



**Opto Plus LED Corp.**  
**0.8" Case Mold Type LED Display**  
**OPD-S8023LB-BW**

● **EDIT HISTORY**

Version 1(A) : Sep. 07, 2015

New color data sheet.

Version 2(B) : Apr.13, 2023

Modify Electrical Character & Curve (P5,P6)

Modify package dimensions.

| Prepared by | Checked by | Approved by |
|-------------|------------|-------------|
|             |            |             |



**Opto Plus LED Corp.**  
**0.8" Case Mold Type LED Display**  
**OPD-S8023LB-BW**

● **EDIT HISTORY**

Version A : Nov. 01, 2013

Preliminary Spec.

Version B : Apr.13, 2023

Modify Electrical Character & Curve (P5,P6)

Modify package dimensions.



# Opto Plus LED Corp.

## 0.8" Case Mold Type LED Display

### OPD-S8023LB-BW

#### ● FEATURES

- 0.8 inch (20.4 mm) Digit Height.
- Low current operation.
- Case mold type.
- Black face, White segment.
- RoHS compliant, Pb Free.

#### ● DESCRIPTION

The OPD-S8023LB-BW is a 0.8 inch (20.4 mm) height single 7-segment display. This device utilizes Super Bright Blue LED chip which are made from InGaN on a transparent GaN substrate. The display has Black face, White segment.

#### ● DEVICE

| PART NO<br>Super Bright Blue | DESCRIPTION    |
|------------------------------|----------------|
| OPD-S8023LB-BW               | Common Cathode |

**RoHS Compliance**



**Pb free.**

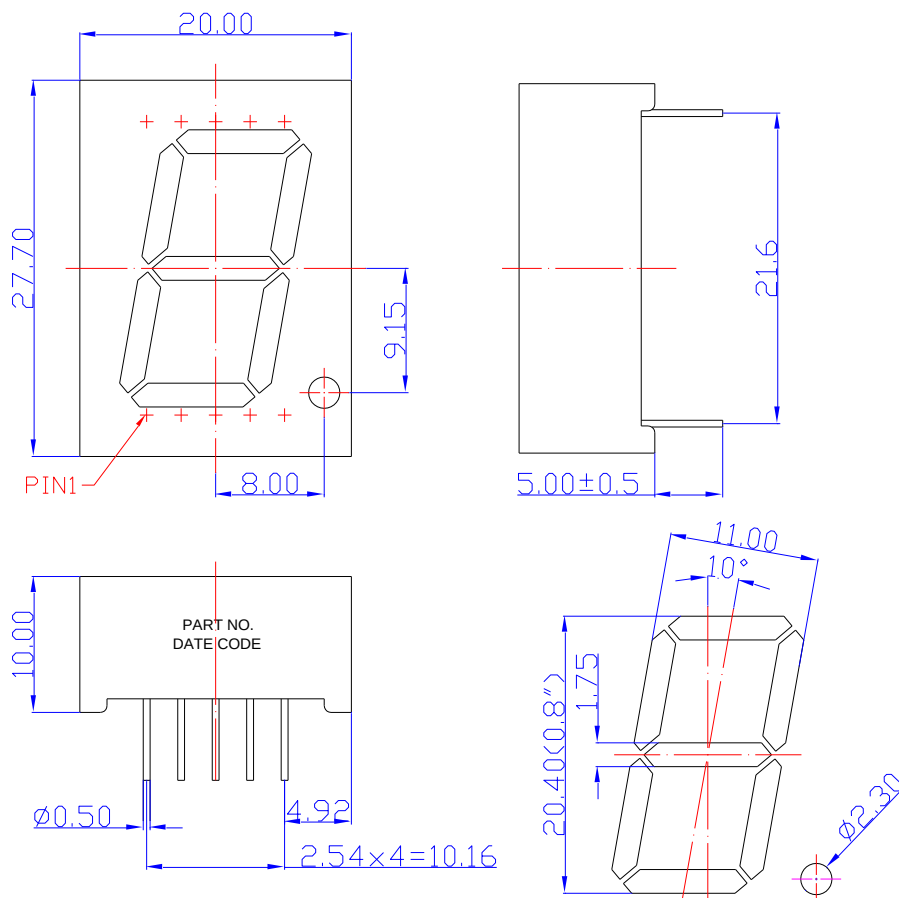


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## 0.8" Case Mold Type LED Display

