



# **Specifications and Applications**

## **LED Driving Board**

### **LED-21615**

Product Version: V1.0S



**RoHS Compliance**

**Issue Date:3rd-Nov-2009**

**Document Version: 1.3**



### 1. General

The LED-21615 driving board is designed to drive 6 strings of LED backlight module. LED-21615 is able to drive upto 10 white LEDs in series per string with constnat current. Onboard high quality converter drives LED strings and control the dimming of LED strings independently. It is a high efficiency and low profile driving board. Wide diming control allows users to set LED brightness smoothly. Additional power protection feature is able to protect LED module from damage by overcurrent or overvoltage.

### 2. Features

- Applicable to 6 LED Strings
- Low Profile and Compact Design
- Costant LED Current (15mA)
- PWM Dimming Control
- Short Circuit and Overload Protection
- External Power On/Off Control

### 3. Mechanical Characteristics

|           | L        | W    | H     |
|-----------|----------|------|-------|
| Dimension | 100mm    | 30mm | 7.5mm |
| Weight    | MAX. 24g |      |       |

### 4. Connectors

| Conn. No. | Brand | Parts No |
|-----------|-------|----------|
| CN1       | JST   | S7B-PH-K |
| CN2       | Molex | 53261-15 |

### 5. Pin Number

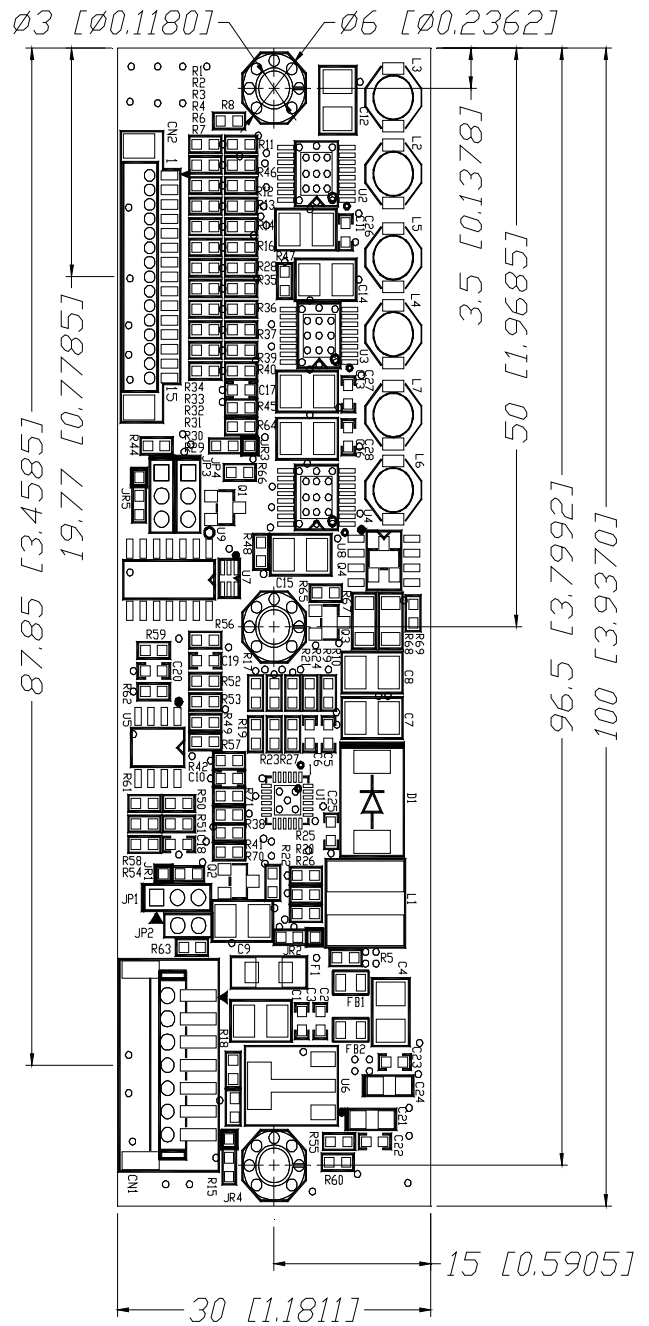


CN1 (pin1)



