

YX2745 – 40V_{IN}, 45V_{OUT}, Synchronous Bidirectional Boost Controller

1 Features

- Synchronous bidirectional boost controller with wide input voltage range of 4V to 40V
- Bi-directional boost operation
- Ultra-wide switching frequency: 50KHz to 3MHz
- Programmable output current limits, with load current sensing at ISMON
- 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
- Adjustable dead time control
- External compensation with user programmable soft-start
- Integrated high accuracy ($\pm 1\%$) 1.8V VREF
- Power good functional safety reporting
- 32-Lead QFN Package (4mmx4mm)

2 Applications

- Bidirectional Buck-Boost DC-DC supplies
- USB Type-C Power Delivery
- Power Interrupt Protection System
- Industrial and Automotive power supply

3 Description

The YX2745 is a synchronous bidirectional boost controller suited for driving silicon (Si) MOSFET or Gallium Nitride (GaN) power transistors in highly efficient DC-DC power converters. It supports a wide input ranges up to 45V with maximum 98% power efficiency. It operate as a boost controller but can change the power path to reverse direction by controlling the DIR pin from high to low. It provides programmable input current limit and output current limit functions with output instant current monitoring through ISMON. The YX2745 integrates both high side and low side gate drivers with UVLO protections. It also supports adjustable dead time control for optimal turn on/off of power switches to reduce switching loss for high efficiency.

The YX2745 supports ultra-wide switching frequency range from 50KHz up to 3MHz with frequency set pin (RT). It also features external compensation, programmable soft-start to reduce the inrush current at startup. The YX2745 is available in 4mmx4mm 32-lead QFN package.

Ordering Information appears at page2 of datasheet.

4 Device Information

PART NUMBER	PACKAGE	BODY SIZE (NOM)
YX2745CAHBE	32L QFN	4mm × 4mm

5 Typical Application for Boost Converter & Power Efficiency

