η-Balance™ Current Mode PWM Controller

FEATURES

- **Proprietary η-Balance™ Control to Boost Light Load Efficiency**
- **Proprietary "Zero OCP/OPP Recovery Gap" Control**
- **Built-in Soft Start Function**
- **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**
- **Pins Floating Protection**
- **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**

GENERAL DESCRIPTION

SF1531 is a high performance, high efficiency, low cost, highly integrated current mode PWM controller for offline flyback converter applications.

PWM switching frequency with shuffling is externally programmable, which can reduce conduction EMI emission of a power supply. When the output power demands decrease, the IC decreases switching frequency based on the proprietary ***η-Balance™*** control to boost power conversion efficiency at the light load. 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.

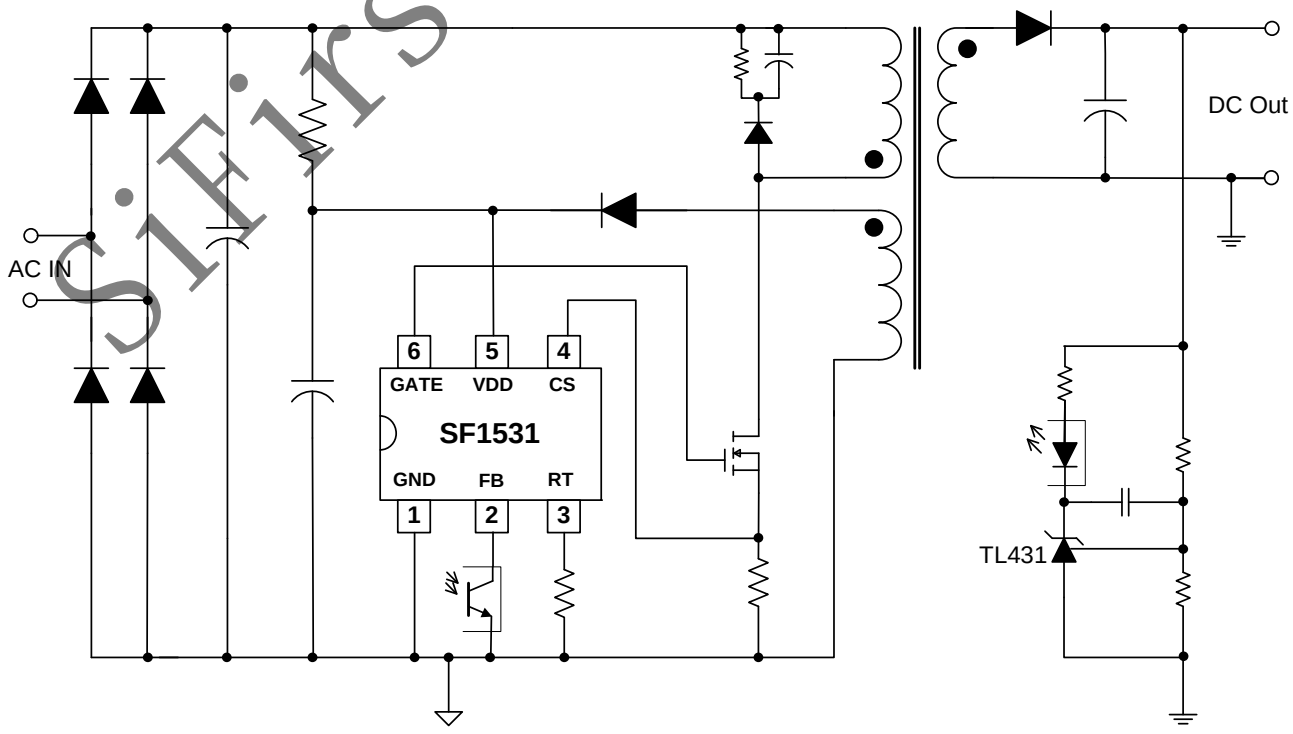
SF1531 can achieve "***Zero OCP/OPP Recovery Gap***" using SiFirst's proprietary control algorithm. Meanwhile, the OCP/OPP variation versus universal line input is compensated.

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.

SF1531 integrates functions and protections of Under Voltage Lockout (UVLO), VCC Over Voltage Protection (OVP), Cycle-by-cycle Current Limiting (OCP), Pins Floating Protection, Over Load Protection (OLP), RT Pin Short-to-GND Protection, Gate Clamping, VCC Clamping, Leading Edge Blanking (LEB).

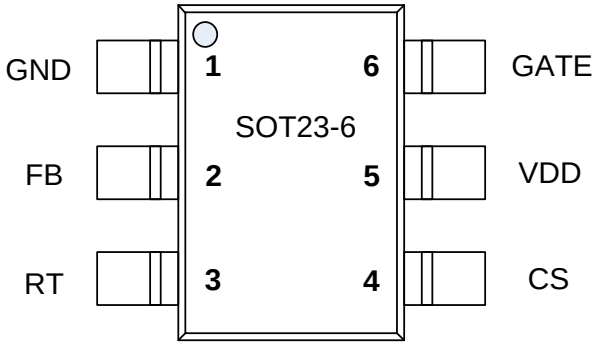
SF1531 is available in SOT23-6, DIP-8 packages.

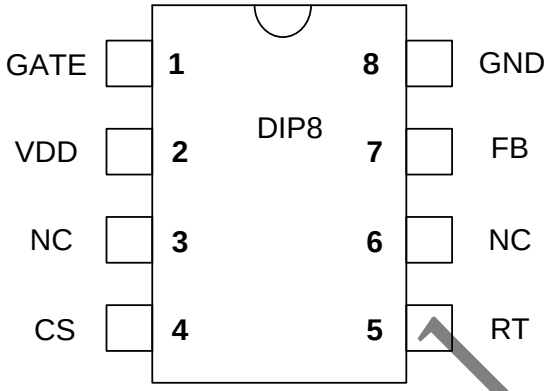
TYPICAL APPLICATION



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Pin Configuration

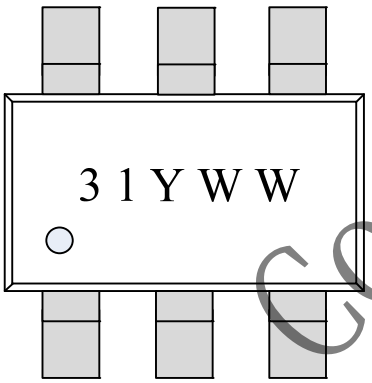




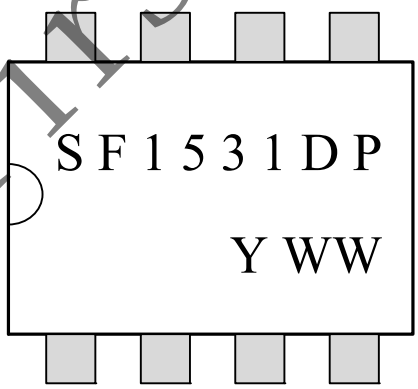
Ordering Information

Part Number	Top Mark	Package		Tape & Reel
SF1531LGT	.31YWW	SOT26	Green	Yes
SF1531DP	SF1531DP	DIP8	RoHS	

Marking Information



Dot: Pin1 Mark
31:Part number SF1531
YWW: Year&Week Code



YWW: Year&Week code

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