

YX2645

45V_{IN}, 45V_{OUT}, Synchronous Bidirectional Buck Controller

PRODUCT INTRODUCTION

The YX2645 is a synchronous bidirectional buck 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. The YX2645 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 YX2645 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.

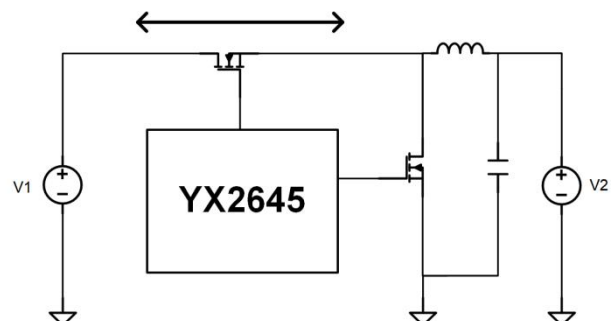
The YX2645 supports ultra-wide switching frequency range from 50KHz up to 3MHz with frequency set pin (RT). It also features external compensation, programmable soft-start to reduce the inrush current during start up. The YX2645 is available in 32-lead QFN package.

FEATURES

- Synchronous bidirectional buck controller with wide input and output voltage range up to 45V
- **Bi-directional buck operation**
- Ultra-wide switching frequency: 50KHz to 3MHz
- 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
- Integrated high accuracy (± 1%) 1.8V VREF
- Power good functional safety reporting
- 32-Lead side-wettable QFN Package

APPLICATIONS

- Buck DC-DC regulator
- Consumer, Industrial and Automotive
- USB-C PD and Chargers
- Power Interrupt Protection System



Simplified Circuit Diagram