



Optillis

**LPS200A-1**

**Technical Specification Document**

**Rev. 1-B**

## Product Description

The Optillis LPS200A-1 is a fixed frequency step-up DC/DC converter designed to drive 8 strings of 120mA LEDs from a 12V supply. This board was designed to work with displays such as the Mitsubishi 15.0" XGA TFT-LCD display, model AA150XT11. This board provides the following features:

- PWM dimming ration up to 3000:1
- Analog dimming up to 20:1
- Disconnects LEDs in shutdown
- Open/Short LED protection

## Pin out Connectors

### J1/J3 – LED backlight connectors

The connectors J1 and J3 are used to connect the LED backlight display to the board. The 10-pin Hirose part DF13-10P-1.25H(50) uses the following pin out configuration. Each connector supplies voltage to four LED strings. This is a right-angle connector that allows cables to fasten securely from the side of the board rather than from the top.

**Recommended mating connector: Hirose DF13-10S-1.25C**

Pin Number	Function
1	Not connected
2	Not connected
3	LED cathode 1
4	LED anode 1
5	LED anode 2
6	LED cathode 2
7	LED cathode 3
8	LED anode 3
9	LED anode 4
10	LED cathode 4

## **J2 – Main board connection**

Connector J2 is used to provide power and control to the board from the system. The 15-pin Hirose DF13-15P-1.25H(20) uses the following pin-out configuration.

**Recommended mating connector: Hirose DF13-15S-1.25C**

Pin Number	Function
1	+12 volt power in (+/- 1 volt)
2	+12 volt power in (+/- 1 volt)
3	+12 volt power in (+/- 1 volt)
4	+12 volt power in (+/- 1 volt)
5	+12 volt power in (+/- 1 volt)
6	+12 volt power in (+/- 1 volt)
7	Ground
8	Ground
9	Ground
10	Ground
11	Ground
12	Ground
13	PWM – Doubles as an on/off control. See <b>Note 1</b> below. *
14	ACTRL – Provides analog dimming. See <b>Note 2</b> below. **
15	Spare pin

\* **Note 1:** The PWM signal doubles as an on/off control with greater than ~2.5V allowing the board to be in an "on" state, while less than .4V puts the board in an "off" state. This signal also provides digital dimming. The pin is compatible with 3V-5V logic with a maximum input level of 6V. Recommended PWM frequency is around 100 Hz.

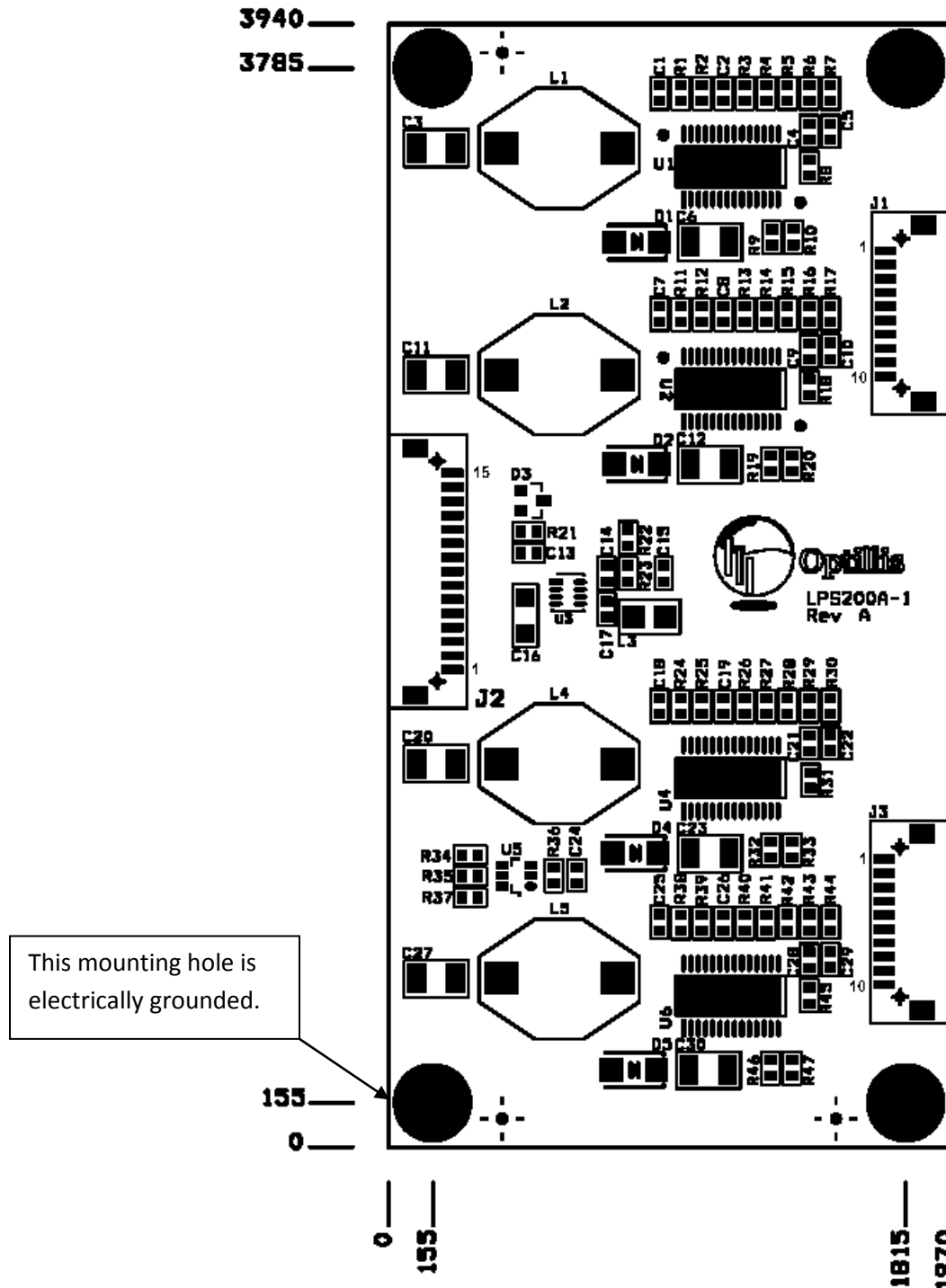
\*\* **Note 2:** The ACTLR signal provides analog dimming. A voltage from 0 to 1V controls brightness, with 1V or greater being fully on. The maximum input level is 6V. This pin can be left floating when not used.

