



**Opto Plus LED Corp.**  
**1.5” Case Mold Type LED Display**  
**OPD-S15012LE-BW**  
**OPD-S15013LE-BW**

● **EDIT HISTORY**

Version A : Feb. 24, 2015

Preliminary Spec.

Version B : Jul. 06, 2021

Modify Electrical Character & Curve (P4,P5)

Add package dimensions.

Prepared by	Checked by	Approved by



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**OPD-S15013LE-BW**

● **FEATURES**

- 1.5 inch (38.1 mm) Digit Height.
- Low current operation.
- Case mold type.
- Black face, White segment.
- RoHS compliant, Pb Free.

● **DESCRIPTION**

The OPD-S15012LE-BW & OPD-S15013LE-BW is a 1.5 inch (38.1 mm) height single 7-segment display.

This device utilizes Super Bright Red LED chip which are made from AlGaInP on a transparent GaAs, substrate. The display has Black face, White segment.

● **DEVICE**

<b>PART NO</b> <b>Super Bright Red</b>	<b>DESCRIPTION</b>
OPD-S15012LE-BW	Common Anode
OPD-S15013LE-BW	Common Cathode

**RoHS Compliance**



**Pb free.**





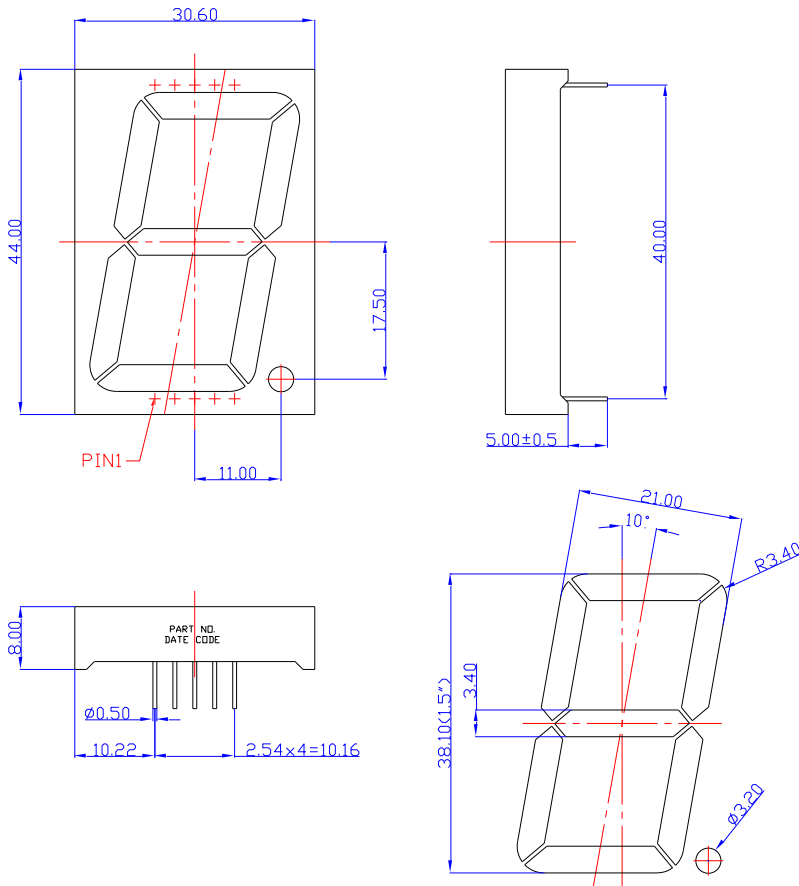
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## 1.5" Case Mold Type LED Display

### OPD-S15012LE-BW

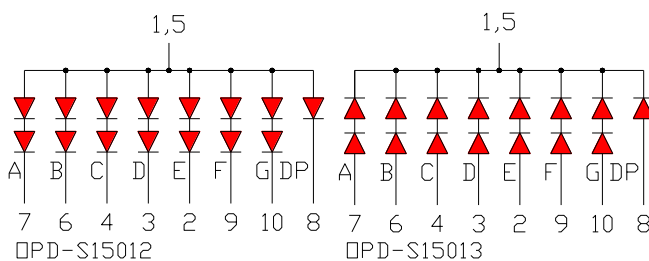
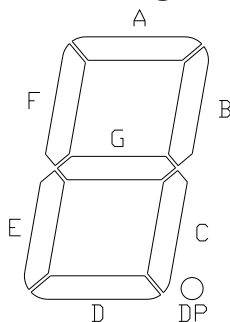
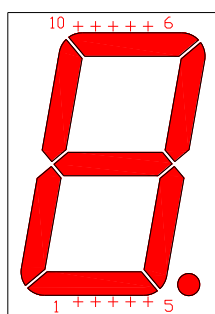
### OPD-S15013LE-BW

