



CABC Compatible High Efficiency Boost LED Backlight Driver

General Description

The OCP8171 is a step-up single channel LED driver with high efficiency DC-DC step-up converter architecture. With high up to 1.5A current limit allow OCP8171 to deliver 200mA total current with 10 strings of 3 WLED in series. Alternatively, OCP8171 can drive up to 10 white LEDs in series (maximum 36V output) from a single cell Lithium Ion battery. It can also maximize the current capability while achieve high conversion efficiency.

The OCP8171 uses current mode, fixed frequency of approximately 1.2MHz to reduce the conduction loss and reduce output ripple, improve conversion efficiency, and allows for use of small external components. The feedback voltage is regulated to 200mV, OCP8171 can also reduce power loss and improves efficiency.

Wide range of PWM dimming through EN pin is available. The frequency range of the filtered PWM dimming extends up to 200KHz eliminating the audible noise and suitable for CABC (Content Adaptive Brightness Control) applications.

The OCP8171 ensures safe operation with complete protection against all fault conditions. Built-in protection circuitry is provided for supply under-voltage, current limiting and over-temperature conditions.

The OCP8171 has integrated a 36V over voltage protection function through detect the output voltage. When OCP8171 enters the OVP fault status, the delay timer is active. If the OVP fault status exists over the delay timer, OCP8171 would be latched to shut-down status. Recovery it from restart the power supply.

The OCP8171 is available in small 6-pin TSOT23 and DFN2020-8L package, OCP8171 is rated over the -40°C to 85°C.

Features

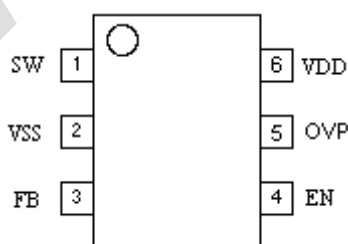
- Input Voltage Range : 2.7V to 6V
- Drives up to 10 Series White LEDs
- High Efficiency PWM Boost Converter
- 1.2MHz Fixed Switching Frequency
- Internal 40V High Current Switch (1.5A Limit)
- Up to 87% Efficiency
- Low 200mV Feedback Voltage
- Integrated Soft-Start
- EN PWM Dimming Range: 20KHz to 200KHz
- Small Solution Size
- LED Open-circuit (OVP) Protection: 36V
- Under Voltage Lock-Out
- Over-Temperature Protection
- Less than 1uA Shutdown Current
- RoHS and Green Compliant
- Small TSOT23-6L and DFN2020-8L Packages
- -40°C to +85 °C Temperature Range

Applications

- LED Backlighting
- Handheld Computers
- 5"~10" LCD Panels
- Mobile Internet Devices
- NetBook/EPCC
- Digital Photo Frame/Cameras
- Portable DVD
- Car TV
- GPS and DSC
- Automotive Navigation

Pin Configuration

TSOT23-6L (Top View)



DFN2020-8L (Top View)

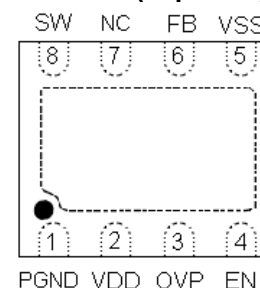


Figure 1, Pin Assignments of OCP8171



Pin Name	Pin No.		Pin Function
	TSOT23-6L	DFN2020-8L	
SW	1	8	Power Switch Pin. SW is the drain of the internal MOSFET switch. Connect the power inductor and output rectifier to SW.
VSS	2	5	Signal Ground Pin.
PGND		1	Power Ground Pin.
FB	3	6	Feedback Pin. The OCP8171 regulates the voltage across the current sense resistor between FB and VSS. The regulation voltage is 200mV.
EN	4	4	Enable and Dimming Control Pin. 1. Enable: A voltage greater than 1.4V will turn the part on and less than 0.4V will turn the part off. 2. CABC compatible PWM Dimming Control: 20KHz to 200KHz PWM signal on the pin controls LED average conduction current.
OVP	5	3	Connected to output, Over-voltage protection detect pin.
VDD	6	2	Input supply pin. Bypass this pin to ground locally.

■ Typical Application Circuit

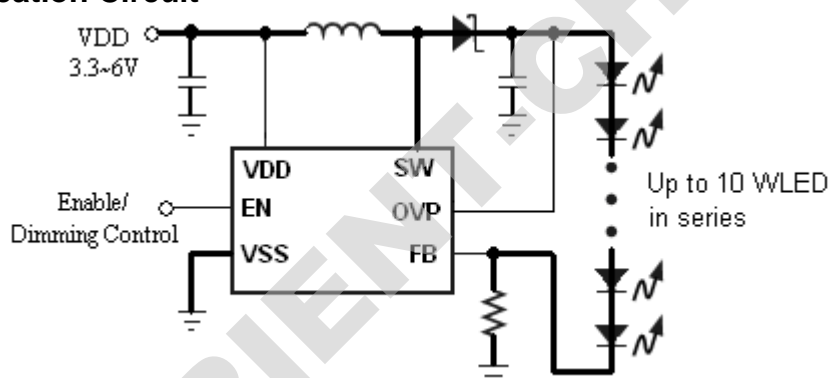


Figure 2, Typical Application Circuit of OCP8171

■ Ordering Information

OCP8171XXX

Package:

TW: TSOT23-6L

V: DFN2020-8L

Packing:

A: tape

Temperature Grade:

D: -40~85℃

Part Number	Package Type	Package Qty	Temperature	Eco Plan	Lead
OCP8171TWAD	TSOT23-6L	7-in reel 3000pcs/reel	-40~85℃	Green	Cu
OCP8171VAD	DFN2020-8L	7-in reel 3000pcs/reel	-40~85℃	Green	Cu

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