16V 720kHz 3A Fast-PWM Synchronous Step-Down Converter

DESCRIPTION

The MT3563 is a fully integrated high efficiency synchronous step-down converter which requires minimum number of external components. It offers very compact solution with up to 3A continuous output current over a wide input range.

The MT3563 employs proprietary Constant On-Time (COT) control scheme providing superior transient response and maintaining constant switching frequency under the continuous conduction mode operation. The external ramp compensation network allows stable operation with ultra-low equivalent series resistance (ESR) output ceramic capacitors. An internal compensated error amplifier in the control loop provides excellent line and load regulation.

The MT3563 integrates extensive protection functions include: UVLO, OCP, UVP and thermal shutdown. The converter is available in a small 6pin SOT23_6L.

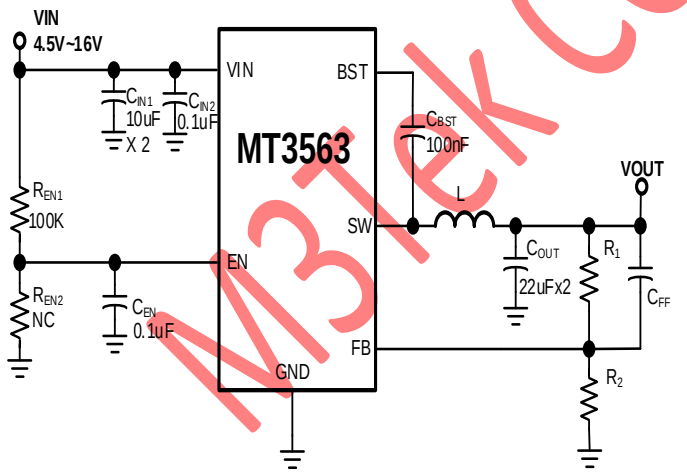
FEATURES

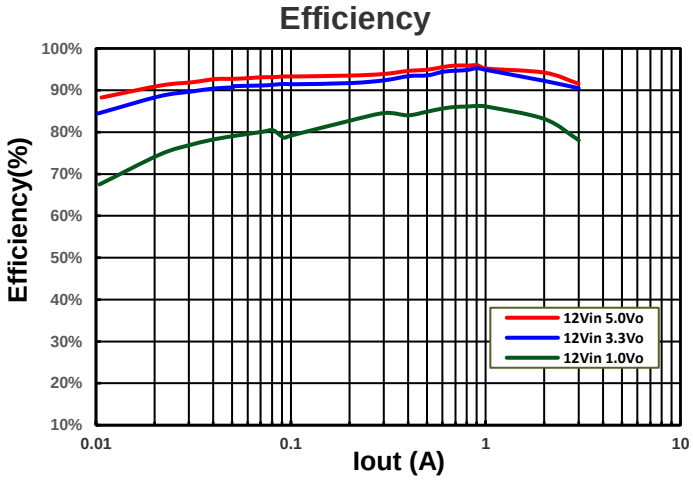
- Input Voltage Range: 4.5V to 16V
- Output Voltage range: 0.804V to 16V
- 3A continuous output current
- Support 100% duty cycle Low Dropout Operation
- Stable operation with low ESR ceramic output capacitors
- Fast PWM COT control with superior transient performance
- 720kHz Switching frequency
- Internal 2ms Soft-start
- Integrated 80mΩ/ 56mΩ HS/LS Power Switches
- Accurate EN UVLO threshold
- High Efficiency Operation at light load MT3563N
- Thermal Shutdown with Auto recovery.
- Hiccup mode short circuit protection
- Available in a 6-pin SOT23_6L Package

APPLICATIONS

- Laptop Computer
- Tablet PC
- Networking Systems
- Personal Video Recorders
- Flat Panel Television and Monitors
- Distributed Power Systems

TYPICAL APPLICATIONS



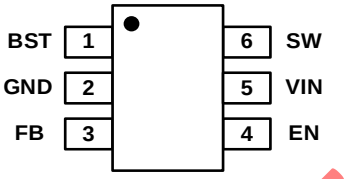


Ordering Information

Part No.	Marking	Temp. Range	Package	MOQ
MT3563NSCR (Pulse Skip Mode)	3563 YWWxx	-40°C ~+85°C	SOT23_6L	3000/Tape & Reel
MT3563ASCR (Forced-PWM Mode)	3563A YWWxx	-40°C ~+85°C	SOT23_6L	3000/Tape & Reel

Note: Y: Year, WW: Week, xx: Manufacture Control Code

Pin Configuration



SOT23_6L

Pin Description

Pin Name	Pin NO.	DESCRIPTION
BST	1	Bootstrap. A 100nF ceramic capacitor connected between SW and BST pins is required to form a floating supply for the high-side switch driver.
GND	2	Power ground
FB	3	Feedback. An external resistor divider from the output to GND, tapped to the FB pin, sets the output voltage
EN	4	Enable pin. MT3563 is shut down when this pin is low and active when this pin is high. The hysteretic enable threshold voltage is 1.21V going up and 1.11V going down. Connect EN with VIN through a pull-up resistor or a resistive voltage divider for automatic startup. An external resistor divider from VIN can be used to program a VIN threshold below to stop the MT3563 operation. There is an internal 1000kΩ (typical) pull down resistor from EN to AGND.
VIN	5	Supply Voltage. The VIN pin supplies power for internal MOSFET and regulator. The MT3563 operates from a 4.5V to 16V input rail. An input capacitor is needed to decouple the input rail.
SW	6	Switch Output. Connect this pin to the inductor and bootstrap capacitor. SW node should be kept small on the PCB for good performance and low EMI.