

HL8021

Low IQ Synchronous Boost Controller with Spread Spectrum

Overview

The HL8021 is a high-performance boost controller that drives an N-channel MOSFET synchronous boost power stage, operating from a wide input supply range from 4.5V to 40V. When the controller is biased from the output voltage, the controller can operate from an input supply as low as 1V after startup.

The switching frequency can be programmed by a resistor on FREQ pin. A constant frequency current control architecture allows device to synchronize to an external clock on SYNC/SPS pin.

To optimize light load efficiency, the device provides three light load operation modes—burst mode, pulse skipping mode, and continuous inductor current mode. These modes are controlled by MODE pin.

The HL8021 features spread spectrum operation to reduce the peaks of the radiated and conducted EMI noise and make it easier for system to comply with EMI standards. This operation mode can be enabled by SYNC/SPS pin tied to VCC.

A separate supply pin SUP is available to power the internal LDO that supplies to VCC. This feature provides one more option to reduce power loss and improve overall efficiency.

The HL8021 is available in a 16-pin 3x3mm QFN package.

Features

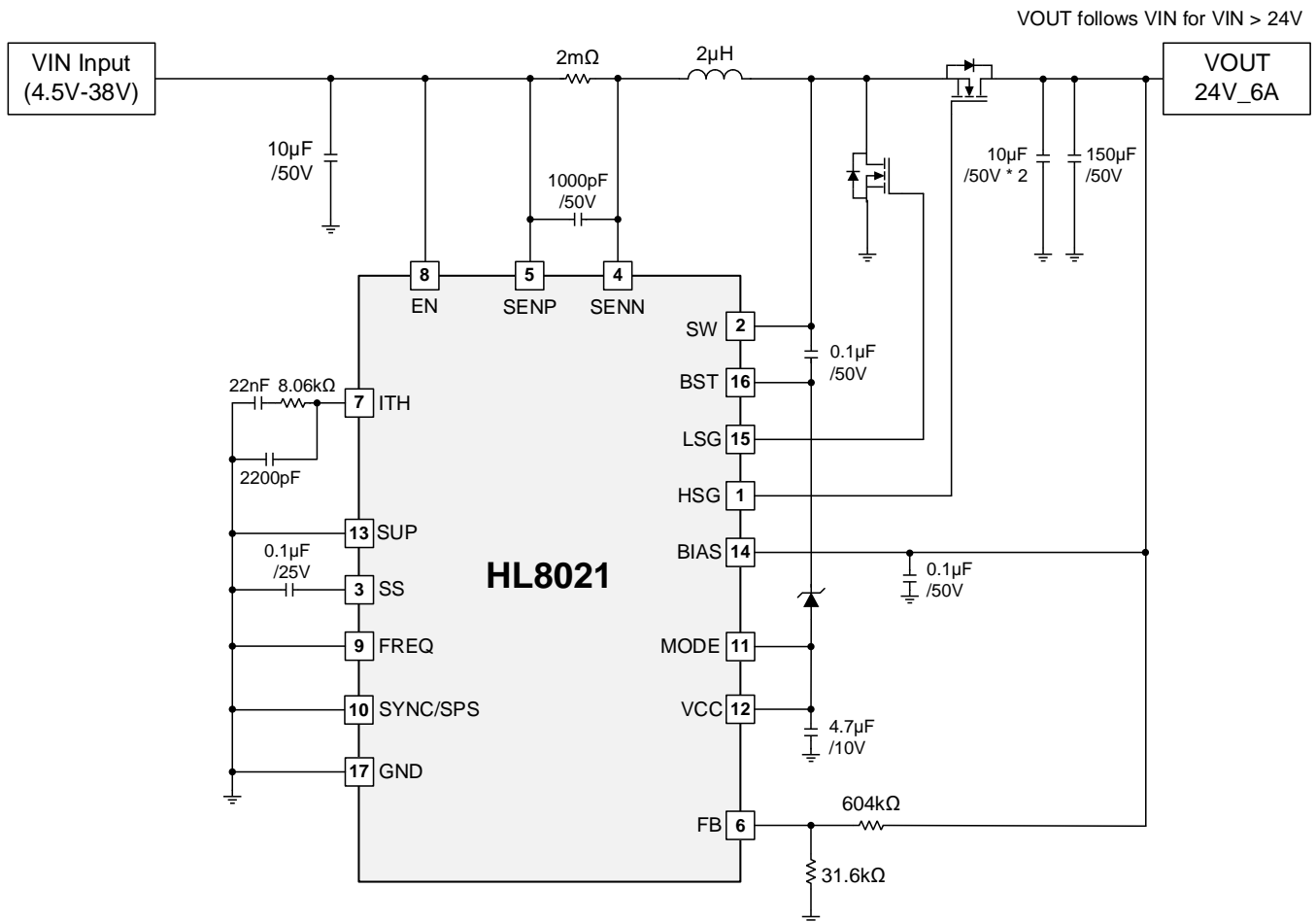
- Synchronous boost operation with high efficiency
- Wide supply voltage ranges from 4.5V to 40V
- Output voltage up to 40V
- Low operating I_Q with 14 μ A
- Low shutdown I_Q with 1.2 μ A
- 100% Duty cycle pass through mode for synchronous MOSFET
- Programmable switching frequency from 100kHz to 3MHz
- Sync to external clock from 100kHz to 3MHz
- Spread spectrum for low EMI
- Selectable continuous inductor current, burst or pulse skipping mode at light loads
- Thermally enhanced 16-pin 3mm x 3mm QFN
- AEC-Q100 grade 1 qualified

Applications

- Automotive
- Industrial
- Telecommunication

Simplified Application Diagram

High efficiency wide input range 375kHz 24V/6A boost converter



Ordering Information

Part Number	Package	Packing Method
HL8021FNQ01	16-pin QFN	Tape & Reel

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