

AC/DC PSR Controller for Dimmable LED Lighting

FEATURES

- ◆ Support Analog/PWM Dimming
- ◆ Proprietary “Extended Synchronous Dimming” to Achieve Larger than 1000:1 Dimming Range
- ◆ Primary Side Regulation (PSR) Control, No Secondary Feedback Circuit Required
- ◆ 1% Precision (@T_j=25 °C) Internal Reference Voltage for Constant Current (CC) Control
- ◆ Wide VDD Range (10 to 30V) Eases Flexible LED System Design
- ◆ Precision LED Output Voltage Clamp
- ◆ Compensate for Line Voltage Variation and Transformer Inductance Tolerance
- ◆ Built-in Soft Start
- ◆ Pins Floating Protection
- ◆ LED Open/Short Circuit Protection
- ◆ PFM Control Eases EMI Design
- ◆ Cycle-by-Cycle Current Limiting
- ◆ Built-in Leading Edge Blanking (LEB)
- ◆ VDD Under Voltage Lockout (UVLO)
- ◆ VDD OVP & Clamp

APPLICATIONS

- ◆ Dimmable LED Luminaries

GENERAL DESCRIPTION

SFL678 is a high performance AC/DC offline PSR (Primary Side Regulation) controller for dimmable LED luminaries. The IC integrates SiFirst's Proprietary “Extended Synchronous Dimming” block, which enables larger than 1000:1 dimming range. It also can provide very tight (less than 3%) constant current control (CC) ideal for LED lighting applications.

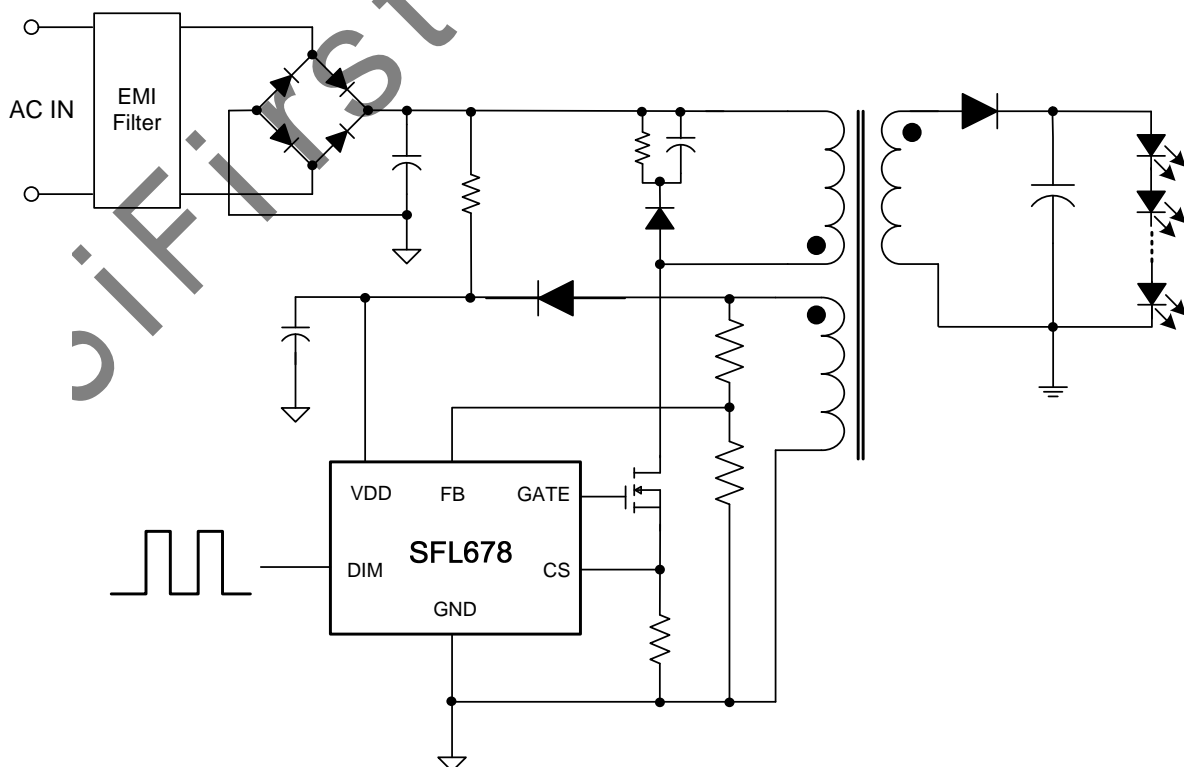
SFL678 uses Pulse Frequency Modulation (PFM) control to improve efficiency and eases system EMI design. The IC dramatically lowers system cost by eliminating secondary feedback circuits.

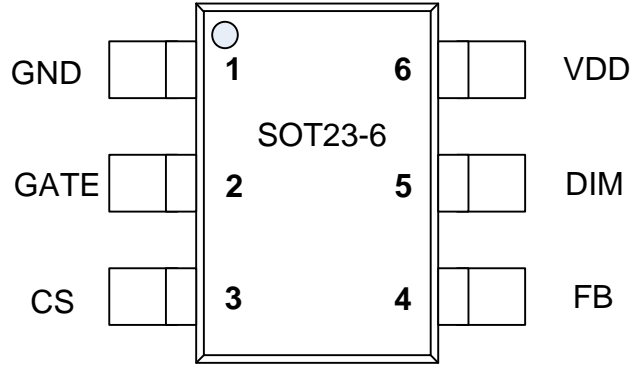
The wide VDD operating range (10 to 30V, typical) of SFL678 can ease flexible LED system design. The IC also has built-in soft start function to soften the stress during power on period.

SFL678 integrates functions and protections of Under Voltage Lockout (UVLO), VDD Over Voltage Protection (VDD OVP), LED Open/Short Circuit Protection, Soft Start, Cycle-by-cycle Current Limiting (OCP), Pins Floating Protection, Gate Clamping, VDD Clamping.

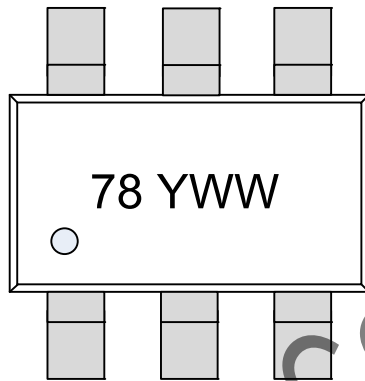
SFL678 is available in SOT23-6 and package.

TYPICAL APPLICATION



Pin Configuration

Ordering Information

Part Number	Top Mark	Package		Tape & Reel
SFL678LGT	.78YWW	SOT23-6	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 output current based on detecting the flyback voltage of the auxiliary winding.
5	DIM	I	Analog and PWM dimming input.
6	VDD	P	IC power supply pin.