



### ■ General Description

The OCP8122A is dual 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 OCP8122A provides two independently controlled LED drivers to achieve optimum efficiency. The drive outputs are phase-shifted by 180 degree to minimize current ripple in high power applications. The OCP8122A provides independent PWM dimming function for each channel and common analog dimming control for both channels. It provides system design flexibility for LCD-TV with local dimming or 3D display mode.

The OCP8122A can be configured for Master-Slave operation to support multi-channel applications. Synchronization is achieved by a proprietary single-wire interface which minimizes system components.

The OCP8122A 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 OCP8122A is available in SSOP-24L and SOP-24L package, and it is RoHS compliant and 100% lead Pb-free. Operating temperature range of the OCP8122A is from -40°C to 85°C.

### ■ Features

- Wide Supply Voltage Range: 8.0V ~ 25V
- Dual Channel DC-DC Controller
- Drives One String of High Power LEDs per Channel
- Number of LEDs in series limited by external MOSFETs rating
- 180 degree phase shift drive output between the two channel
- Independent PWM dimming control for each channel
- Common Analog Dimming for two channel
- Constant Operation Frequency
- Operation Frequency Synchronization
- 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<sub>A</sub>= -40 ~ 85 °C
- Available in SSOP-24L and SOP-24L Package

### ■ Applications

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



### ■ Pin Configuration

SSOP-24L/SOP-24L (Top View)

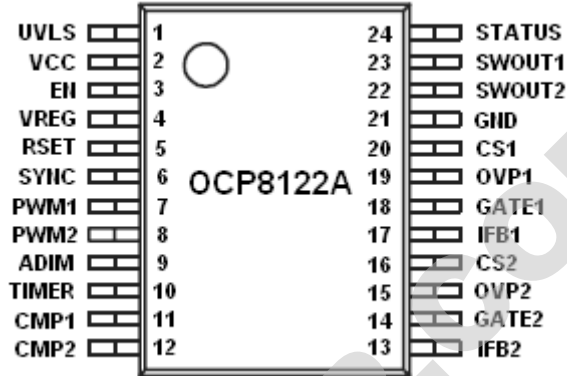


Figure 1, Pin Assignments of OCP8122A

Pin Name	Pin No.	I/O	Pin Function
	SSOP24L /SOP24L		
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
SYN1C	6	I/O	Operation Frequency Synchronization Signal input / output
PWM1	7	I	PWM dimming control for channel 1
PWM2	8	I	PWM dimming control for channel 2
ADIM	9	I	Analog dimming control for the controller
TIMER	10	I/O	Capacitor Setting shutdown delay time
CMP1	11	I/O	Connect resistor and capacitor to set soft start and compensation for channel 1
CMP2	12	I/O	Connect resistor and capacitor to set soft start and compensation for channel 2
IFB2	13	I	Channel 2 LED Current Sense Input
GATE2	14	O	Channel 2 MOSFET driver control
OVP2	15	I	Channel 2 Output over-voltage protection sense
CS2	16	I	Channel 2 Power MOSFET Switching Current Sense
IFB1	17	I	Channel 1 LED Current Sense Input
GATE1	18	O	Channel 1 MOSFET driver control
OVP1	19	I	Channel 1 Output over-voltage protection sense
CS1	20	I	Channel 1 Power MOSFET Switching Current Sense
GND	21	P	Ground
SWOUT2	22	O	Channel 2 Boost Power MOSFET Drive Output
SWOUT1	23	O	Channel 1 Boost Power MOSFET Drive Output
STATUS	24	O	Fault Operation Status Output (Open Drain Output)



