

36V 5A Synchronous Step-down Converter with Programmable Current Limit

DESCRIPTION

The MT3991 is a high-efficiency, high-voltage, synchronous step-down DC-DC converter with integrated high-side and low-side power MOSFETs. The MT3991 uses proprietary constant on-time (COT) control to provide excellent line and load transient response. The MT3991 features slew rate control and spread spectrum frequency modulation to minimize EMI/EMC emissions. With wide input range from 4V to 36V, the converter can deliver output voltage ranging from 0.8V to V_{IN} with up to 5A continuous output current. The converter can be configured as output with constant current (CC) regulation. In the event of output overload or short circuit, the converter will be into hiccup mode. Other protection features include cycle-by-cycle current limit, input under and over voltage protection and thermal shutdown. MT3991 also provides programmable cable voltage drop compensation by selecting appropriate external resistor divider. Switching frequency is internally set to 180KHz. The MT3991 is available in SOP8_EP package.

FEATURES

- Wide input Voltage Range from 4V to 36V
- 100% Duty Cycle Low Dropout Operation
- 70ns Minimum On Time
- Low EMI and Switching Noise
- 180KHz Switching Frequency with Spread Spectrum Modulation
- Switching frequency with 2 Type Light load mode:
MT3991U: Ultrasonic Pulse Skip Mode (25KHz Min)
MT3991N: Pulse Skip Mode
- 5A Continuous Output Current
- Integrated 40mΩ High/Low-side Switch MOSFET
- 8% accurate Constant Current Regulation with CC foldback
- Programmable Output Cable Drop Compensation
- Internal 2ms Soft Start
- Short Circuit Protection with Hiccup mode
- Accurate EN Threshold for the external programmable VIN UVLO
- Thermal Shutdown with Auto Recovery
- Cycle-by-Cycle current limit
- Available in SOP8_EP package

APPLICATIONS

- USB Type-C Car Charger/wall charger
- Automotive and Industrial Supplies
- Point of Load

TYPICAL APPLICATIONS

