

DIO8221

Controller for Adaptive 100/120Hz Current Ripple Removing Circuit

Features

- Controller for adaptive 100/120Hz current ripple remover
- Built-in zener diode for input voltage clamping
- VG output voltage high to 10V
- Programmable amplitude of LED current ripple
- Programmable maximum cathode voltage of LED
- Programmable maximum LED current
- Short protection
- Over temperature protection
- SOT23-6 Package

Applications

- LED lighting

Descriptions

DIO8221 is a controller for driving external NMOSFET to remove the 100/120Hz LED current ripple on AC/DC power by a capacitor between VC and GND.

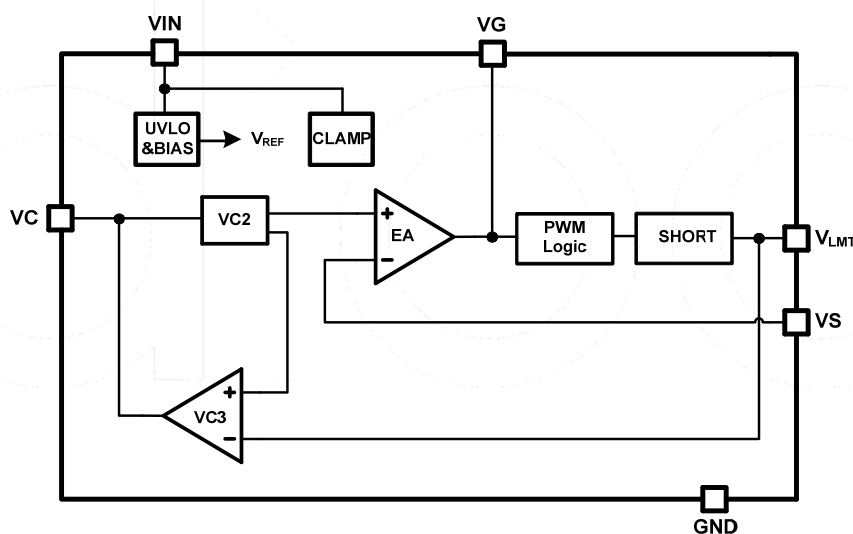
The adaptive technology of DIO8221 ensures minimum power dissipation on NMOSFET while removing LED current ripple.

DIO8221 clamps the input voltage on VIN pin by 37V. DIO8221 allows user to setup maximum LED current, which keeps NMOSFET damaged when LED short or hot-plug.

By sensing the drain voltage of NMOSFET via a resistor between the drain and V_{LMT} pin, DIO8221 allows user to setup the maximum cathode voltage of LED string, which could help limit the power dissipation on chip.

DIO8221 provides two kinds of protection function: it shuts down NMOSFET when LED is shorted and recovers after 40ms. And it provides over thermal protection.

Block Diagram



Ordering Information

| Order Part Number | Top Marking | | T _A | Package | |
|-------------------|-------------|-------|----------------|---------|-------------------|
| DIO8221CST6 | YW21 | Green | -40 to +150°C | SOT23-6 | Tape & Reel, 3000 |