#### 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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● **LE: SUPER BRIGHT RED (AlGaInP/GaAs)**  
 ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Maximum Rating	Unit
Power dissipation per dice	P <sub>AD</sub>	48	mW
Continuous forward current per dice	I <sub>AF</sub>	20	mA
Peak current (duty cycle 1/10, 1kHz)	I <sub>PF</sub>	40	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 per Segment (DP)	V <sub>F</sub>	I <sub>F</sub> =20mA	-	4.2 (2.1)	4.8 (2.4)	V
Reverse Current per dice	I <sub>R</sub>	V <sub>R</sub> =5V	-	-	10	μA
Peak Wavelength	λ <sub>P</sub>	I <sub>F</sub> =20mA	-	632	-	nm
Dominant Wavelength	λ <sub>D</sub>	I <sub>F</sub> =20mA	619	624	629	nm
Luminous Intensity	I <sub>V</sub>	I <sub>F</sub> =20mA	-	100	-	mcd
Spectral Line Half-Bandwidth	Δλ	I <sub>F</sub> =20mA	-	20	-	nm



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### OPD-S15012LE-BW

### OPD-S15013LE-BW

#### ● LE: SUPER BRIGHT RED (AlGaInP/GaAs) CURVE

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

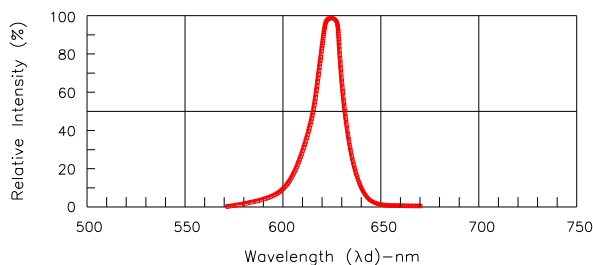


Fig.1-Relative Intensity VS. Wavelength

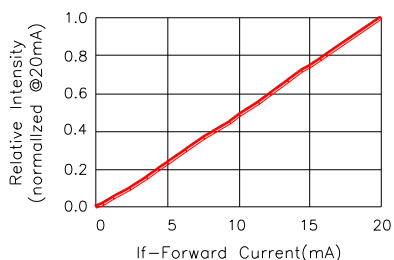


Fig.2-Relative Luminous Intensity vs. Forward Current

