NC-Cap/PSR™ (Primary Side Regulation) CV/CC Controller

FEATURES

- **Multi-Mode Control**
- **Max. Frequency Clamping to Limit Power MOSFET Vds Spike @ Output Short Circuit**
- **Proprietary NC-Cap/PSR™ (Primary Side Regulation) Control without External Compensation/Filtering Capacitor Needed**
- **Low Standby Power Under 70mW, Easily to Pass Energy Star EPS2.0**
- **±5% Constant Current (CC) and Constant Voltage (CV) Regulation at Universal AC Input**
- **Proprietary Cable Voltage Drop Compensation in CV Mode**
- **Compensate for Line Voltage Variation and Transformer Inductance Tolerances**
- **Audio Noise Free Operation**
- **Pin Floating Protection**
- **Cycle-by-Cycle Current Limiting**
- **Built-in Leading Edge Blanking (LEB)**
- **Built-in Soft Start**
- **Output Over Voltage Protection**
- **VDD OVP & Clamp**
- **VDD Under Voltage Lockout (UVLO)**

APPLICATIONS

- **Battery chargers for cellular phones, cordless phones, PDA, digital cameras, etc**
- **Replaces linear transformer and RCC SMPS**
- **AC/DC LED lighting**

GENERAL DESCRIPTION

SF5920S is a high performance, highly integrated DCM (Discontinuous Conduction Mode) Primary Side Regulation (PSR) controller for offline small power converter applications.

SF5920S uses ***Multi Mode Control*** to improve efficiency and reliability and to decrease audio noise energy @ light loadings. Around the full load, the system operates in PWM+PFM mode, which improve the system reliability. Under light load conditions, the IC operates in PFM mode to achieve excellent regulation and high efficiency, and to achieve less than 70mW standby power.

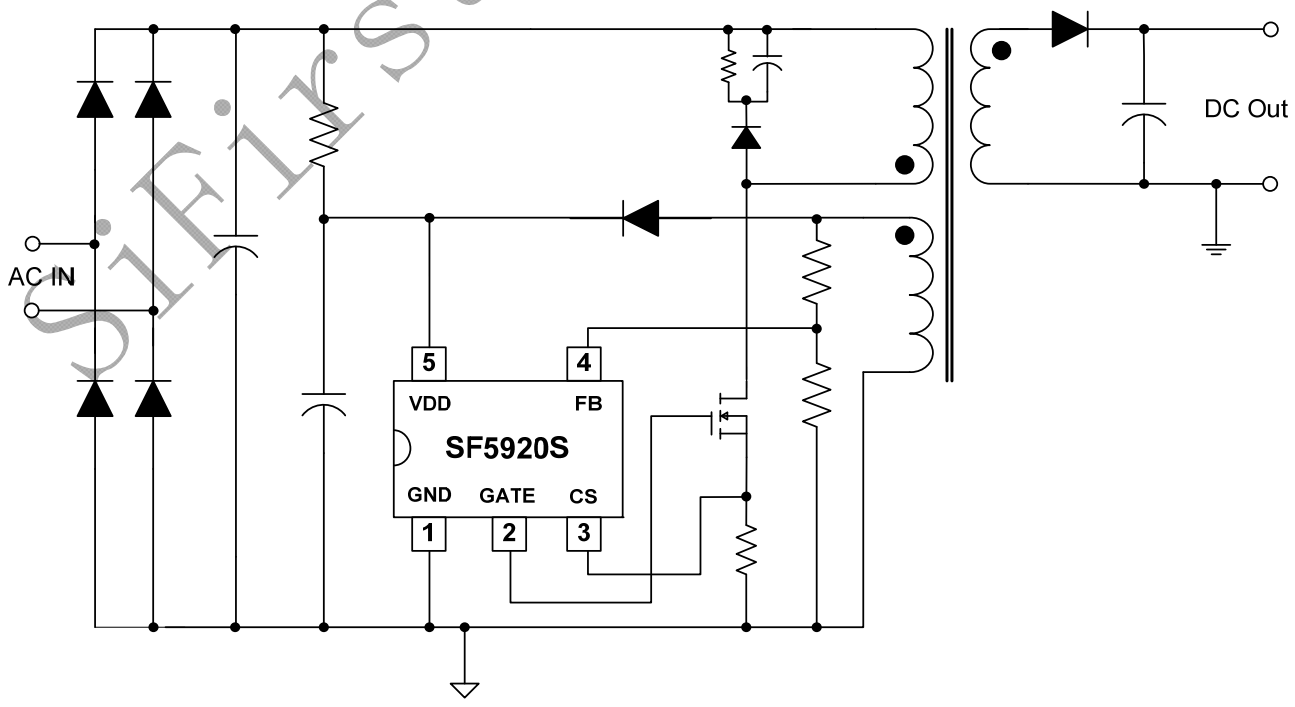
SF5920S also integrates the function of "***Max. Frequency Clamping @ Output Short Circuit***" to limits power MOSFET Vds spike when output short circuits occurs.

