

23V, 3A, 340KHz Synchronous Step-Down DC/DC Converter

Description

The FR9888 is a synchronous step-down DC/DC converter that provides wide 4.5V to 23V input voltage range and 3A continuous load current capability.

Fault protection includes cycle-by-cycle current limit, input UVLO, output over voltage protection and thermal shutdown. Besides, adjustable soft-start function prevents inrush current at turn-on. This device uses current mode control scheme that provides fast transient response. In shutdown mode, the supply current is about 1uA.

The FR9888 is available in an 8-pin SOIC package, provides a very compact system solution and good thermal conductance.

Features

- Wide Input Voltage from 4.5V to 23V
- 3A Output Current
- Adjustable Output Voltage from 0.925V to 14V
- Low Rds(on) integrated Power MOSFET
- High Efficiency Up to 93%
- Fixed 340KHz Switching Frequency
- Current Mode Operation
- Adjustable Soft-Start
- Cycle-by-Cycle current limit
- Input Under Voltage Lockout
- Over-Temperature Protection With Auto Recovery
- 1uA Shutdown Current
- Internal Compensation Function
- SOP-8 and Thermal Enhanced SOP-8P Packages
- RoHS Compliant

Applications

- Set-Top-Box
- DVD, LCD Displays
- OLPC, Netbook
- Datacom, XDSL

Pin Assignments

SP Package (SOP- 8 Expose pad)

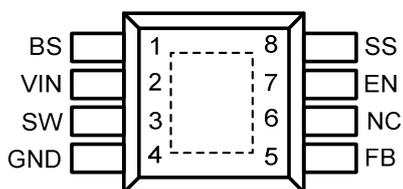
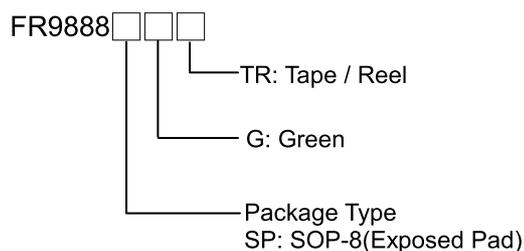


Figure 1. Pin Assignment of FR9888

Ordering Information



Typical Application Circuit

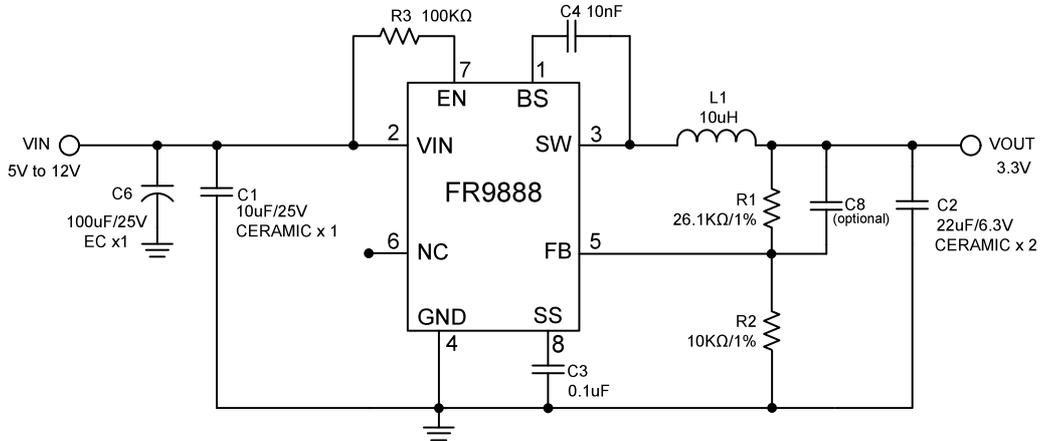
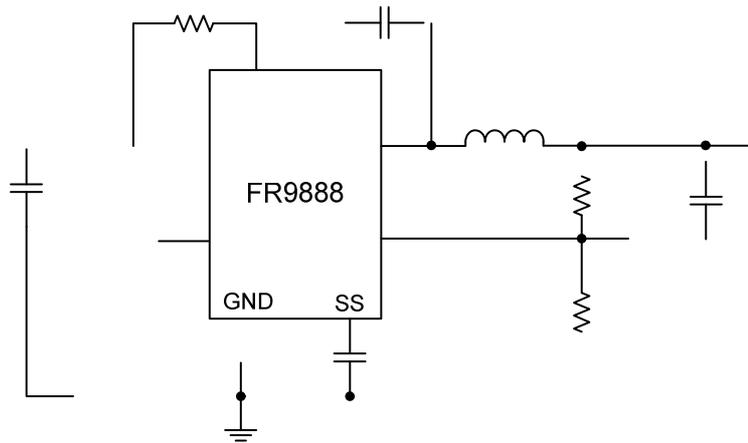


Figure 2. Output 3.3V Application Circuit



Functional Pin Description

Pin Name	Pin Function
BS	High Side Gate Drive Boost Input. A 10nF or greater capacitor must be connected from this pin to SW. It can boost the gate drive to fully turn on the internal high side NMOS.
VIN	Power Supply Input Pin. Drive 4.5V to 23V voltage to this pin to power on this chip.
SW	Power Switching Output. It is the output pin that internal high side NMOS switching to supply power.
GND	Ground Pin. Connecting this pin to exposed pad.
FB	Voltage Feedback Input Pin. Connecting FB and VOUT with a resistive voltage divider. This IC senses feedback voltage via FB and regulate it at 0.925V.
NC	No connection. Keeping this pin floating.
EN	Enable Input Pin. This pin provides a digital control to turn the converter on or off. Connect to VIN with a 100KΩ resistor for self-startup.
SS	Soft-Start Input Pin. This pin controls the soft-start period. Connect a capacitor from SS to GND to set the soft start period.

Block Diagram

