

YX2845 – 45V_{IN}, 45V_{OUT}, Bidirectional Buck-Boost Controller

1 Features

- Wide V_{IN}: 4V to 45V, Wide V_{OUT}: 2V to 45V
- **Bi-directional buck-boost operation**
- 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
- Drive supply rail UVLO protection
- Adjustable dead time control
- External compensation with user programmable soft-start
- Integrated high accuracy (±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 YX2845 is a synchronous bi-directional buck-boost controller suited for driving silicon (Si) MOSFET or Gallium Nitride (GaN) power transistors in highly efficient power converters. It supports a wide input and output ranges up to 45V with seamless transitions between buck, buck-boost and boost mode. The YX2845 features bi-directional operations, which can change the power path bidirectionally by DIR pin. It provides programmable input current limit and output current limit functions with output instant current monitoring through ISMON. The YX2845 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 YX2845 supports ultra-wide switching frequency range from 50KHz up to 3MHz with frequency set pin (RT). It also features external compensation, programmable soft-start and power good reporting. The YX2845 is available in 4mmx4mm 32-lead QFN package.

[Ordering Information](#) appears at page2 of datasheet.

4 Device Information

| PART NUMBER | PACKAGE | BODY SIZE (NOM) |
|-------------|---------|-----------------|
| YX2845CAHBE | 32L QFN | 4mm × 4mm |

5 Typical Application for Bidirectional Buck-Boost Converter & Power Efficiency

