YX2865A– 65V_{IN}, 65V_{OUT}, Bidirectional Buck-Boost Controller

1 Features

- Wide V_{IN}: 4V to 65V, Wide V_{OUT}: 2V to 65V
- **Bi-directional buck-boost operation**
- Up to 98% power efficiency
- Ultra-wide switching frequency: 50KHz to 3MHz
- **Clock Synchronization with SYNCI/SYNCO**
- Programmable input and output current limits
- Load current monitoring by ISMON
- CC/CV regulation capability
- **6V 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: 40ns/80ns**
- External compensation with user programmable soft-start
- Integrated high accuracy (±1%) 1.8V VREF
- Power good functional safety reporting
- 32-Lead QFN Package (5mmx5mm)
- 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

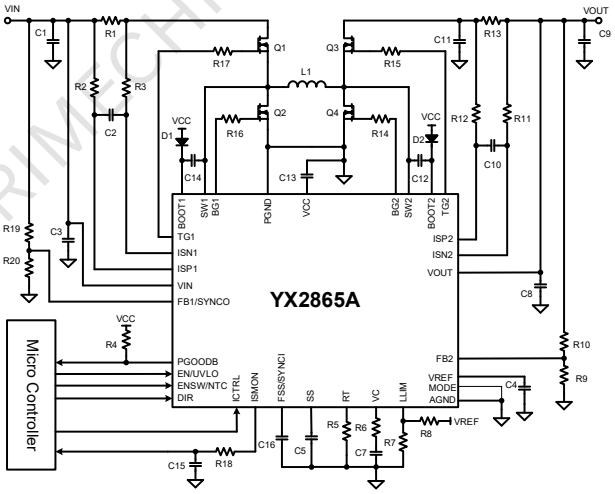
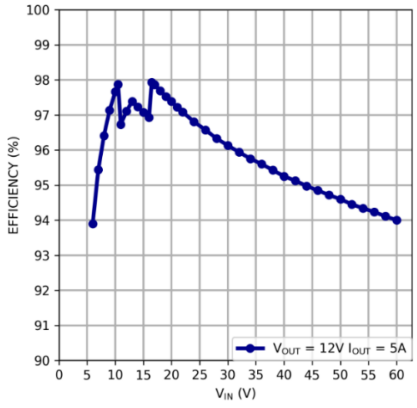
The YX2865A is a synchronous bi-directional buck-boost controller suited for driving silicon (Si) MOSFET or Gallium Nitride (GaN) power transistors in highly efficient power converters. It supports a wide input and output ranges up to 65V with seamless transitions between buck, buck-boost and boost mode. The YX2865A 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 YX2865A 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 YX2865A 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 YX2865A is available in 5mmx5mm or 4mmx4mm 32-lead QFN package.

Ordering Information appears at page2 of datasheet.

4 Device Information

PART NUMBER	PACKAGE	BODY SIZE (NOM)
YX2865A CAJBE	32L QFN	5mm × 5mm
YX2865A CAHBE	32L QFN	4mm × 4mm

PRIMECHIP Confidential for Customer Use Only

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