

## High Performance PWM Power Switch Programmable Fsw

### FEATURES

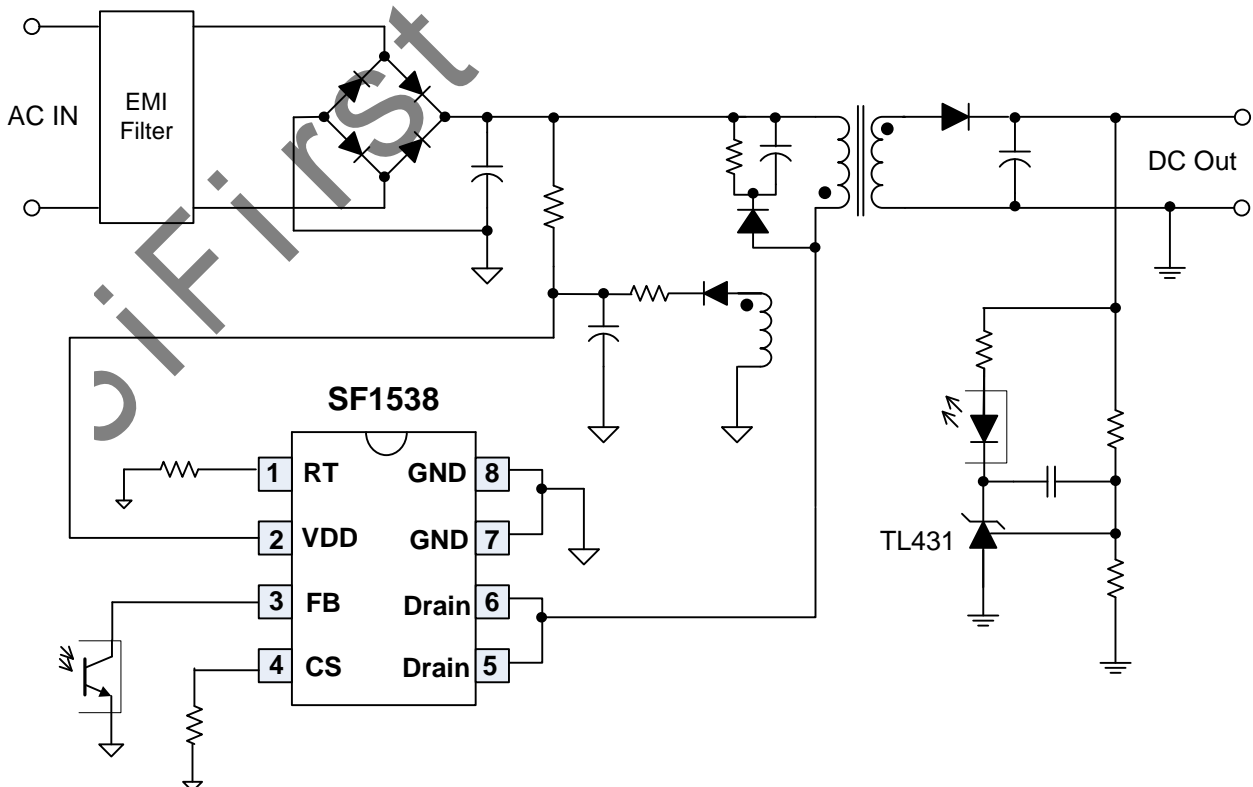
- ◆ Built-in 600V Power MOSFET
- ◆ Proprietary “Zero OCP/OPP Recovery Gap” Control
- ◆ Programmable Switching Frequency
- ◆ Built-in Soft Start Function
- ◆ All Pins Floating Protection
- ◆ Very Low Startup Current
- ◆ High Voltage CMOS Process with Excellent ESD Protection
- ◆ Frequency Reduction and Burst Mode Control for Energy Saving
- ◆ Current Mode Control
- ◆ Built-in Frequency Shuffling
- ◆ Programmable Switching Frequency
- ◆ Built-in Synchronous Slope Compensation
- ◆ Cycle-by-Cycle Current Limiting
- ◆ Built-in Leading Edge Blanking (LEB)
- ◆ Constant Power Limiting
- ◆ Audio Noise Free Operation
- ◆ VDD OVP & Clamp
- ◆ VDD Under Voltage Lockout (UVLO)

### APPLICATIONS

Offline AC/DC Flyback Converter for

- ◆ AC/DC Adaptors
- ◆ Open-frame SMPS
- ◆ Set-Top Box Power Supplies
- ◆ ATX Standby Power

### TYPICAL APPLICATION



### GENERAL DESCRIPTION

SF1538 is a high performance, low cost, highly integrated current mode PWM power switch for offline flyback converter applications.

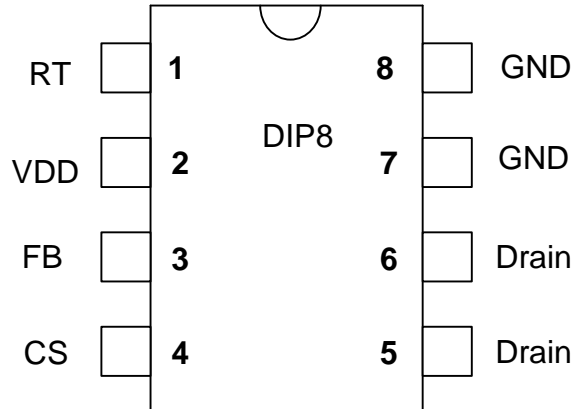
In SF1538, PWM switching frequency with shuffling can be externally programmable, which can ease system design greatly. When the output power demands decrease, the IC automatically decreases switching frequency for high power conversion efficiency. When the current set-point falls below a given value, e.g. the output power demand diminishes, the IC enters into burst mode and provides excellent efficiency without audio noise.

The IC can achieve “**Zero OCP/OPP Recovery Gap**” using SiFirst’s proprietary control algorithm. Meanwhile, the OCP/OPP variation versus universal line input is compensated.

The IC has built-in synchronized slope compensation to prevent sub-harmonic oscillation at high PWM duty output. The IC also has built-in soft start function to soften the stress on the MOSFET during power on period.

SF1538 integrates functions and protections of Under Voltage Lockout (UVLO), VCC Over Voltage Protection (OVP), Cycle-by-cycle Current Limiting (OCP), All Pins Floating Protection, Over Load Protection (OLP), RT Pin Short-to-GND Protection, VCC Clamping, Leading Edge Blanking (LEB).

SF1538 is available in DIP8 packages.

**Pin Configuration**

**Ordering Information**

Part Number	Top Mark	Package		Tape & Reel
SF1538DP	SF1538DP	DIP8	RoHs	

**Output Power Table<sup>(1)</sup>**

Part Number	230VAC $\pm$ 15% <sup>(2)</sup>		85-265VAC	
	Adapter <sup>(3)</sup>	Open Frame <sup>(4)</sup>	Adapter <sup>(3)</sup>	Open Frame <sup>(4)</sup>
SF1538DP	18W	26W	13W	16W

**Note 1.** The Max. output power is limited by junction temperature

**Note 2.** 230VAC or 100/115VAC with doublers

**Note 3.** Typical continuous power in a non-ventilated enclosed adapter with sufficient drain pattern as a heat sink at 50 °C ambient.

**Note 4.** Max. practical continuous power in a open-frame design with sufficient drain pattern as a heat sink at 50 °C ambient.

**Marking Information**
