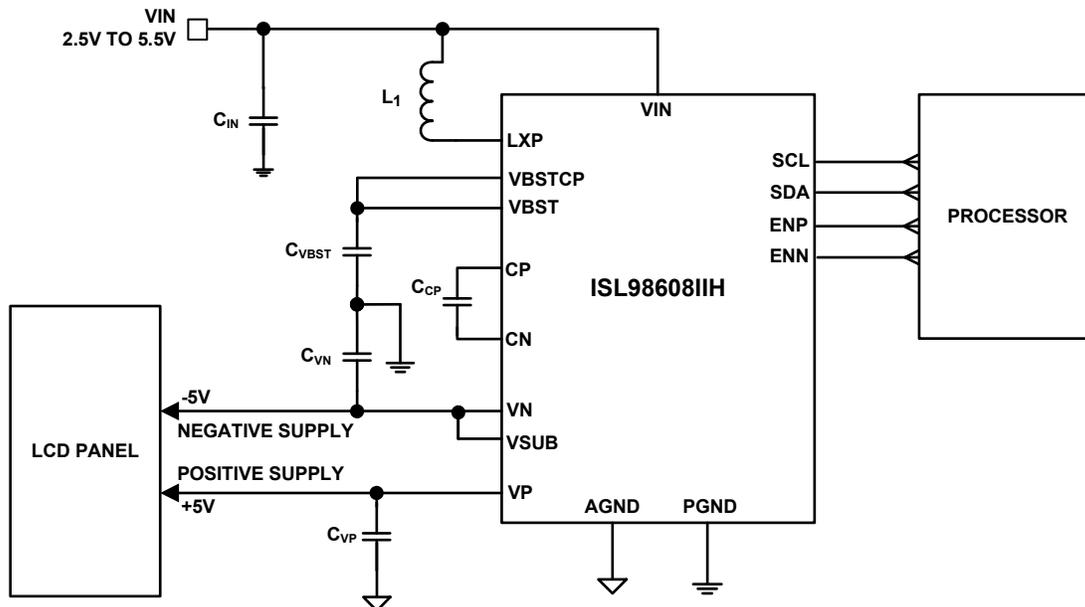


FIGURE 1. TYPICAL APPLICATION CIRCUIT: TFT-LCD SMART PHONE DISPLAY

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