

18V 6A 1.5MHz Fast-PWM Synchronous Step-Down Converter

DESCRIPTION

The MT3956 is a fully integrated high efficiency synchronous step-down converter which requires minimum number of external components. It offers very compact solution 6A continuous output current over a wide input range. The MT3956 employs proprietary Constant On-Time (COT) control scheme providing superior transient response and maintaining constant switching frequency in the continuous conduction mode operation. The external ramp compensation network allows stable operation with ultra-low equivalent series resistance (ESR) output ceramic capacitors. An error amplifier in the control loop provides excellent line and load regulation.

The MT3956 integrates extensive protection functions including Input 2.85V under-voltage lockout (UVLO), thermal shutdown, input over-voltage protection (OVP), cycle by cycle current limiting, and short-circuit protection. An open drain power good signal indicates the output within its regulation voltage range. The converter is available in a small 16 pin 3mmx3mm QFN package.

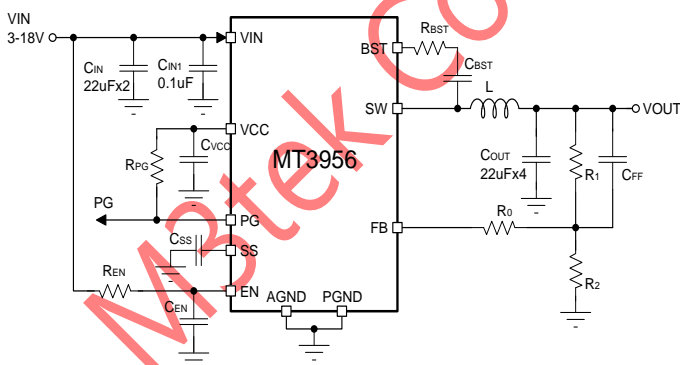
FEATURES

- Input Voltage Range from 3V to 18V
- 1% Feedback Voltage Accuracy
- 6A continuous output current
- Support 100% duty cycle Low Dropout Operation
- Stable operation with output low ESR ceramic capacitors
- Fast-PWM COT control with superior transient performance
- Constant 1.5MHz Switching Frequency
- Integrate 14mΩ/8mΩ HS/LS Power Switches
- Accurate 1.26V EN threshold with 260mV Hysteresis
- MT3956A_FPWM/MT3956N_PFM/MT3956U_UA mode operation
- 200µA Low Quiescent Current for MT3956U_UA mode
150µA Low Quiescent Current for MT3956N_PFM mode
- Internal fixed or External programmable Soft-start Time
- Thermal Shutdown
- Hiccup Mode Short Circuit Protection
- Small 3mmx3mm 16 lead QFN package

APPLICATIONS

- USB Type-C/PD Docking Station
- Networking Systems
- Laptop Computer
- Flat Panel Television and Monitors
- Distributed Power Systems

TYPICAL APPLICATIONS



Efficiency VS. IOUT

