

DIO8600E

Single Stage Flyback & PFC Regulator With Primary Side Control For LED Lighting

Features

- Primary side control eliminates the opto-coupler
- Internal 650V Power MOSFET
- Valley turn-on of the primary MOSFET to achieve lower switching losses
- Power factor $>0.95@230\text{VAC}$
- THD $<10\%@230\text{VAC}$
- Reliable short LED and Open LED protection
- Quick start up: $<500\text{ms}$
- Low start up current: $15\mu\text{A}$ typical
- External thermal regulation
- Package: SOIC-8

Descriptions

The DIO8600E consists of an integrated single stage Flyback & PFC regulator and 650V power MOSFET, specifically designed for a high performance off-line converter with minimal external components targeting at LED lighting applications.

The DIO8600E drives the Flyback converter in the quasi-resonant mode to achieve higher efficiency. and keeps the Flyback converter in constant on time operation to achieve high power factor.

This chip adopts special design to achieve quick start up and reliable protection for safety requirement.

Applications

- **LED Lighting**

Block Diagram

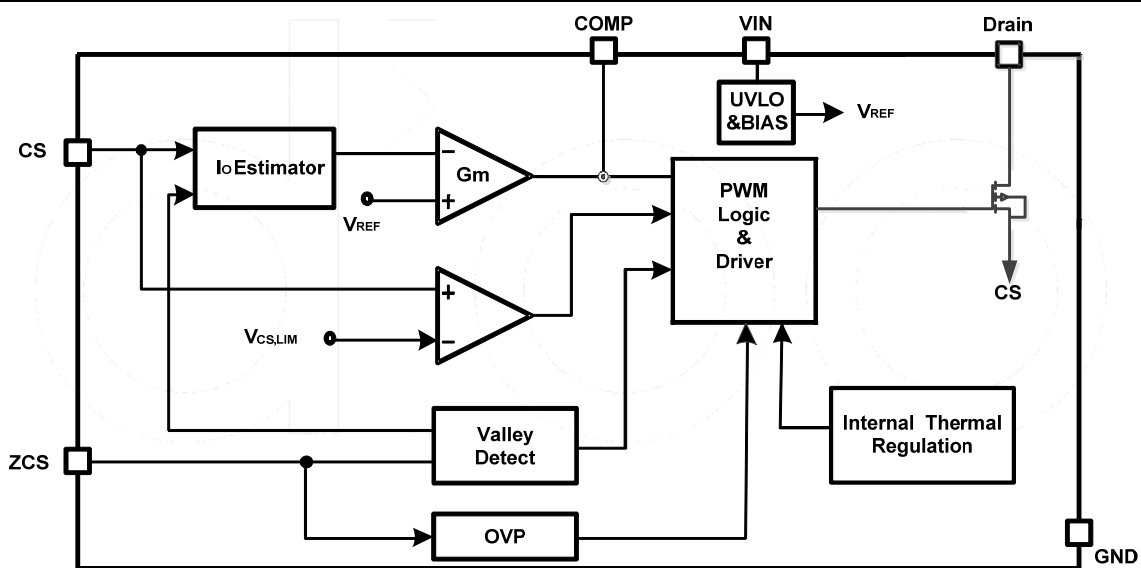


Figure1 Block Diagram

Ordering Information

Order Part Number	Top Marking		T _A	Package	
DIO8600ECS8	DIO8600E	Green	-40 to +85°C	SOIC-8	Tape & Reel, 2500

