

High Efficiency 4-Switch Buck-Boost Controller

1 Features

- Buck-Boost Controller for Step-Up/Step-Down DC/DC Conversion
- Dynamical programming of Output current and Output voltage using PWM signal or analog signal
- 2V to 32 V wide output range
- Comprehensive protection features including Output Short Protection (OSP), Cycle-by-Cycle input and output Peak Current Limit, thermal regulation, thermal shutdown, input UVLO, input OVP, output OVP etc.
- Adjustable Switching Frequency using resistor
- Frequency dithering for good EMI performance
- Integrated 2-A MOSFET Gate Drivers
- Input or Output Average Current Limiting with stable CC loop
- 5V/55mA low I_q LDO to power system MCU
- Available in QFN4x4-32 Package

2 Applications

- Automotive Start-Stop Systems
- Industrial PC Power Supplies
- USB Power Delivery
- Car charger
- HUB Power

3 Description

CX8838B is a synchronous 4 -switch Buck-Boost controller capable of regulating the output voltage at above or below the input voltage. CX8838B operates over a wide input voltage range of 3.6 V to 32 V (36 V maximum) to support a variety of applications.

CX8838B employs Constant ON time control in buck, boost and buck boost operation modes for superior load and line regulation. The switching frequency could be set to 150kHz, 300kHz, 600kHz or 1200kHz based on different resistor value between FREQ pin and GND pin. The device also features a programmable soft-start function and offers all kinds of protection features including cycle-by-cycle current limiting, input under voltage lockout (UVLO), output over voltage protection (OVP), input Over Voltage Protection, thermal shutdown and output short protection etc.

VADJ, IADJ pins are used to program output VBUS voltage and output current limit, provides voltage control loop, constant current loop, thermal regulation loop, temperature sensing, which makes CX8838B an excellent option for USB Power Delivery (PD) application.

4 Typical Application Schematic

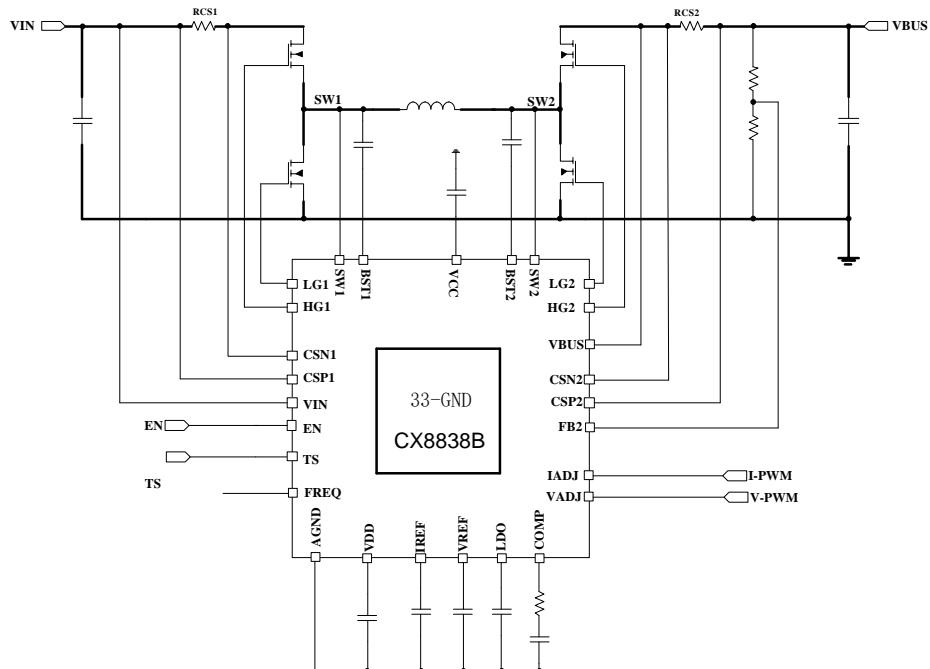


Fig. 1 Application Schematic