

Precautions for use

EZ-0006

78K0/IA2 PWM Evaluation Board for HBLED

ZBB-CE-09-0007-E

Data Published March 2009

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EZ-0006

Packaging List

Item	Number
<input type="checkbox"/> 1. This board (EZ-LED2-001)	1
<input type="checkbox"/> 2. Precautions for use (English)	1
<input type="checkbox"/> 3. Precautions for use (Japanese)	1
<input type="checkbox"/> 4. Table of Toxic and Hazardous Substance and Elements	1
<input type="checkbox"/> 5. Spacer	4
<input type="checkbox"/> 6. Communication cable	3
<input type="checkbox"/> 7. USB cable	1
<input type="checkbox"/> 8. Connection cable for LED driver board (EZ-0007)	1

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Safety Precautions




This document explains matters to be noted for safe use of this evaluation board. Be sure to read this document before using this evaluation board.

- Be sure to observe all dangers, warnings, cautions, and other instructions contained herein when using this evaluation board.
- This document should be kept handy at all times for ready reference.







Symbols used

This document used the following symbols for matters to be observed for the safe use of the unit.

The symbols are followed by a brief explanation of the possible extent of problems which may occur if the notices are not observed.

 Danger	The user may suffer death or serious injury and it's risk is high if the warning is not observed.
 Warning	The user may suffer death or serious injury if the warning is not observed.
 Caution	Human injury or property damage may occur if the caution is not observed.

The following symbols express matters which are prohibited in order to prevent injury or accident.

 General prohibition The action mentioned is prohibited.	 Do not touch Touching the specified location may cause injury.	 Do not disassemble Disassembly may cause a problem such as electrical shock or product failure.
 Keep away from water Use near water poses the risk of electrical shock or product failure if moisture were to contact the unit.	 Flammable A nearby flame may cause the unit to catch fire.	 Do not touch with wet hands Touching with wet hands may cause electric shock or product failure.








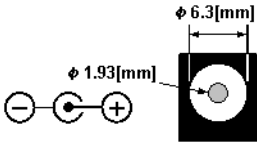

The following symbols are used for cautions to prevent product failure and accidents.

 General caution Unspecified general cautions.	 Caution Hot Human injury by high temperature may occur.
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The following symbols are used for instructions to prevent product failure and accidents.

 Compulsory action based on an instruction for the user.	 Instruction to unplug from AC power supply.
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Warnings

 Warning	
	<p>Do not use this board in the purpose except the evaluation of MCU. This board does not take safety measures or anti-EMI measures required for lighting equipment.</p>
	<p>Do not heat the board or expose it to fire, and do not short the terminals. Doing so may cause product failure, generation of heat, fire, or rupture.</p>
	<p>Do not disassemble or modify the board. Doing so may cause product failure, emission of smoke, fire, or electric shock.</p>
	<p>Do not touch with wet hands. Doing so while power is supplied cause product failure or electrical shock.</p>
	<p>Do not drop or jolt the board. Doing so may break or damage the board, causing fire or electric shock.</p>
	<p>Do not turn on power switch in insufficient state of cable connection such as AC adapter, interface cable. Doing so may cause product failure, generation of heat, fire or electric shock.</p>
	<p>Do not plug in or unplug a connector or cable with power applied to the board. Doing so may cause product failure, generation of heat, fire or rupture.</p>
	<p>Do not carry this board with connecting AC adapter and any cable. Doing so may cause damage of cable and cause product failure, generation of heat, fire or electric shock.</p>
	<p>Use this board with spacer and on the isolated bench. In case conductor contact to the board, it may cause product failure, generation of heat, fire or electric shock.</p>
	<p>Use AC adapter adapted to safety standard of each county. Using non-adopt AC adapter cause product failure, generation of heat, fire or electric shock.</p>
	<p>Use specified power supply. Using power supply except specified cause product failure, generation of heat, fire or electric shock.</p>
	<p>Use AC adapter with following size and polarity of DC plug. Using another type of AC adapter may cause product failure, generation of heat, fire or electric shock.</p> <div style="text-align: right;">  </div>
	<p>Confirm the outlet is near this board and easily unplugged.</p>
	<p>If smoke or an abnormal smell or sound is emitted, or heating occurs, promptly switch off the board power and unplug from AC power supply. Using the board in such a state poses a risk of fire, burning, or electric shock.</p>