Pin Assignments

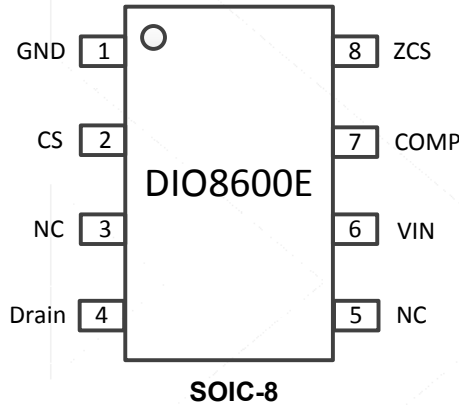
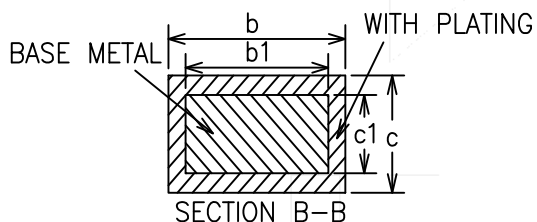
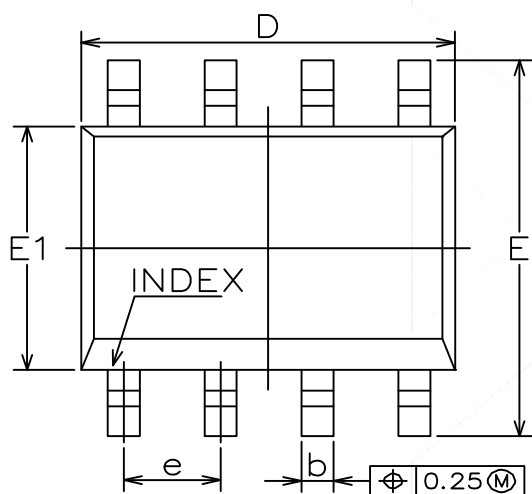
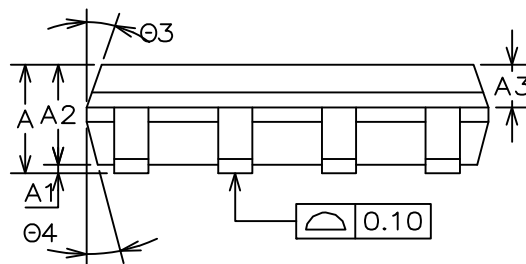
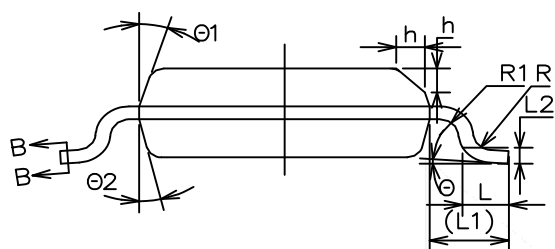


Figure 2 Pin Assignment (Top View)

Pin Definitions

Pin Name	Description
COMP	Loop compensation pin. Connect a RC network across this pin and ground to stabilize the control loop.
Drain	Power MOSFET Drain Pin. The Drain pin is connected to the primary lead of the transformer.
CS	Current sense pin. Connect this pin to the source of the primary switch. Connect the sense resistor across the source of the primary switch and the GND pin. (current sense resistor Resistor: $R_{CS} = k \times \frac{V_{ref} \times N_{ps}}{I_{out}}$, $k=0.167$) Also this pin used to detect transformer and secondary is short or not.
GND	Ground pin.
VIN	Power supply pin. This pin also provides output over voltage protection along with ZCS pin.
ZCS	Inductor current zero-crossing detection pin. This pin receives the auxiliary winding voltage by a resistor divider and detects the inductor current zero crossing point. This pin also provides over voltage protection and line regulation modification function simultaneously. If the voltage on this pin is above $V_{ZCS,OV}$, the IC would enter over voltage protection mode. Good line regulation can be achieved by adjusting the upper resistor of the divider.
NC	Not Connect.

Physical Dimensions: SOIC-8



COMMON DIMENSIONS (UNITS OF MEASURE=MILLIMETER)			
Symbol	MIN	NOM	MAX
A	1.35	1.55	1.75
A1	0.10	0.15	0.25
A2	1.25	1.40	1.65
A3	0.50	0.60	0.70
b	0.38	-	0.51
b1	0.37	0.42	0.47
c	0.17	-	0.25
c1	0.17	0.20	0.23
D	4.80	4.90	5.00
E	5.80	6.00	6.20
E1	3.80	3.90	4.00
e	1.27BSC		
L	0.40	0.60	0.80
L1	1.04REF		
L2	0.25BSC		
R	0.07	-	-
R1	0.07	-	-
h	0.30	0.40	0.50
Ø	0°	-	8°
Ø1	15°	17°	19°
Ø2	11°	13°	15°
Ø3	15°	17°	19°
Ø4	11°	13°	15°



DIO8600E

Single Stage Flyback & PFC Regulator With Primary Side Control For LED Lighting

CONTACT US

Dioo is a professional design and sales corporation for high-quality and performance analog semiconductors. The company focuses on industry markets, such as, cell phone, handheld products, laptop, and medical equipment and so on. Dioo's product families include analog signal processing and amplifying, LED drivers and charger IC. Go to <http://www.dioo.com> for a complete list of Dioo product families.

For additional product information, or full datasheet, please contact with our Sales Department or Representatives.



Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

DIOO:

DIO8600ECS8