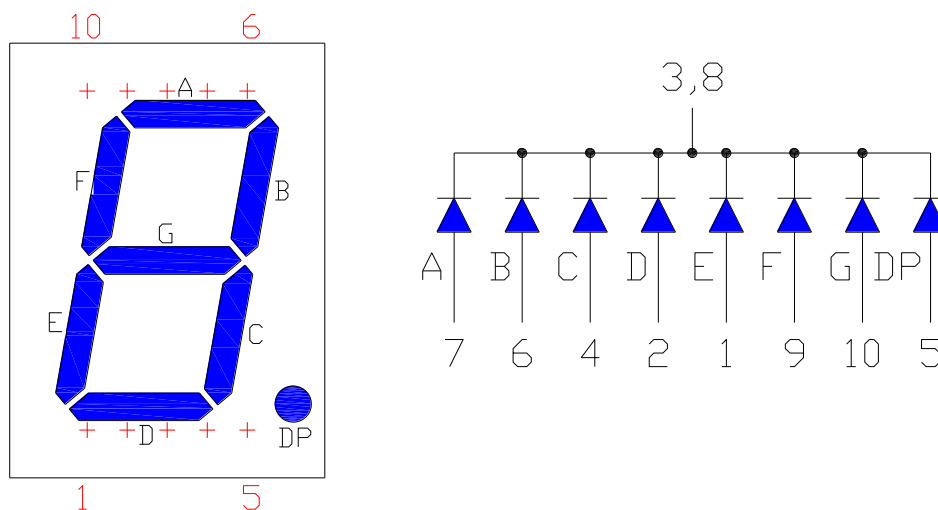
### OPD-S8023LB-BW

#### MECHANICAL DIMENSIONS



NOTES: All dimensions are in millimeters. Tolerances are  $\pm 0.25$  mm unless otherwise noted.

#### TYPICAL INTERNAL EQUIVALENT CIRCUIT





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### OPD-S8023LB-BW

#### ● LB: SUPER BRIGHT BLUE (InGaN/GaN)

ABSOLUTE MAXIMUM RATING AT Ta=25°C

| Parameter                            | Symbol           | Maximum Rating | Unit |
|--------------------------------------|------------------|----------------|------|
| Power dissipation                    | P <sub>AD</sub>  | 68             | mW   |
| Continuous forward current           | I <sub>AF</sub>  | 20             | mA   |
| Peak current (duty cycle 1/10, 1kHz) | I <sub>PF</sub>  | 60             | mA   |
| Reverse voltage                      | V <sub>R</sub>   | 5              | V    |
| Operating temperature                | T <sub>OPR</sub> | -40 to +85     | °C   |
| Storage temperature                  | T <sub>STG</sub> | -40 to +85     | °C   |

ELECTRICAL - OPTICAL CHARACTERISTICS AT Ta=25°C

| Characteristic               | Symbol         | Condition            | Min. | Type. | Max. | Unit |
|------------------------------|----------------|----------------------|------|-------|------|------|
| Forward Voltage              | V <sub>F</sub> | I <sub>F</sub> =20mA | -    | 3.0   | 3.4  | V    |
| Reverse Current              | I <sub>R</sub> | V <sub>R</sub> =5V   | -    | -     | 10   | μA   |
| Dominant Wavelength          | λ <sub>D</sub> | I <sub>F</sub> =20mA | 460  | 465   | 475  | nm   |
| Luminous Intensity           | I <sub>V</sub> | I <sub>F</sub> =20mA | -    | 70    | -    | mcd  |
| Spectral Line Half-Bandwidth | Δλ             | I <sub>F</sub> =20mA | -    | 20    | -    | nm   |

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## ● LB: SUPER BRIGHT BLUE (InGaN/GaN) CURVE

Typical Electro-optical Characteristic Curves  
(25 °C Free Air Temperature Unless Otherwise Specified)

