

# KOE

## JDI Group

Kaohsiung Opto-Electronics Inc.

FOR MESSRS : \_\_\_\_\_

DATE : May 16<sup>th</sup>, 2014

### CUSTOMER'S ACCEPTANCE SPECIFICATIONS

## BLC1402

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ACCEPTED BY : \_\_\_\_\_

PROPOSED BY :



## 2. RECORD OF REVISION

DATE	SHEET No.	SUMMARY

### 3. GENERAL DATA

#### 3.1 FEATURES

It is a specification for LED controller, apply to backlight of LCD (Liquid Crystal Display). This controller is designed for SP14N02L6ALCZ module (Kaohsiung Opto-Electronics ) product name. This controller is RoHS compliant.

Part Name	BLC1402
Module Dimensions	95.0(W) mm x 15.0(H) mm x 9.5(D) mm
Input Voltage	12V
Power Consumption	1.1 W
Weight	6 g

## 4. ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Min.	Max.	Unit	Remarks
Supply Voltage	$V_{DD}$	-0.3	30	V	-
Input Voltage of Logic	$V_I$	-0.3	7	V	Note 1
Operating Temperature	$T_{op}$	-20	70	°C	Note 2
Storage Temperature	$T_{st}$	-30	80	°C	Note 2

Note 1: The rating is defined for the signal voltages of the interface such as /OE and DIM.

Note 2: The maximum rating is defined as above based on the chamber temperature, which might be different from ambient temperature after assembling the panel into the application.

## 5. ELECTRICAL CHARACTERISTICS

### 5.1 CHARACTERISTICS

$T_a = 25\text{ }^{\circ}\text{C}$ ,  $V_{SS} = 0\text{V}$

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Remarks
Power Supply Voltage	$V_{DD}$	-	7.0	12.0	17.0	V	-
Input Voltage of Logic	$V_I$	"H" level	3.15	-	5.5	V	Note 1
		"L" level	$V_{SS}$	-	1.65		
Input Current	$I_{DD}$	$V_{DD}=12.0\text{V}$ $DIM=0\text{V}$ $/OE=L$	70	90	140	mA	Note 2
LED Output Current (Dim Control)	-	0V; 0% duty	-	145	160	mA	Note3
		3.3V <sub>DC</sub> ; 100% duty	-	15	25		

Note 1: The rating is defined for the signal voltages of the interface such as /OE pin.

Note 2: 1.0A fuse is applied in the module for  $I_{DD}$ . For protection purpose, power supply is recommended larger than 2.5A to start the controller and break fuse once any short circuit occurred.

Note 3: Dimming function can be obtained by applying DC voltage or PWM signal from the display interface CN1. The recommended PWM signal is 1kHz ~ 10kHz with 3.3V amplitude.

Note 4: As Fig. 5.1 shown, LED current is constant 145 mA, controlled by the LED controller.

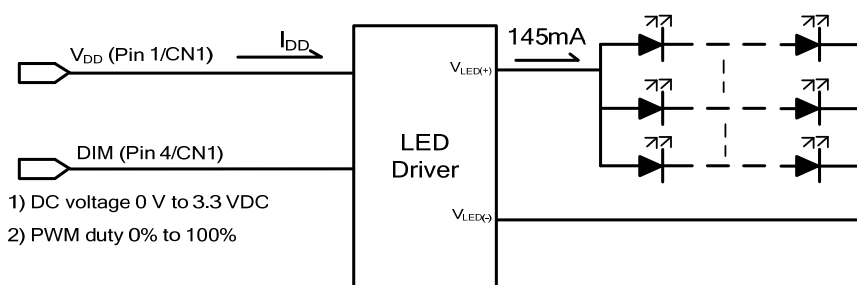


Fig 5.1

### 5.2 INPUT-OUTPUT CONNECTOR PIN ASSIGNMENT

Item	Connector Name	Pin No.	Signal	Function
CN1	Molex/53261-0510 equivalent (Input)	1	$V_{DD}$	Power supply for LED controller
		2	$V_{SS}$	GND
		3	/OE	Output enable. L:On ; H:Off
		4	DIM	Brightness diming. (Note1)
		5	NC	No connection
CN2	JAE/IL-G-4S-S3L2 equivalent (Output)	1	$V_{LED(-)}$	Power supply for LED
		2	NC	No connection
		3	NC	No connection
		4	$V_{LED(+)}$	Power supply for LED

Note 1: Normal brightness: 0V or 0% PWM duty; Brightness control: 0V to 3.3V DC or 0% to 100%

## 6. RELIABILITY TESTS

Test Item	Condition	
High Temperature	1) Operating 2) 70 °C	240 hrs
Low Temperature	1) Operating 2) -20 °C	240 hrs
High Temperature	1) Storage 2) 80 °C	240 hrs
Low Temperature	1) Storage 2) -30 °C	240 hrs
Heat Cycle	1) Operating 2) -20 °C ~70 °C 3) 3hrs~1hr~3hrs	240 hrs
Thermal Shock	1) Non-Operating 2) -35 °C ↔ 85 °C 3) 0.5 hr ↔ 0.5 hr	240 hrs
High Temperature & Humidity	1) Operating 2) 40 °C & 85%RH 3) Without condensation	240 hrs (Note 3)

Note 1: All functionalities are inspected under the conditions defined in the specification after the reliability tests.

Note 2: The module is not guaranteed for use in corrosive gas environments.

Note 3: Under the condition of high temperature & humidity, if the temperature is higher than 40 °C, the humidity needs to be reduced as Fig. 6.1 shown.