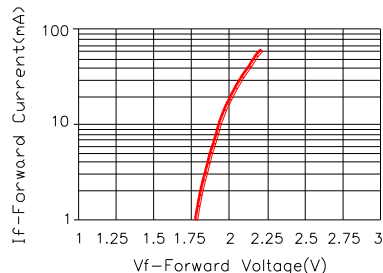


Fig.3-Forward Current vs. Forward Voltage

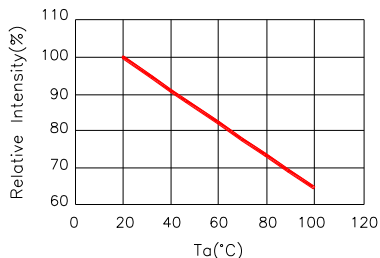


Fig.4-Relative Intensity(@20mA) vs. Ambient Temperature

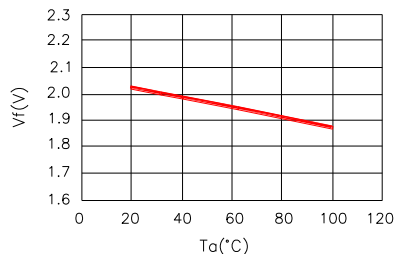


Fig.5-Forward Voltage(@20mA) vs. Ambient Temperature

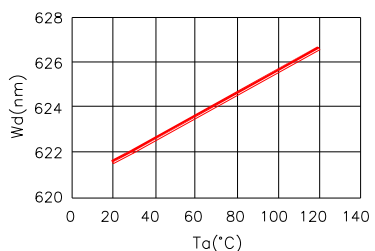


Fig.6-Dominant Wavelength(@20mA) VS. Ambient Temperature

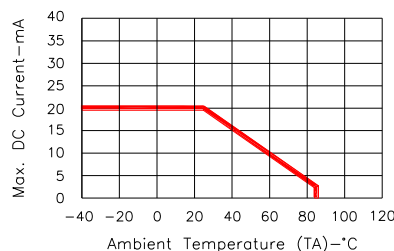


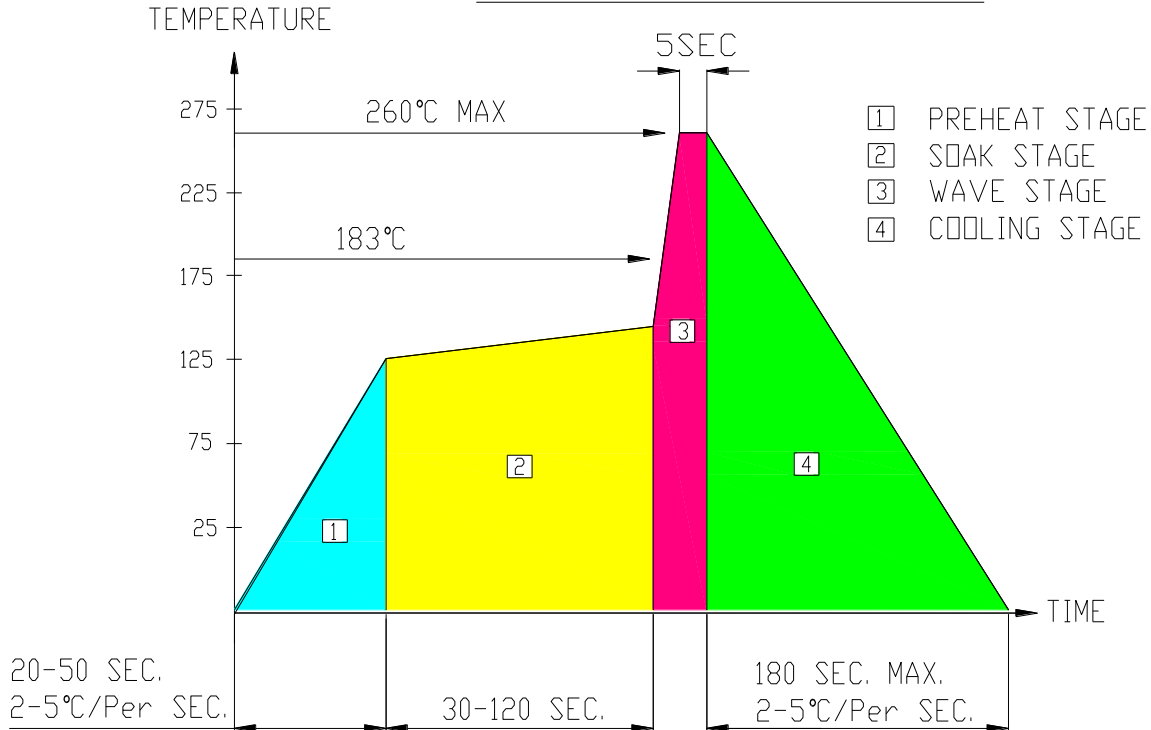
Fig.7-Max. Allowable DC Current VS. Ambient Temperature



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● **RECOMMEND SOLDERING PROFILE**

WAVE SOLDER 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**

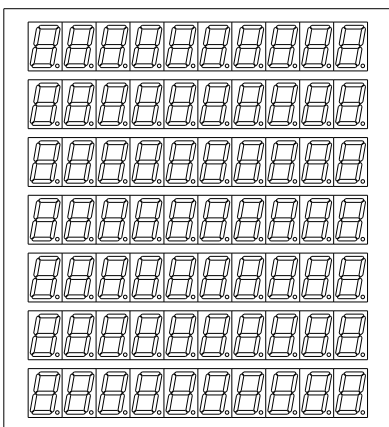
Customer must finish rework within  $\leq 3$  sec under 350°C.  
 The head of soldering iron cannot touch copper foil.



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● **PACKAGE DIMENSIONS**

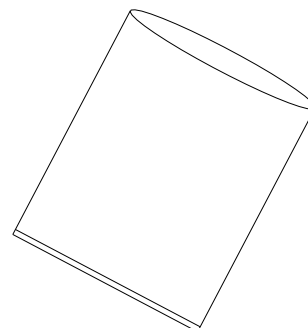
70PCS ( 10 X 7 ) / 1 White Polyform



12 White Polyform & 1 CARDBOARD / 1 BAG

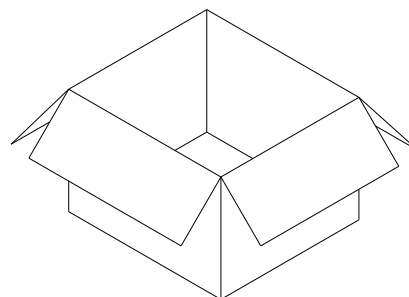


A reference for packing within bag.



BAG SIZE : 450X410X560

840 PCS / 1 BAG / 1 Outer Carton



OUTER BOX SIZE : 430 x 390 x 300 mm