SF5920S has built-in proprietary **NC-Cap/PSR™** control for CV control, which eliminates external compensation or filtering capacitor. It also has built-in cable drop compensation function, which can provide excellent CV performance. The IC also has built-in soft start function to soften the stress on the MOSFET during power on period.

SF5920S integrates functions and protections of Under Voltage Lockout (UVLO), VDD Over Voltage Protection (VDD OVP), Output Over Voltage Protection (Output OVP), Soft Start, Cycle-by-cycle Current Limiting (OCP), Pin Floating Protection, Gate Clamping, VDD Clamping.

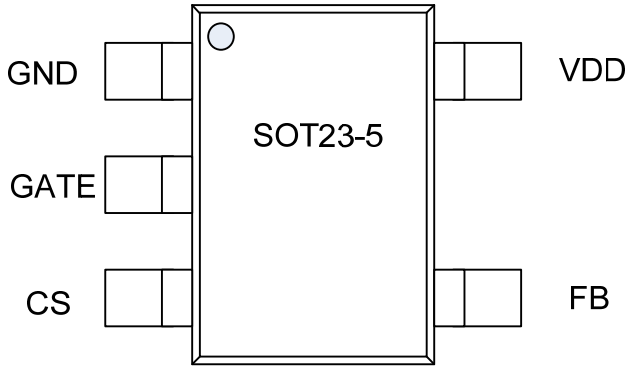
SF5920S is available in SOT23-5 package.

TYPICAL APPLICATION



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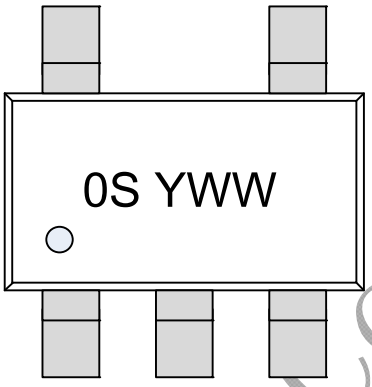
Pin Configuration



Ordering Information

Part Number	Top Mark	Package		Tape & Reel
SF5920SMGT	.0SYWW	SOT23-5	Green	Yes

Marking Information



Dot: Pin1 Mark

YWW: Year & Week Code

Pin Description

Pin Num	Pin Name	I/O	Description
1	GND	P	Ground
2	GATE	O	Totem-pole gate driver output to drive the external MOSFET.
3	CS	I	Current sense pin.
4	FB	I	System feedback pin. This control input regulates both the output voltage in CV mode and output current in CC mode based on the flyback voltage of the auxiliary winding.
5	VDD	P	IC power supply pin.

Comparison between SF5920S and SF5920

Parameter or Function	SF5920	SF5920S
Multi-Mode Operation	No	Yes
Standby Power	<30mW	<70mW
Max. Frequency Clamping @ Output Short Circuit	No	Yes
Recommended Application	<25W application, including charger , small power LED lighting	<15W application, including charger , small power LED lighting

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