CN2 (pin1)

### Mechanical Specifications



Max.Height: 7.50mm

**6. LCD Application**

| LCD Model          | LCD Model | Remark |
|--------------------|-----------|--------|
| NEC-NL10276BC13-01 |           |        |
|                    |           |        |
|                    |           |        |

**7. Operating Conditions**

| Item                  | Symbol | Conditions | MIN | MAX | Unit | Remark |
|-----------------------|--------|------------|-----|-----|------|--------|
| Input Voltage         | Vin    |            | 3.3 | 15  | V    |        |
| Operating Temperature | Top    | Ha ≤ 90%RH | -20 | 85  | °C   |        |
| Storage Temperature   | Tstg   | Ha ≤ 95%RH | -30 | 100 | °C   |        |
| Operating Humidity    | Hop    | Ta=0~55°C  | 20  | 90  | %RH  |        |
| Storage Humidity      | Hstg   | Ta=20~80°C | -   | 95  | %RH  |        |

**8. Operating Characteristics**

Unless otherwise noted Vin=12 Volts DC and T=25°C

| Item                        | Symbol | MIN | TYP  | MAX  | Unit | Remark |
|-----------------------------|--------|-----|------|------|------|--------|
| Input Voltage               | Vin    | 3.3 | 12.0 | 15   | V    |        |
| Input Current               | I-in   | 310 | 320  | 340  | mA   |        |
| LED String Voltage          | V-led  | -   | 27.9 | 31.5 | V    |        |
| Efficiency                  | H      | 78  | 80   | 82   | %    |        |
| PWM Control Duty Ratio      |        | 10  | -    | 100  | %    |        |
| PWM Control Frequency       |        | 180 | -    | 25K  | HZ   |        |
| PWM Swing Voltage           |        | 2.0 | -    | 5.5  | V    |        |
| Output Current (per String) | I-out  | 13  | 15   | 17   | mA   |        |
| Brightness Control          |        | 5   |      | 0    | V    |        |

## 9. Connector Pin Description

| 9-1. (CN1) Input Connector |        |                                      |        |
|----------------------------|--------|--------------------------------------|--------|
| Pin No.                    | Symbol | Description                          | Remark |
| 1                          | BKLT   | DC+12V                               |        |
| 2                          | BKLT   | DC+12V                               |        |
| 3                          | GND    | Ground                               |        |
| 4                          | GND    | Ground                               |        |
| 5                          | ENA    | Enable (ON=+5V ; OFF=0V)             |        |
| 6                          | PWM    | Brightness Control (0V-MAX, +5V-MIN) |        |
| 7                          | AR     | NC                                   |        |

| 9-2. (CN2) Output Connector |        |             |        |
|-----------------------------|--------|-------------|--------|
| Pin No.                     | Symbol | Description | Remark |
| 1                           | LEDIN1 | Anode1      |        |
| 2                           | LEDIN2 | Anode2      |        |
| 3                           | LEDIN3 | Anode3      |        |
| 4                           | LEDIN4 | Anode4      |        |
| 5                           | LEDIN5 | Anode5      |        |
| 6                           | LEDIN6 | Anode6      |        |
| 7                           | LEDO1  | Cathod1     |        |
| 8                           | LEDO2  | Cathod2     |        |
| 9                           | LEDO3  | Cathod3     |        |
| 10                          | LEDO4  | Cathod4     |        |
| 11                          | LEDO5  | Cathod5     |        |
| 12                          | LEDO6  | Cathod6     |        |
| 13                          | ENA    | Enable      |        |
| 14                          | PWM    | NC          |        |
| 15                          | VCC    | NC          |        |

## 10. Driving Board Picture