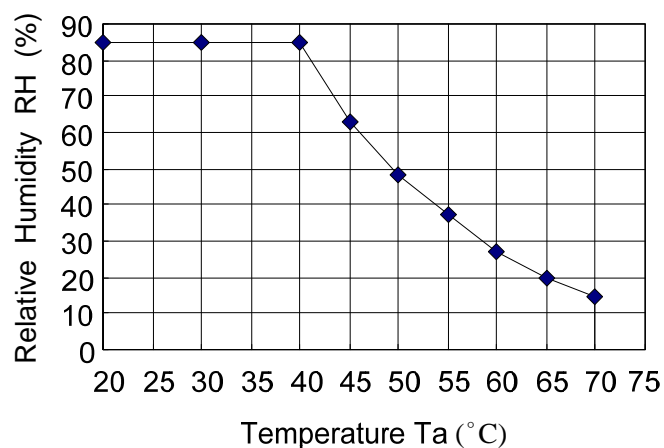
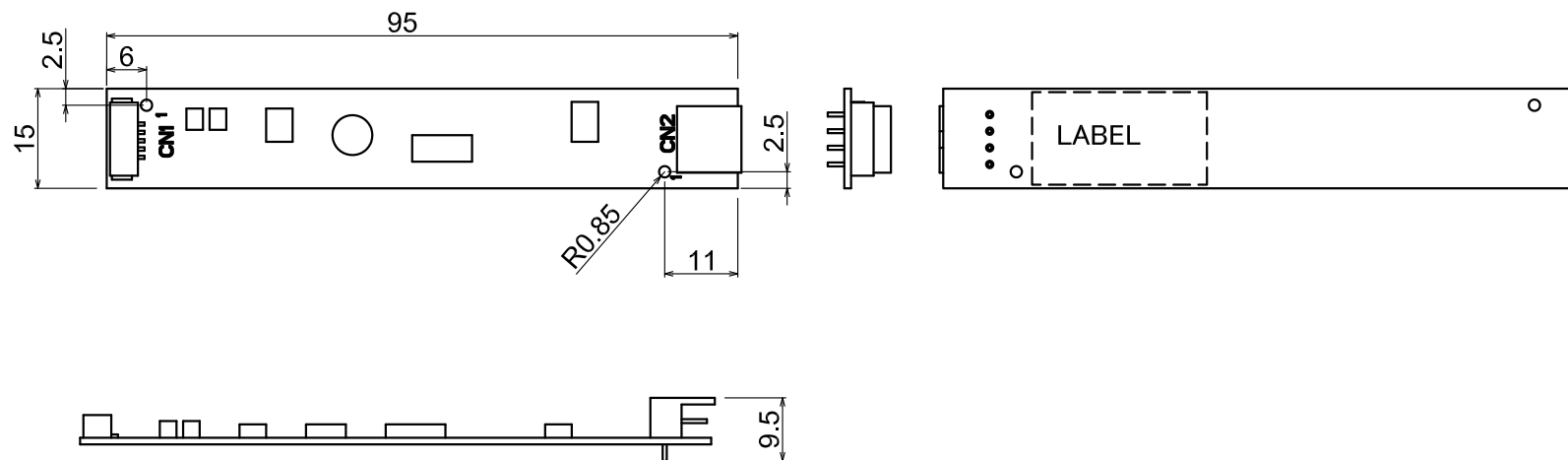


Fig. 6.1

## 7. OUTLINE DIMENSIONS



General tolerance :  $\pm 0.5$   
Scale : NTS  
Unit : mm

## 8. PRECAUTIONS

- 1) In the case of put in and put off the connector (CN1), please switch off power supply of the controller.  
If power supply is operating, it will be possible that the controller break down.
- 2) Please don't touch the terminals by hands to avoid controller broken by the static electricity.
- 3) If the controller cause trouble without this specification item, it is managed by the limited sample after much consultation between persons in charge each other.
- 4) In the case of below, it shall be held meeting between persons in charge each other.
  - In the case of the question arises regarding the provision of this specification.
  - In the case of the trouble arises without the item of this specification.
  - In the case that the controller based on this specification arises the trouble as a result of the test by application set.
  - In the case that the controller arises the trouble, when customer change the specification of the inspection or the environment and electrical condition.



## 9. DESIGNATION of LOT MARK

- 1) The lot mark is showing in Fig.9.1. First 4 digits are used to represent production lot, T represented made in Taiwan, and the last 6 digits are the serial number.

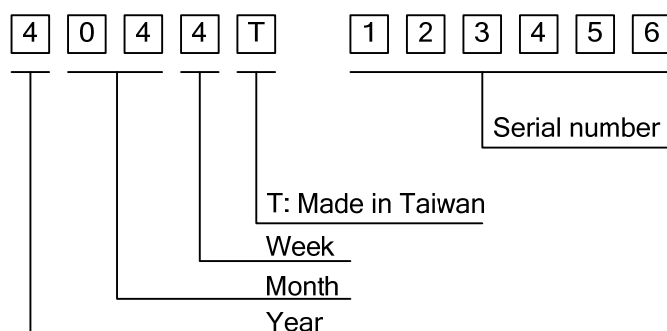


Fig. 9.1

- 2) The tables as below are showing what the first 4 digits of lot mark are shorted for.

Year	Lot Mark
2014	4
2015	5
2016	6
2017	7
2018	8

Month	Lot Mark	Month	Lot Mark
Jan.	01	Jul.	07
Feb.	02	Aug.	08
Mar.	03	Sep.	09
Apr.	04	Oct.	10
May	05	Nov.	11
Jun.	06	Dec.	12

Week	Lot Mark
1~7 days	1
8~14 days	2
15~21 days	3
22~28 days	4
29~31 days	5

- 3) Except letters I and O, revision number will be shown on lot mark and following letters A to Z.
- 4) The location of the lot mark is on the back of the display shown in Fig. 9.2.



Fig. 9.2