## **Board Dimensions**

	Inches	Millimeters
Board width	1.97	50
Board length	3.94	100
Board clearance height	TBD	TBD
Board thickness	TBD	TBD
Mounting hole diameter	.12	3.05
Mounting hole clearance diameter	.300	7.62

## Board Illustration

Shown below is the top-side view of the LPS200A-1 board. Dimensions shown for the locations of the board edges and center of the mounting holes are in mills (thousandth of an inch). All connectors are flush with the sides of the board for ease of manufacturing. All mounting holes except the one noted below are electrically isolated.



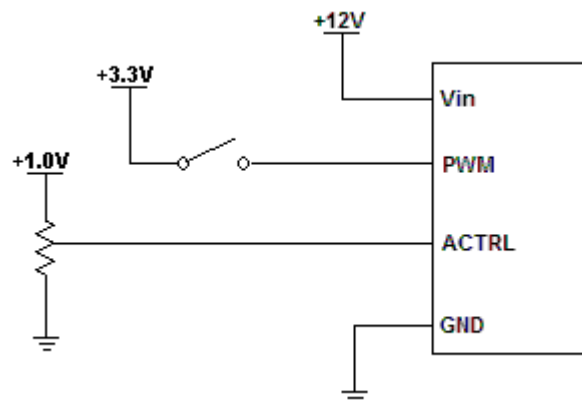
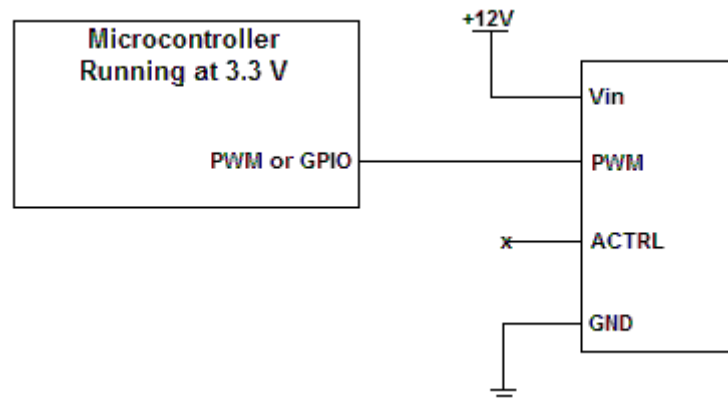
## Electrical Characteristic

Electrical Characteristics at  $V_{in}=12V \pm 1V$

Item	Condition		Specification			Unit
	PWM	ACTRL	Minimum	Typical	Maximum	
$I_{IN}$ Operating	2.5V -6.0V	Open	–	2.2	–	A
$I_{IN}$ Standby	0V	Open	–	TBD	–	mA
$I_{OUT}$	2.5V -6.0V	Open		120		mA
$V_{OUT}$	2.5V -6.0V	Open	–	24	34	V
PWM Frequency	–	–		100		Hz
PWM (High)	–	–	2.5	–	6.0	V
PWM (Low)	–	–	0	–	.4	V
ACTRL Full On	–	–	1	–	2.1	V
ACTRL Dimming	–	–	0	–	1	V

## Dimming

### Typical Applications



## Internal Circuit Reference

