NUQ3240 – 45V_{IN}, 45V_{OUT}, Synchronous Buck-Boost CC/CV Controller

1 Features

- Wide V_{IN}: 4V to 45V, Wide V_{OUT}: 2V to 45V
- Up to 98% Power efficiency
- Ultra-wide switching frequency: 50KHz to 3MHz
- Programmable input and output current limits
- Load current monitoring by ISMON
- CC/CV regulation capability
- 5V driver voltage for Si FETs or GaN FETs
- Gate driver: 0.6Ω pull-down, 1.2Ω pull-up resistance
- Drive supply rail UVLO protection
- Frequency spread spectrum (FSS)
- External compensation with user programmable soft-start
- Integrated high accuracy (±1%) 1.8V VREF
- Power good reporting
- 32-Lead QFN Package (5mmx5mm)

2 Applications

- Buck-Boost DC-DC supplies
- USB PD Charger
- Consumer, Industrial and Automotive
- Solar energy MPPT optimizer

3 Description

The NUQ3240 is a synchronous buck-boost controller suited for driving silicon MOSFET or Gallium Nitride (GaN) power transistors in highly efficient power converters. It supports wide input and output range up to 45V with seamless transitions between buck, buck-boost and boost modes. The NUQ3240 integrates both high side and low side gate drivers with UVLO protections. It provides programmable inductor peak current limit and output current limit functions with output instant current monitoring capability through ISMON. The CC/CV regulation capability allows it to be fitting in battery charging systems.

The NUQ3240 supports ultra-wide switching frequency range from 50KHz up to 3MHz and integrates frequency spread spectrum (FSS) for EMI optimization. Optional external clock synchronization function facilitates the parallel operation. It also features external compensation, programmable soft-start to reduce the inrush current during start up.

The NUQ3240 is available in 5mmx5mm 32-lead QFN package.

4 Device Information

PART NUMBER	PACKAGE	BODY SIZE (NOM)
NUQ3240QEQB-AAA0	32L QFN	5mm × 5mm

5 Typical Application circuit for Buck-Boost Converter & Power efficiency