AS1380 TRIAC Dimmable AC-DC PWM for LED Lightings

(Preliminary)

Descriptions

The AC-DC Controller is a highly integrated current mode PWM control IC optimized for high performance, low standby power and a cost effective offline flyback converter applications.

Leading-edge blanking on current sense(CS) input removes the signal glitch due to snubber circuit diode reverse recovery and thus reduces the RC filtering in the design. Triac dimming is an additional features particularly suitable for LED lighting.

Automatic self-recovery feature including Cycle-by-Cycle current limiting (OCP), over load protection (OLP), under voltage lockout (UVLO).

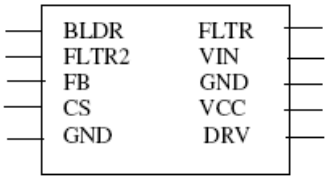
The Gate-drive output capability has 250mA peak which is able to drive a high gate charge MOSFET. Excellent EMI performance is achieved with frequency jittering technique.

Features

- TRIAC based Dimming for LED lightings
- Very low startup current
- FB direct connect to the opto-coupler
- Auto–Recovery Internal Output Short–Circuit Protection
- Current–Mode with Adjustable Skip–Cycle Capability
- Internal Leading Edge Blanking
- Internally Fixed Frequency
- Undervoltage Lockout

Applications

- LED Lighting Applications



IC - Top View *

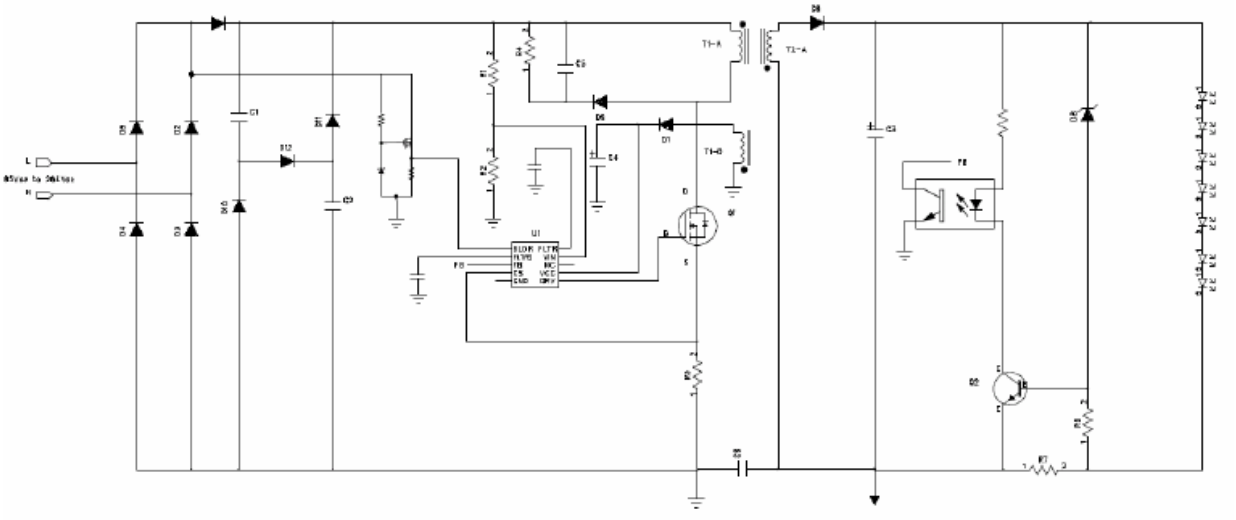


Figure 1 LED Lighting Application

Pin	Name	Function
1	BLDR	Ensure proper firing of the triac dimmer.
2	FLTR2	Filter the dimming signal.
3	FB	Direct connect to the opto-coupler for controlling the output voltage regulation.
4	CS	This pin senses the primary current and routes it to the internal comparator via an L.E.B.
5	Gnd	IC Ground
6	Drv	The driver's output to an external MOSFET.
7	Vcc	IC Supply. This pin is connected to an external bulk capacitor
8	Gnd	IC Ground
9	Vin	Connected to the ac bridge-rectified voltage. This is for brownout detection and also for the current compensation of high line and low line.
10	FLTR	Filter the PWM signal to a DC signal, and then make use of the signal to control the brightness of the output LED.

ELECTRICAL CHARACTERISTICS (For typical values T_J = 25°C, V_{CC} = 11 V unless otherwise noted.)*

Characteristic	Symbol	Pin	Min	Typ	Max	Unit
Supply Section						
Turn-on threshold level, Vcc going up	Vcc(off)			13		V
Minimum Operating voltage after turn-on	Vcc(on)			8		V
Startup Current	Istart			60		uA
Normal Operating Current with output switching	Icc			5		mA
Drive Output						
Output Voltage Rise-Time at CL=1nF, 10% to 90% of output signal	Tr			80		ns
Output Voltage Fall-Time at CL=1nF, 10% to 90% of output signal	Tf			80		ns
Internal Oscillator						
Switching Frequency	fsw			64		kHz
Maximum Duty Cycle	Dmax			75		%
Current Sense Section						
Primary Peak Current Limit Voltage	Vcs			1		V

*The specifications, with pin assignments, are subject to change according to the real situations.

(Preliminary)