Pin Assignments

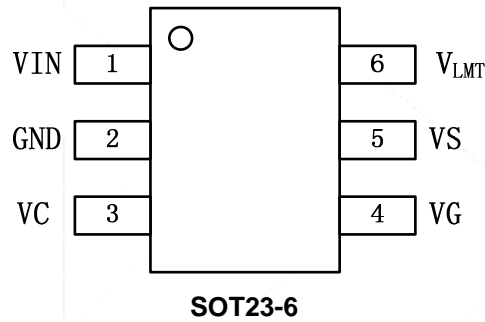
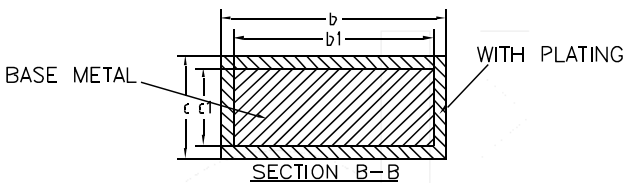
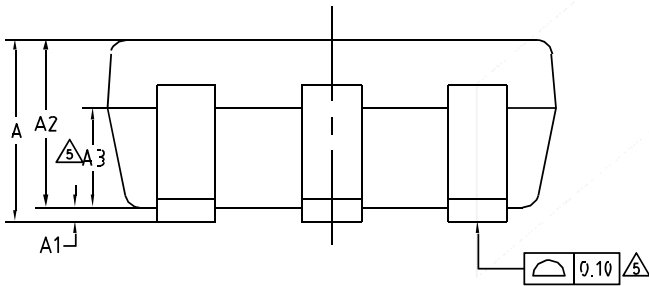
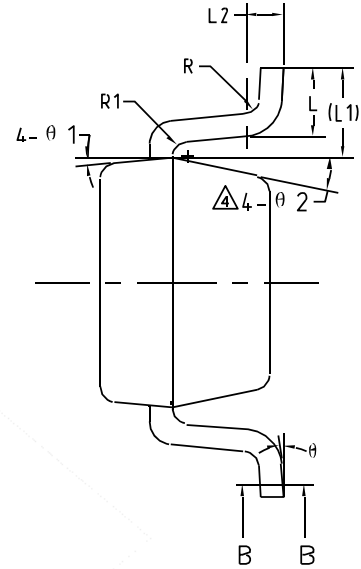
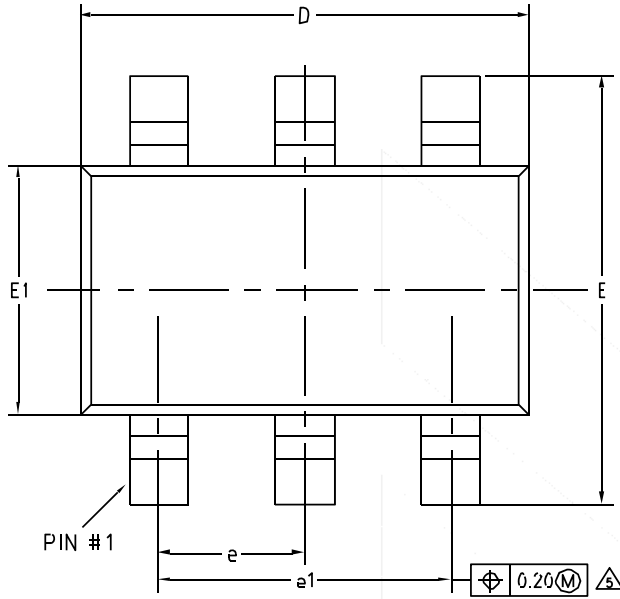


Figure 1 Pin Assignment (Top View)

Pin Definitions

| Pin Name | Description |
|------------------|--|
| VIN | Power Supply |
| GND | Power Ground |
| VC | LED Current Ripple Programming |
| VG | NMOSFET GATE driving voltage output |
| VS | LED Current sensing input |
| V _{LMT} | LED Voltage limit and short protection Programming |

Physical Dimensions: SOT23-6



| COMMON DIMENSIONS (UNITS OF MEASURE=MILLIMETER) | | | |
|--|---------|-------|-------|
| Symbol | MIN | NOM | MAX |
| A | - | - | 1.25 |
| A1 | 0 | - | 0.15 |
| A2 | 1.00 | 1.10 | 1.20 |
| A3 | 0.60 | 0.65 | 0.70 |
| b | 0.36 | - | 0.50 |
| b1 | 0.36 | 0.38 | 0.45 |
| c | 0.14 | - | 0.20 |
| c1 | 0.14 | 0.15 | 0.16 |
| D | 2.826 | 2.926 | 3.026 |
| E | 2.60 | 2.80 | 3.00 |
| E1 | 1.526 | 1.626 | 1.726 |
| e | 0.90 | 0.95 | 1.00 |
| e1 | 1.80 | 1.90 | 2.00 |
| L | 0.35 | 0.45 | 0.60 |
| L1 | 0.59REF | | |
| L2 | 0.25BSC | | |
| R | 0.10 | - | - |
| R1 | 0.10 | - | 0.20 |
| θ | 0° | - | 8° |
| θ1 | 3° | 5° | 7° |
| θ2 | 6° | - | 14° |



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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.

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