LED Lighting power supply IC
Monolithic IC MM3760 Series

Outline

This IC is LED Lighting power supply IC is corresponding to the TRIAC dimming, PWM dimming and DC dimming. It adopts a quasi resonant switching, and has realized the low loss and low noise.
This IC is realized non-linear current curve by combination of peak current control and OFF-time variable control, thereby it to allow visually smooth dimming curve.
And equipped with output terminal of phase detector for bleeder current control, it to allow reduce parts.

Features

1. Low loss and low noise by quasi resonant switching
2. Smooth dimming by combination of peak current control and OFF-time variable control
3. Equipped with OUTPUT of phase detector for bleeder current control
4. Equipped with Minimum current clamp function
5. Corresponding to firefly switch (Parallel connection of up to five)
6. Equipped with various protect function (OCP,SWP,UVLO,TSD,ISNS terminal open protection)
7. Supply Voltage 10 to 25.5V
8. Maximun ISNS detect voltage 0.6V (Typ.)
9. Power supply current 3.5mA (Typ.)
10. Over current detect voltage 0.8V (Typ.)
11. Load resistance for firefly switch 10kΩ (Typ.)
12. Short winding protection detect voltage 2.5V (Typ.)

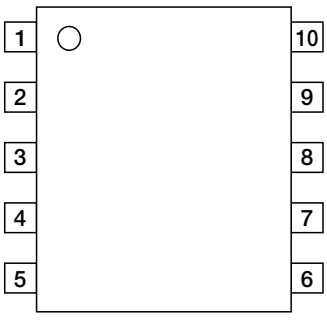
Package

SOP-10A

Applications

1. Downlight
2. Ceiling light

Pin Assignment



SOP-10A
(TOP VIEW)

1	ZCD
2	VIN
3	VOUT
4	DIM
5	IMIN
6	IREF
7	ISNS
8	GND
9	OUT
10	VCC

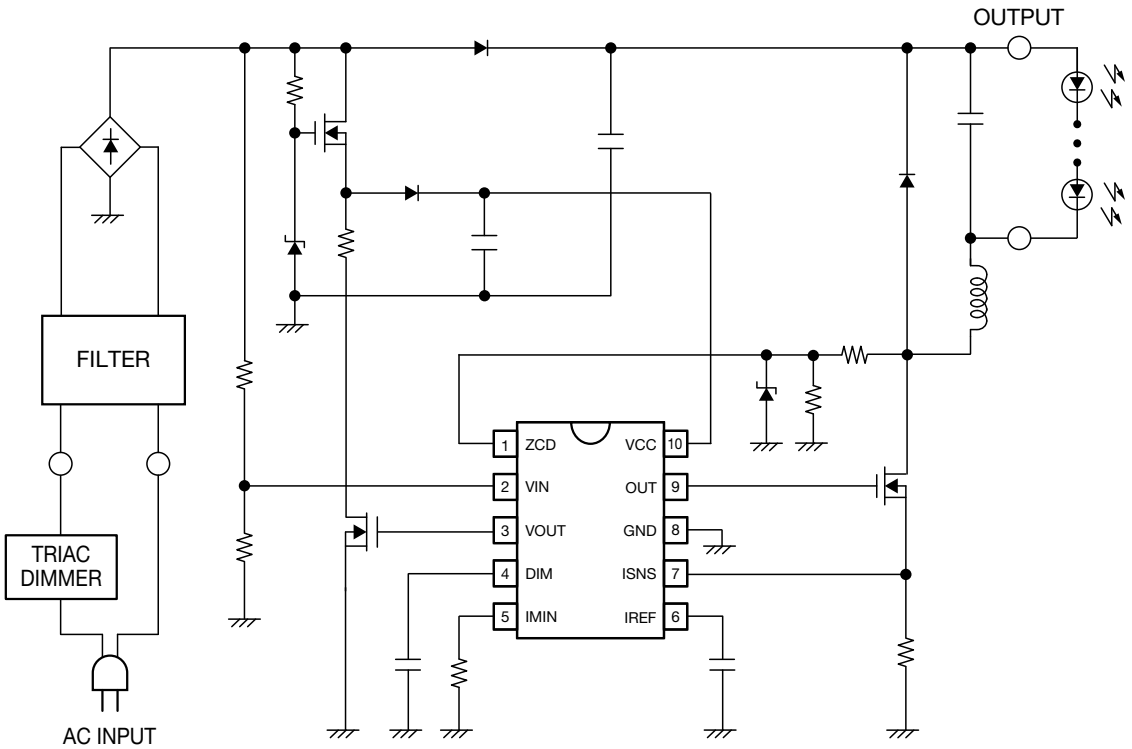
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Pin Description