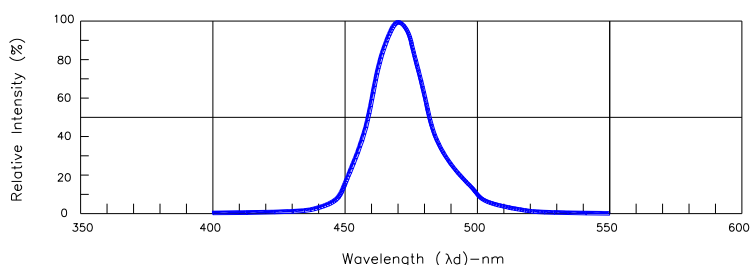


Fig.1-Relative Intensity VS. Wavelength

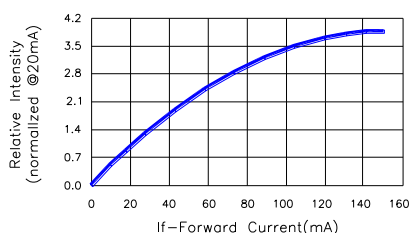


Fig.2-Relative Luminous Intensity vs. Forward Current

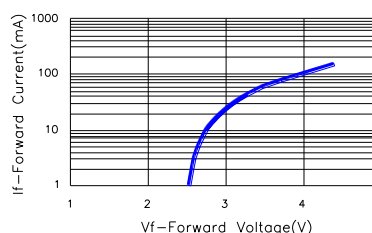


Fig.3-Forward Current vs. Forward Voltage

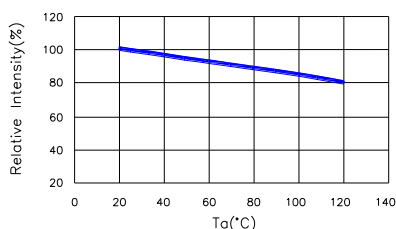


Fig.4-Relative Intensity(@20mA)VS. Ambient Temperature

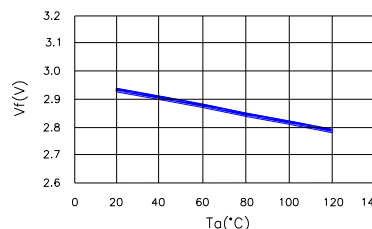


Fig.5-Forward Voltage(@20mA)VS. Ambient Temperature

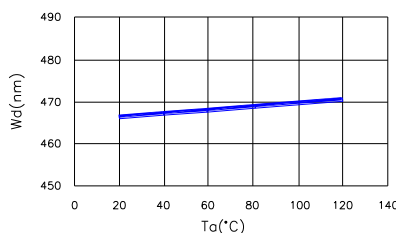


Fig.6-Dominant Wavelength(@20mA)  
VS. Ambient Temperature

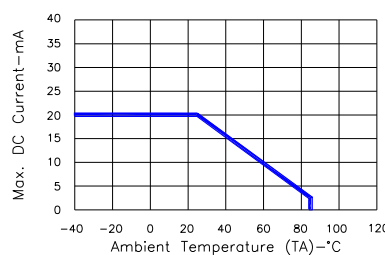


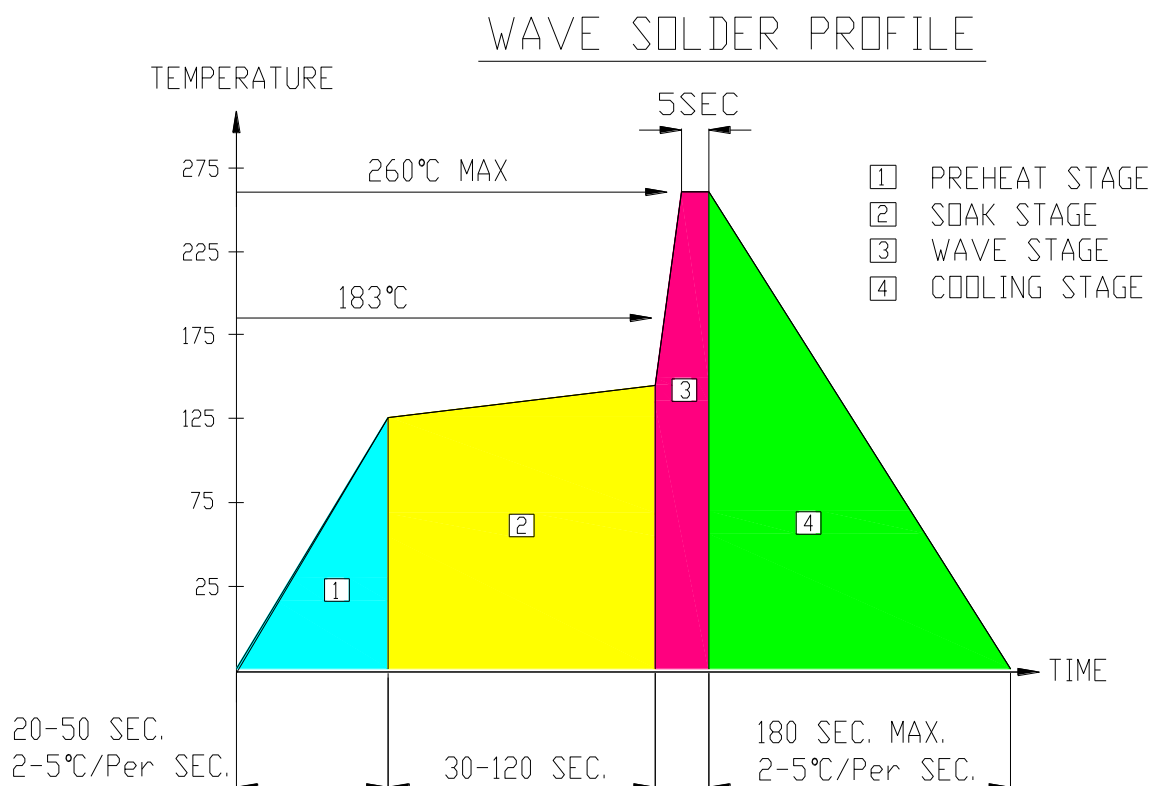
Fig.7-Max. Allowable DC Current  
VS. Ambient Temperature

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## ● RECOMMEND SOLDERING PROFILE



## ● Note:

- Recommend pre-heat temperature of 105°C or less (as measured with a thermocouple attached to the LED pins) prior to immersion in the solder wave with a maximum solder bath temperature of 260°C
