

28V_{IN} up to 6A Synchronous 4-Switch Buck-Boost Converter

DESCRIPTION

The MT5639 is a wide input range fully integrated 4-switch synchronous buck-boost converter capable of regulating the output voltage at, above, or below the input voltage. The device employs the patented peak current mode with constant off-time control scheme that significantly simplifies control loop design and offers seamless transition between Buck, Buck-Boost and Boost mode operations. Proprietary inductor DCR current sensing eliminates the need of external current sense resistor and improves system power efficiency. With external compensation, the MT5639 can be optimized to operate with a wide range of input and output voltage at all current level. The MT5639 comes with internal soft-start, programmable inductor peak current limit, input under-voltage and over-voltage lockout, hiccup mode for short circuit or overload protection and thermal shutdown. The high integration level of the MT5639 offers great ease of use and minimizes the external components as well as board space. The MT5639 is available with a small footprint 5mmx5mm 28-lead QFN package.

FEATURES

- Input Voltage Range from 3.1V to 28V
- Output Voltage Range from 1V to 28V
- Integrated Four 17mΩ Power Switches with 20A Peak Current Capability
- Up to 6A Output Current
- 5Vo/5A Output from 4.5Vin
- 5Vo/5A Output from 5Vin
- 5Vo/6A Output from 20Vin
- Up to 97.5% Efficiency
- Inductor DCR Current Sensing
- Programmable Input Switch Current Limit
- Accurate EN Threshold Voltage
- 200kHz Switching Frequency
- Output Voltage Power Good Indicator
- Cycle-by-Cycle Peak Current Limit
- Short Circuit Protection with Hiccup Mode
- Thermal Shutdown
- Available in 5mmx5mm 28-Lead QFN Package
- Pb-Free ROHS compliant

APPLICATIONS

- USB Type-C Hub and docking station
- Car Charging
- Monitor
- Power Banks and Electronic Cigarette
- USB-PD and Thunderbolt Ports for PCs
- Industrial Battery Powered Systems
- LED lighting system

TYPICAL APPLICATION