Cautions

 Caution	
	<p>Do not use or store this board in any of the following locations.</p> <ul style="list-style-type: none">- Environments with copious water, humidity, steam, dust, fumes, etc.- Environments where static electricity or electrical noise is readily generated. <p>Such influences can lead to electric shock or product failure.</p> <p>In case liquid enters the board, cut the power supply, and consult your dealer or NEC Electronics sales representative.</p> <p>Even if the unit appears to be dry, internal moisture may remain.</p>
	<p>To prevent static electricity damage, guard against energizing when touching metal parts such as the connector.</p> <p>Static electricity can cause product failure.</p>

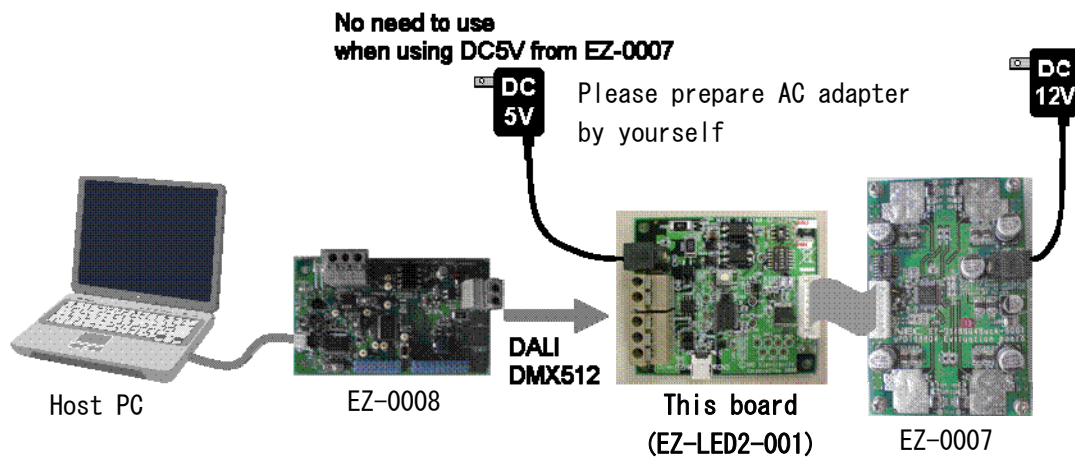
Overview

This board is for evaluation of LED dimming control by PWM output from 78K0/IA2 microcontroller.

This board can operate by DC5V power supply provided from AC adapter. Please prepare AC adapter by yourself. It is also possible to operate by using DC5V provided from “uPD168804 Buck converter HBLEDD evaluation board (EZ-0007)” in case of using EZ-0007 connecting with this board. In this case, it is not necessary to use AC adapter.

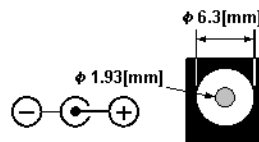
By using “Lighting Communication Master Evaluation Board (EZ-0008)”, and using GUI tool which can be download from NEC Electronics’ WEB site, dimming evaluation by DALI or DMX512 communication protocol.

Note. Please short R1 pad which is located near DC plug when using AC adapter.
Please do not short R1 pad when using DC5V power supply from EZ-0007.



* Please prepare following AC Adapter.

- Output voltage : DC5V
- Output current : >0.45A
- Type : Switching regulator type with over current protect circuit
Do not use AC adapter whose output voltage is guaranteed only when rated load current flows.
- Connector : match to the plug shown as follows



