

HL7613

2.5MHz High Efficiency Boost Converter

Description

The HL7613 device provides a power supply solution for battery-powered portable applications. Intended for low-power applications, the HL7613 supports up to 1.1A load current from a battery discharged as low as 2.3V and allows the use of low-cost inductor and capacitors.

With a wide input voltage range of 2.3V to 5.5V, the device supports applications powered by Li-Ion batteries with extended voltage range. Different fixed voltage output versions are available from 3.3V to 5.5V.

The HL7613 operates at a regulated 2.5MHz switching frequency and enters power-save mode operation at light load currents to maintain high efficiency over the entire load current range.

The PFM mode extends the battery life by reducing the quiescent current to 50 μ A (typ.) during light load operation.

In addition, the HL7613 device can also maintain its output biased at the input voltage level. In this mode, the synchronous rectifier is current limited allowing external load (e.g. audio amplifier) to be powered with a restricted supply. During shutdown, the load is completely disconnected from the battery. Input current in shutdown mode is less than 1 μ A (typ.), which maximizes battery life.

The HL7613 offers a very small solution size due to minimum amounts of external components. It allows the use of small inductors and input capacitors to achieve a small solution size.

Features

- 95% Efficiency at 2.5MHz Operation
- 50uA Quiescent Current in Normal Operation
- 21uA Quiescent Current in Standby Operation
- Wide VIN Range From 2.3V to 5.5V
- $V_{IN} \geq V_{OUT}$ Operation
- $I_{OUT} \geq 1.2A$ at $V_{OUT} = 5.0V$, $V_{IN} \geq 2.5V$
- $I_{OUT} \geq 1.5A$ at $V_{OUT} = 5.0V$, $V_{IN} \geq 3.0V$
- $I_{OUT} \geq 2.1A$ at $V_{OUT} = 5.0V$, $V_{IN} \geq 4.0V$
- $\pm 2\%$ Total DC Voltage Accuracy
- Light-Load PFM Mode
- Selectable Standby Mode or True Load Disconnect During Shutdown
- Thermal Shutdown and Overload Protection
- Only Three Surface-Mount External Components Required
- 9-Bump WLCSP Packaging

Applications

- Cellphones, Smartphones
- Mono and Stereo APA Applications
- USB Charging Ports (5V)

Typical Application Diagram

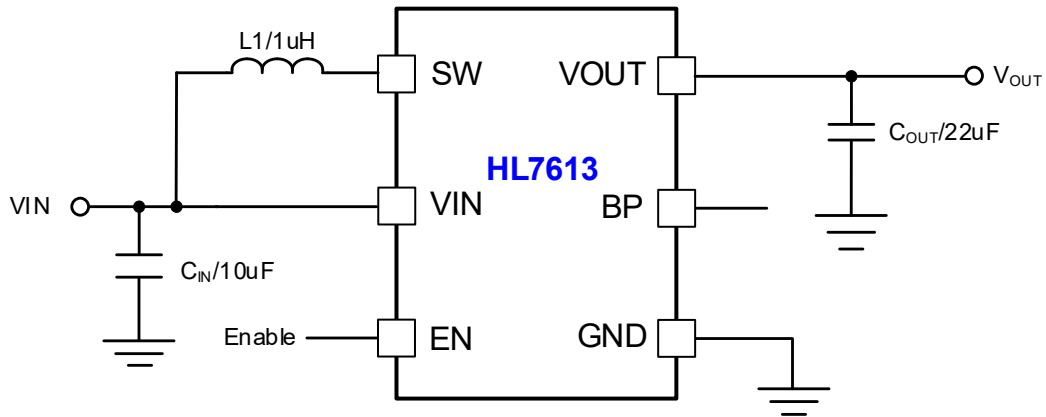


Figure 1 HL7613WL01 Typical Application Diagram

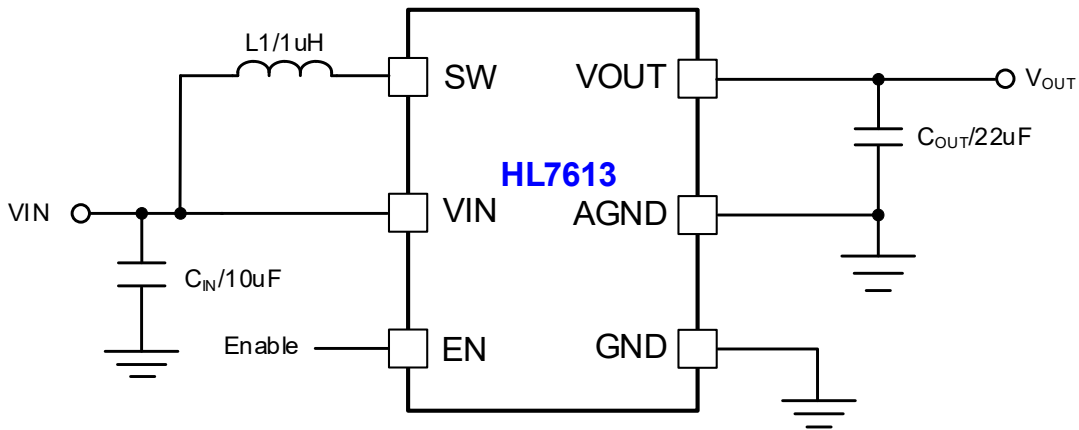


Figure 2 HL7613WL02 Typical Application Diagram

Order Information

Part Number	Switching Frequency	V _{OUT}	MODE	BP/AGND	Package	Body Size
HL7613WL01	2.5MHz	5.0V	PWM/PFM	BP	WLCSP	1.26 mm x 1.21 mm
HL7613WL02	2.5MHz	5.0V	PWM/PFM	AGND	WLCSP	1.26 mm x 1.21 mm

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