

One-Channel High Power LED Controller with DC-DC Converter for Large LCD Panes

■ General Description

The OCP8121 is single channel LED driver controller IC which loads the boost DC-DC controller and the constant current control of LED driver designed to build LED backlight for 3D LCD display mode large-size LCD TV application.

The OCP8121 provides one controlled LED drivers to achieve optimum efficiency. The OCP8121 provides PWM dimming function and analog dimming control. It provides system design flexibility for LCD-TV with local dimming or 3D display mode.

The OCP8121 provides the over-voltage protection (OVP), Power MOSFET over-current protection (OCP), Output to ground short-circuit protection, output over load protection, Soft-Start (SS), under-voltage lock-out (UVLO), limited current condition (LCC) protection, thermal shutdown protection (TSD). A soft-start feature is provided to minimize in-rush current during start-up.

The OCP8121 is available in SOP-16L package, and it is RoHS compliant and 100% lead Pb free. Operating temperature range of the OCP8121 is from -40°C to 85°C.

■ Features

- Wide Supply Voltage Range: 8.0V ~ 25V
- One DC-DC Controller
- Number of LEDs in series limited by external MOSFETs rating
- PWM dimming control
- Analog Dimming
- Constant Operation Frequency
- External Power MOSFET Over-Current Protection
- External enable control
- Integrated high frequency oscillator
- Over-voltage protection
- Output to Return Short-circuit Protection
- Output to Ground Short-circuit Protection
- Output Over-Load Protection
- Limited Current Condition Protection
- Low in-rush current soft-start function
- Under-voltage lock-out
- Thermal shutdown
- Fault Status Output
- Low Standby current
- T_A = -40 ~ 85 °C
- Available in SOP-16L Package

■ Applications

- LCD White LED Backlighting
- LCD TVs
- Automotive and Infotainment Displays
- 3D Mode Display LCD Panel

■ Pin Configuration

SOP-16L (Top View)

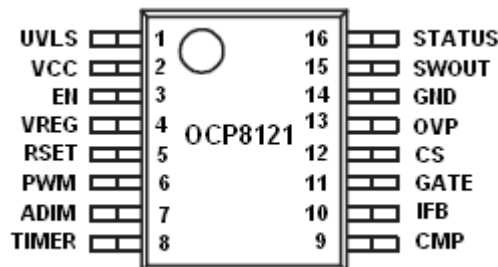


Figure 1, Pin Assignments of OCP8121



Pin Name	Pin No.	I/O	Pin Function
	SOP16L		
UVLS	1	I	Power Supply Under-Voltage Lock-out Detection pin
VCC	2	P	Input Power for controller and internal MOSFET driver
EN	3	I	ON/OFF control for the controller
VREG	4	I/O	Internal Regulation Output Voltage pin
RSET	5	I/O	Resistor to set operation frequency and master/slave mode
PWM	6	I	PWM dimming control
ADIM	7	I	Analog dimming control for the controller
TIMER	8	I/O	Capacitor Setting shutdown delay time
CMP	9	I/O	Connect resistor and capacitor to set soft start and compensation
IFB	10	I	LED Current Sense Input
GATE	11	O	MOSFET driver control
CS	12	I	Power MOSFET Switching Current Sense
OVP	13	I	Output over-voltage protection sense
GND	14	P	Ground
SWOUT	15	O	Boost Power MOSFET Drive Output
STATUS	16	O	Fault Operation Status Output (Open Drain Output)

■ Typical Application Circuit

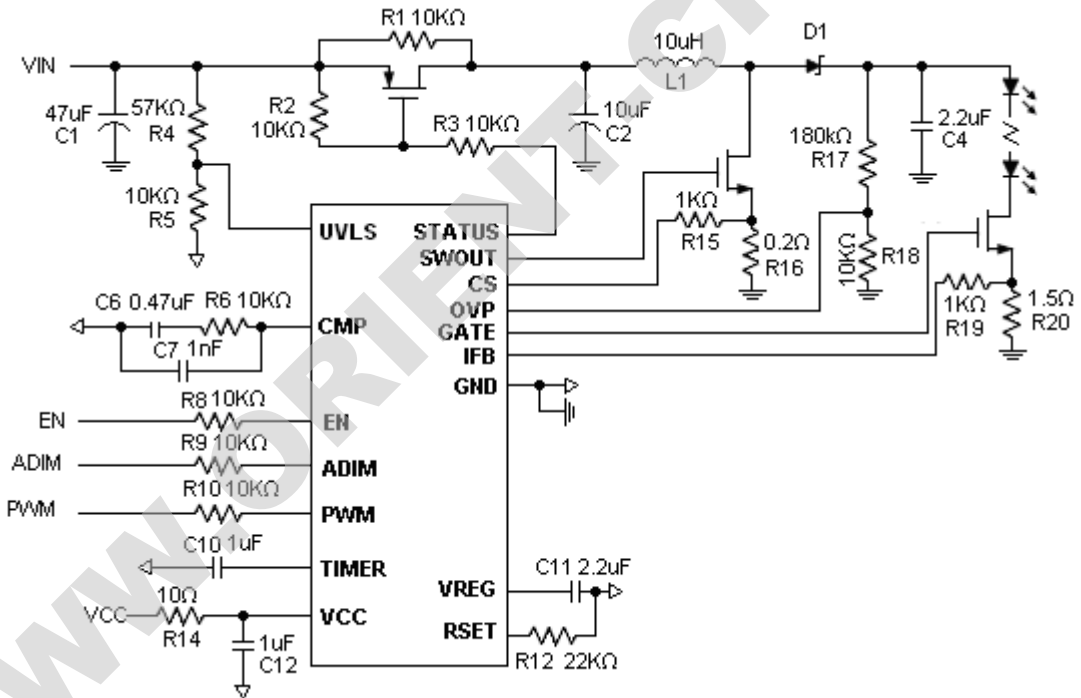
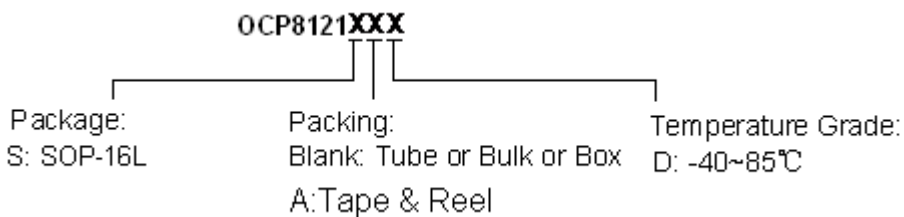


Figure 2, Typical Application Circuit of OCP8121

■ Ordering Information



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