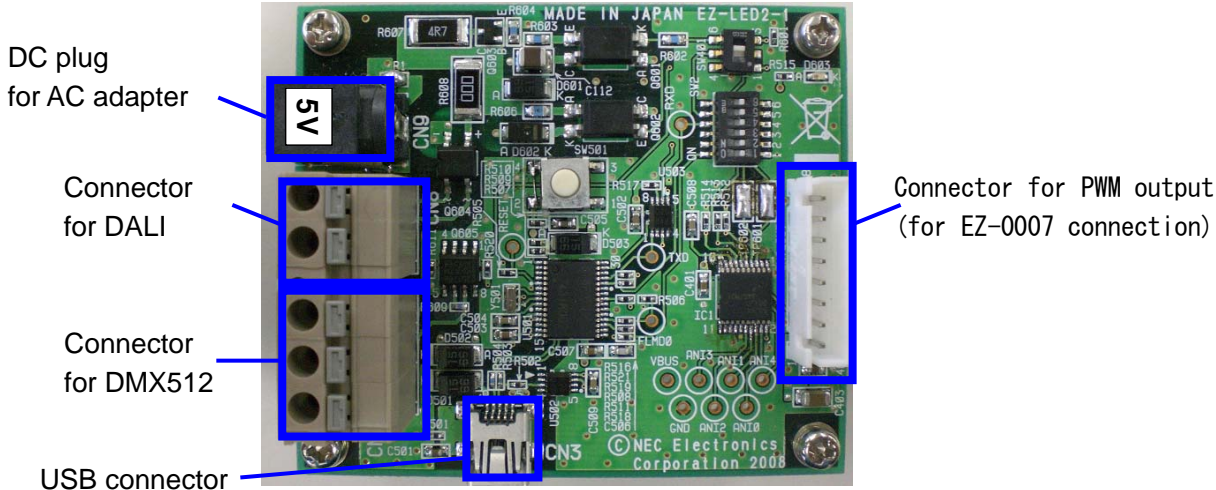
Warning



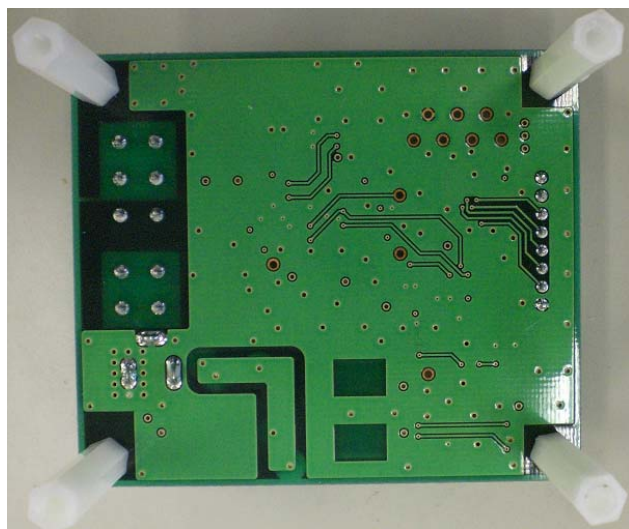
Use AC adapter adapted to safety standard of each county.

Using non-adopt AC adapter cause product failure, generation of heat, fire or electric shock.

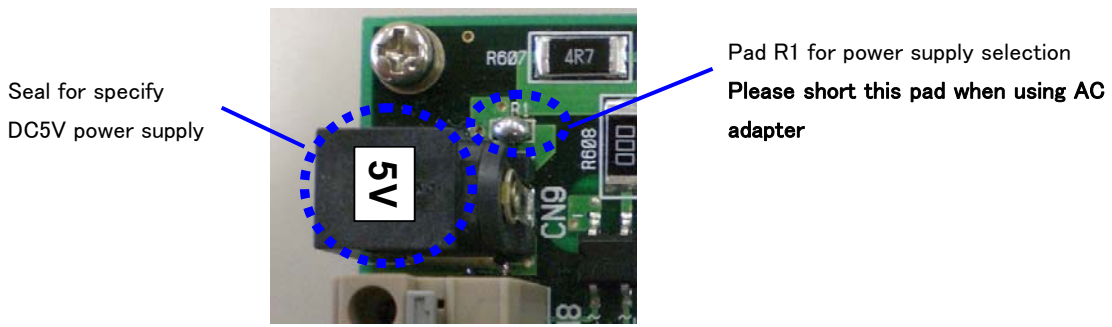
Appearance of the board



Surface appearance (TOP View)



Surface appearance (Bottom View)



Enlarged top view of DC plug

As for usage of this board, please download the User's Manual from following URL.

URL: <http://www.necel.com/micro/en/solution/lighting/index.html>

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Data Published March 2008