

G5177

Low-Power Off-Line Digital Green-Mode PWM Controller

DIGITAL PWM IC

1. General Description

The G5177 is a high performance AC/DC power supply controller which uses digital control technology to build peak current mode PWM flyback power supplies. The device directly drives a power BJT and operates in quasi-resonant mode to provide high efficiency along with a number of key built-in protection features while minimizing the external component count, simplifying EMI design and lowering the total bill of material cost. The device together with an external active device (depletion mode NFET or NPN BJT) provides a fast start-up without compromising no-load power loss.

Global Semiconductor's innovative proprietary technology ensures that power supplies built with the G5177 can achieve both highest average efficiency and less than 20mW no-load power consumption, and have fast dynamic load response in a compact form factor. The active start-up scheme enables shortest possible start-up time without sacrificing no-load power loss.

The G5177 removes the need for secondary feedback circuitry while achieving excellent line and load regulation. It also eliminates the need for loop compensation components while maintaining stability over all operating conditions. Pulse-by-pulse waveform analysis allows for a loop response that is much faster than traditional solutions, resulting in improved dynamic load response for both one-time and repetitive load transients.

Features

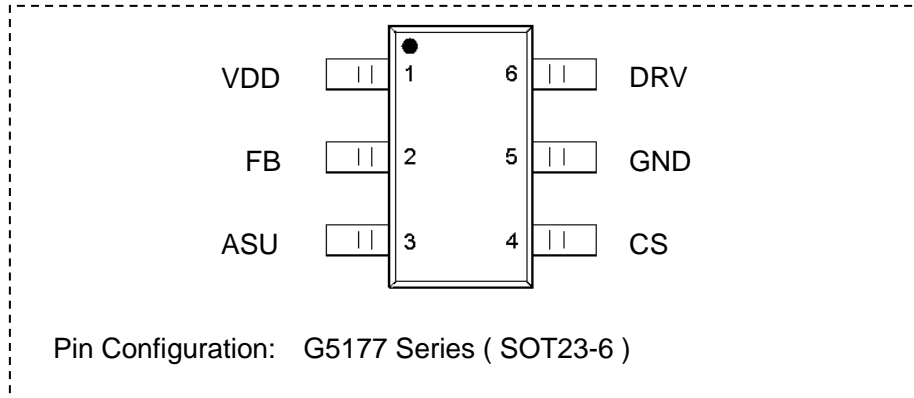
- ◆ Very tight constant voltage and constant current regulation over entire operating range
- ◆ No-load power consumption < 20mW at 230Vac with typical application circuit (5 star rating)
- ◆ Fast dynamic load response for both one-time and repetitive load transients
- ◆ Optimized 72 kHz maximum PWM switching frequency achieves best size and efficiency
- ◆ Primary-side feedback eliminates opto-isolators and simplifies design
- ◆ Complies with EPA 2.0 energy-efficiency specifications with ample margin
- ◆ Intrinsically low common mode noise
- ◆ Active start-up scheme enables fastest possible start-up
- ◆ Adaptive multi-mode PWM/PFM control improves efficiency
- ◆ Quasi-resonant operation for highest overall efficiency
- ◆ Direct drive of low-cost BJT switch
- ◆ Dynamic base current control
- ◆ No external compensation components required
- ◆ Built-in soft start, short circuit protection and output overvoltage protection
- ◆ No audible noise over entire operating range

Applications

- Cell Phone Charger
- Digital Still Cameras Charger
- Smaller Power Adapter
- Linear Regulator/RCC Replacement

2. Products Information

2.1 Pin configuration



Pin Name	I/O	Description
VDD	P	Power supply for control logic.
FB	I	Analog Input Auxiliary voltage sense (used for primary regulation).
ASU	O	Control signal for active start-up device (BJT or depletion NFET).
CS	I	Analog Input Primary current sense. Used for cycle-by-cycle peak current control and limit.
GND	P	Ground.
DRV	O	Base drive for BJT.