ISL91134

High Efficiency 1.8A Boost Regulator With Input-to-Output Bypass

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The ISL91134 is an integrated boost switching regulator for battery powered applications. The device provides a power supply solution for products using a one cell Li-ion or Li-polymer battery.

The device is capable of delivering up to 1.8A output current from V_{IN} = 3V and V_{OUT} = 5V. The no load quiescent current is only 108µA in Boost Mode and 45µA in Forced Bypass Mode, which significantly reduces the standby consumption.

The ISL91134 offers a Bypass Mode operation where the output is directly connected to the input through a 38mΩ MOSFET to allow a significantly lower dropout voltage. The Bypass Mode can be entered by an external command or by auto bypass. The Forced Bypass Mode allows the output voltage to operate close to the input voltage and improves the efficiency under these conditions.

The ISL91134 is designed to support a fixed output voltage of 5V. A voltage select pin is available for each output variant to scale up the output voltage by a small offset to compensate the load transient droop.

The ISL91134 requires only an inductor and a few external components to operate. The 2.5MHz switching frequency further reduces the size of external components.

The ISL91134 is available in a 16 bump, 0.4mm pitch, 1.78mmx1.78mm WLCSP.

Features

- Input voltage range: 2.35V to 5.4V
- Output current: up to 1.8A (V_{IN} = 3V, V_{OUT} = 5V)
- High efficiency: up to 96%
- 108µA quiescent current minimizes standby consumption in Boost Mode, 45µA in Forced Bypass Mode
- 2.5MHz switching frequency minimizes external component size
- Forced Bypass or Auto Bypass Modes with a 38mΩ switch
- PFM mode at light-load currents
- Fully protected for overcurrent, over-temperature and undervoltage
- Load disconnect when disabled
- Small 1.78mmx1.78mm WLCSP

Applications

- Smartphones and tablet PCs
- Wireless communication devices
- 2G/3G/4G RF power amplifiers
- USB OTG power source

Related Literature

- AN1957, “ISL91134 Evaluation Board User Guide”

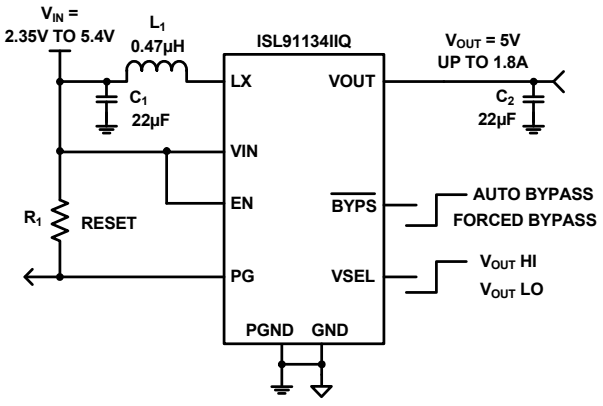


FIGURE 1. TYPICAL APPLICATION

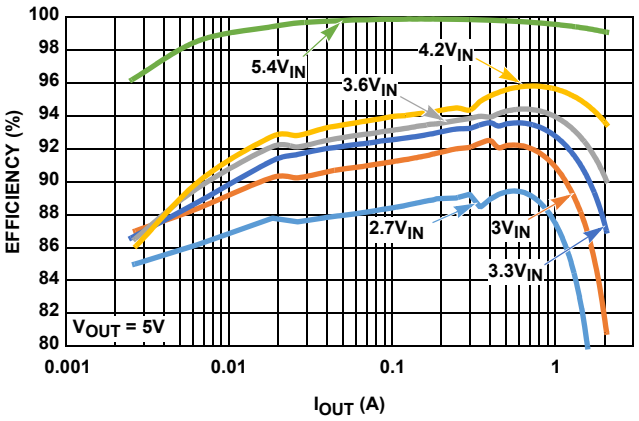


FIGURE 2. EFFICIENCY vs LOAD CURRENT, V_{OUT} = 5V

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