- Peak wave soldering temperature between 245°C ~ 225°C for 3 sec (5 sec max)
- No more than one wave soldering pass

## ● SOLDERING IRON

Basic spec is  $\leq 4$  sec when 260°C. If temperature is higher, time should be shorter (+10°C → 1 sec). Power dissipation of Iron should be smaller than 15W, and temperature should be controllable. Surface temperature of the device should be under 230°C.

## ● REWORK

Customer must finish rework within  $\leq 3$  sec under 350°C.  
The head of soldering iron cannot touch copper foil.

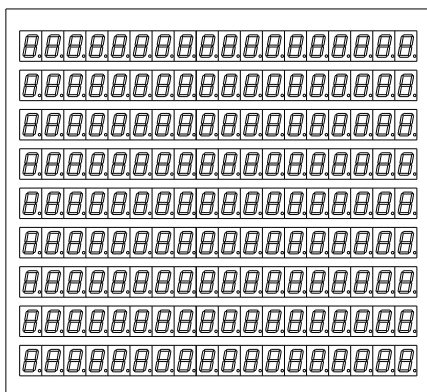
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## 0.8" Case Mold Type LED Display

### OPD-S8023LB-BW

#### ● PACKAGE DIMENSIONS

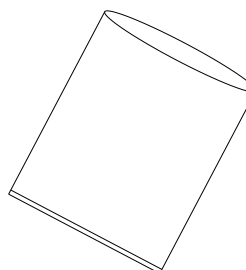
162 PCS ( 18X 9 ) / 1 Pink ESD Polyform



6 Pink ESD Polyform / 1 PINK ESD BAG

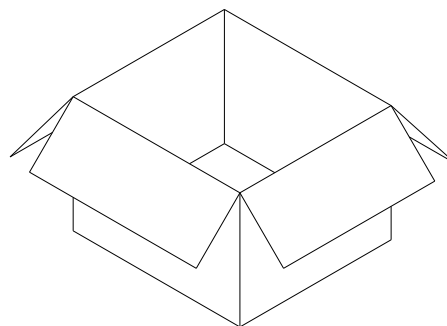


A reference for packing within ESD bag.



ESD BAG SIZE : 650 x 550 mm

1620 PCS / 2 PINK ESD BAG / 1 Outer Carton



OUTER BOX SIZE : 430 x 390 x 300 mm