

High Efficiency Buck-Boost Regulator with 3.6A Switches and Bypass Mode

ISL91106

The ISL91106 is a highly-integrated buck-boost switching regulator that accepts input voltages either above or below the regulated output voltage. Unlike other buck-boost regulators, this regulator automatically transitions between operating modes without significant output disturbance. The device also includes a selectable bypass mode for low power consumption in applications that have a sleep or low-power mode.

This device is capable of delivering up to 2A of output current ($P_{VIN} = 2.8V$, $V_{OUT} = 3.3V$), and provides excellent efficiency due to its fully synchronous 4-switch architecture. No-load quiescent current of only 45µA also optimizes efficiency under light-load conditions.

The ISL91106 is designed for standalone applications. It supports 3.3V and 3.4V fixed output voltages or variable output voltages with an external resistor divider. Output voltages as low as 1V or as high as 5.2V are supported using an external resistor divider.

The ISL91106 requires only a single inductor and very few external components. Power supply solution size is minimized by a 2.15mmx1.51mm WLCSP and a 2.5MHz switching frequency, which further reduces the size of external components.

Features

- Accepts input voltages above or below regulated output voltage
- Automatic and seamless transitions between buck and boost modes
- Input voltage range: 1.8V to 5.5V
- Output current: up to 2A ($P_{VIN} = 2.8V$, $V_{OUT} = 3.3V$)
- High efficiency: up to 96%
- 45µA quiescent current maximizes light load efficiency
- 2.5MHz switching frequency minimizes external component size
- Selectable forced PWM mode
- Selectable bypass power saving mode
- Fully protected for short-circuit, over-temperature, and undervoltage
- Small 2.15mmx1.51mm WLCSP

Applications

- Smartphones and tablet PCs
- Wireless communication devices
- 2G/3G/4G power amplifiers

Related Literature

- AN1959, "ISL91106IIN-EVZ, ISL91106IIQ-EVZ and ISL91106IIA-EVZ Evaluation Board User Guide"

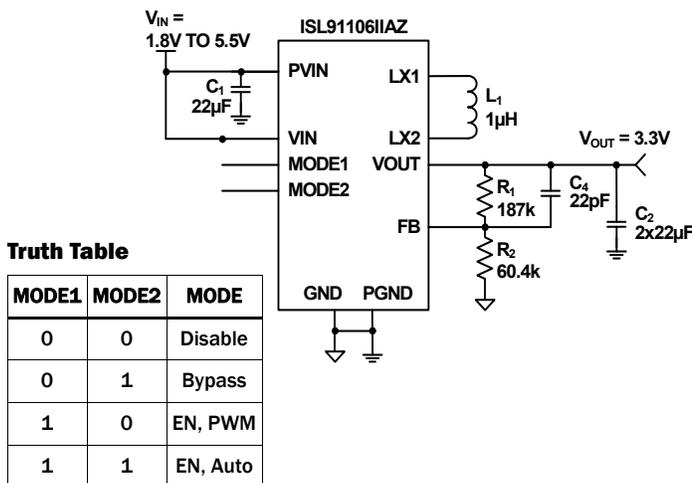


FIGURE 1. TYPICAL APPLICATION

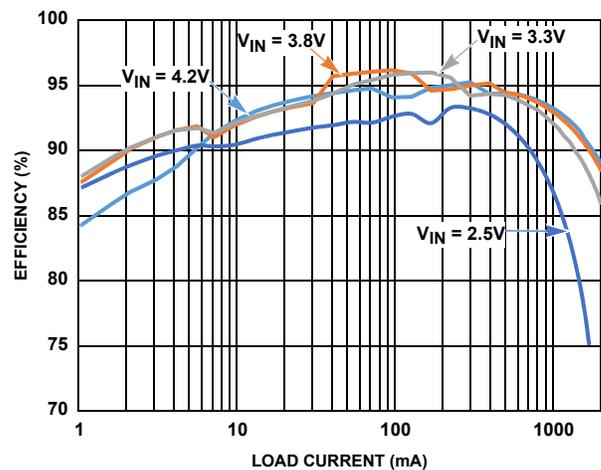


FIGURE 2. EFFICIENCY vs OUTPUT CURRENT ($V_{OUT} = 3.3V$)

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