Pin No.	Pin name	Functions
1	ZCD	Zero current detect terminal
2	VIN	Phase detect input terminal
3	VOUT	Phase detect output terminal
4	DIM	Light dimming terminal
5	IMIN	Minimum LED current control terminal
6	IREF	LED current sensing reference voltage terminal
7	ISNS	LED current sensing terminal
8	GND	GND terminal
9	OUT	Gate drive terminal
10	VCC	Power supply terminal

Application Circuit

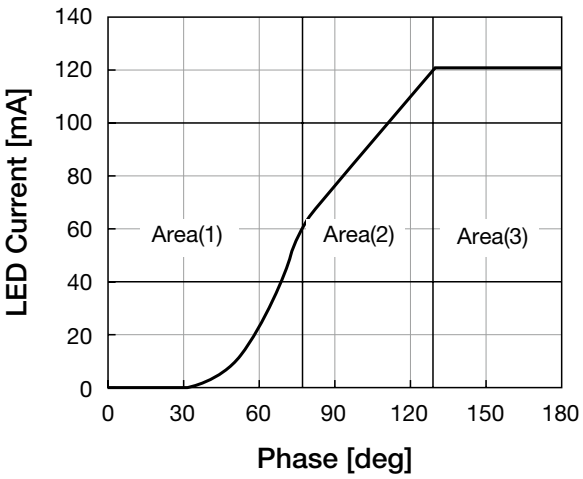
- Typical LED driver circuit using MM3760. (TRICA dimming / buck converter).



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Characteristics

Right diagram is example of LED lighting circuit behavior using MM3760.
Horizontal axis is Phase angle of TRIAC dimmer,and vertical axis is LEDs current.
In right diagram , to allow visually smooth dimming curve by non-linear current curve of "area(1)".
Operation of each area is determined by the peak current control and OFF-time variable control.

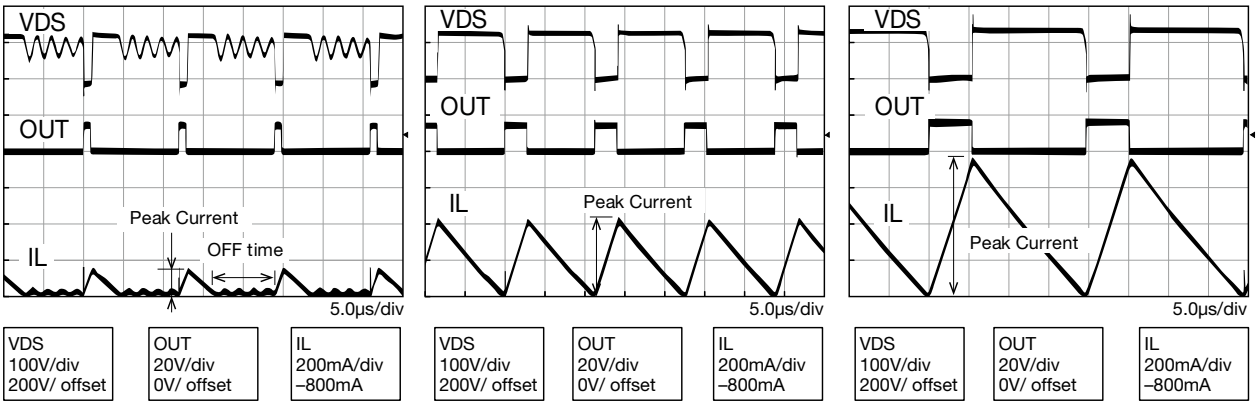


(1) Peak& OFF-time variable area
LED-current is determined by peak current control and OFF-time variable control.

(2) Area of peak current control
LED-current is determined by peak current control only.

(3) Peak fixed area
LED-current is fixed Max.

Under diagram is Waveform of each area.
VDS : Drain voltage OUT : Gate drive terminal voltage IL : Inductor current



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