### ■ Typical Application Circuit

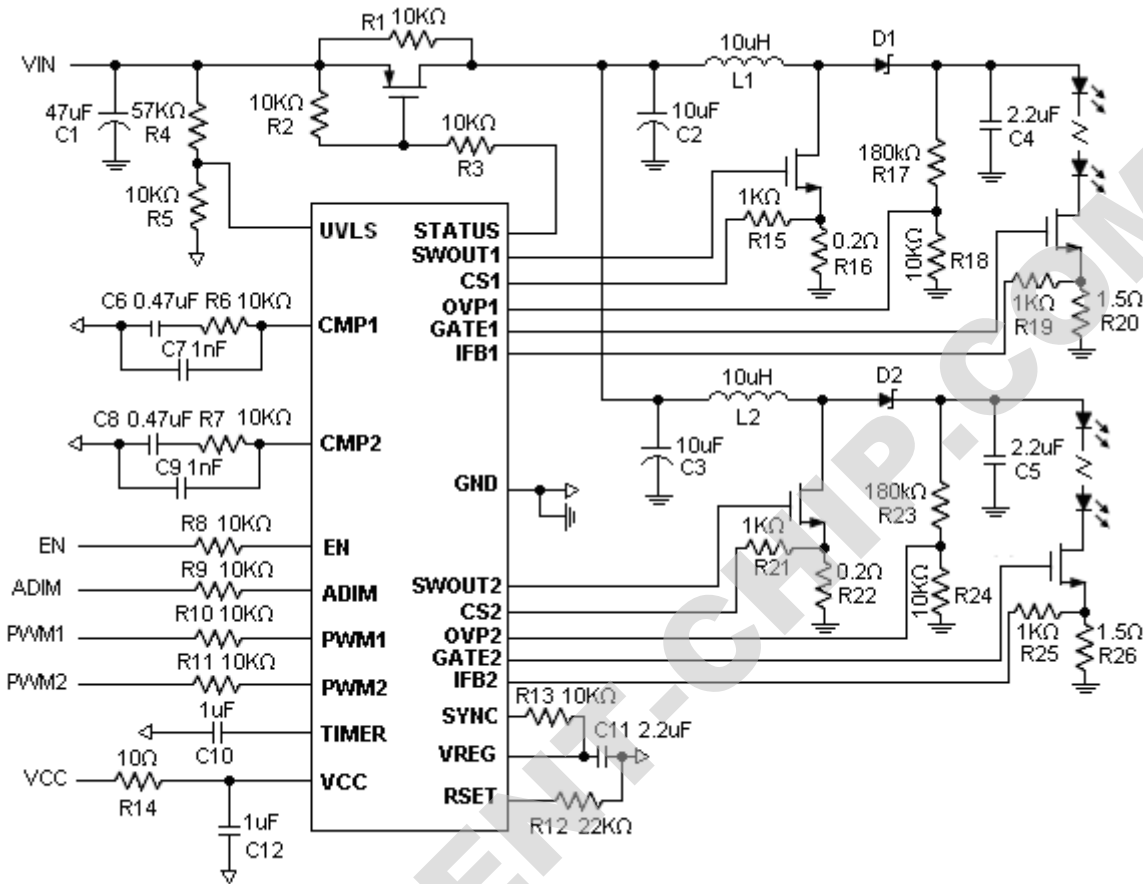
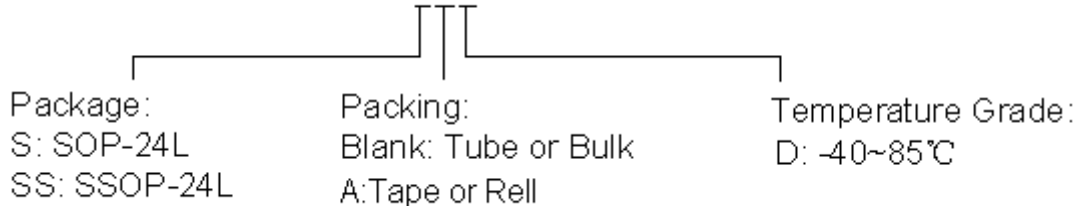


Figure 2, Typical Application Circuit of OCP8122A

Part Number	Package Type	Package Qty	Temperature	Eco Plan	Lead
OCP8122SAD	SOP-24L	13-in reel 1000pcs/reel	-40~85°C	Green	Cu
OCP8122SD	SOP-24L	Tube 30pcs/tube	-40~85°C	Green	Cu
OCP8122SSAD	SSOP-24L	13-in reel 2500pcs/reel	-40~85°C	Green	Cu
OCP8122SSD	SSOP-24L	Tube 58pcs/tube	-40~85°C	Green	Cu

### ■ Ordering Information

#### OCP8122AXXX



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