



**Opto Plus LED Corp.**  
**1.5" Case Mold Type LED Display**  
**OPD-S15012LR-BW**  
**OPD-S15013LR-BW**

● **EDIT HISTORY**

Version A : Mar. 09, 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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# Opto Plus LED Corp.

## 1.5" Case Mold Type LED Display

### OPD-S15012LR-BW

### OPD-S15013LR-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-S15012LR-BW & OPD-S15013LR-BW is a 1.5 inch (38.1 mm) height single 7-segment display.

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

#### ● DEVICE

PART NO Super Red	DESCRIPTION
OPD-S15012LR-BW	Common Anode
OPD-S15013LR-BW	Common Cathode

#### RoHS Compliance



#### Pb free.





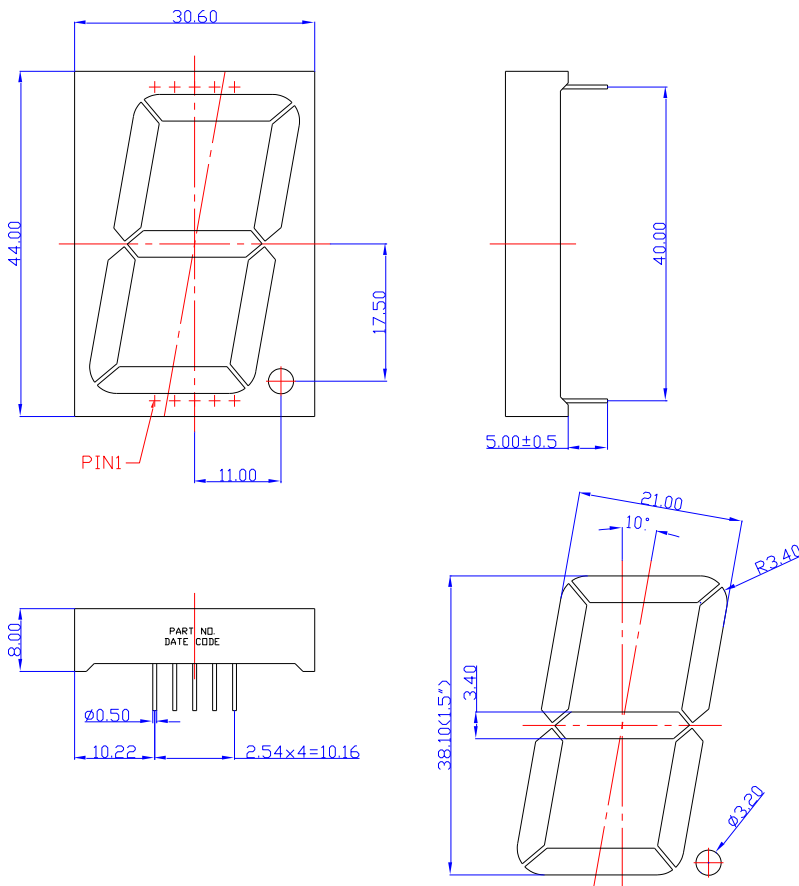
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## 1.5" Case Mold Type LED Display

### OPD-S15012LR-BW

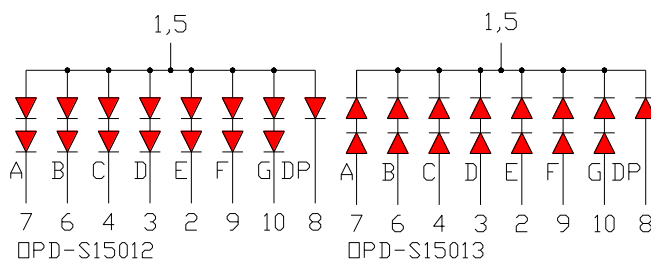
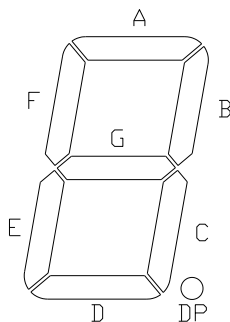
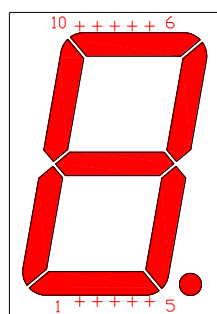
### OPD-S15013LR-BW

#### MECHANICAL DIMENSIONS



NOTES: All dimensions are in millimeters. Tolerances are ± 0.25 mm unless otherwise noted.

#### TYPICAL INTERNAL EQUIVALENT CIRCUIT





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### OPD-S15012LR-BW

### OPD-S15013LR-BW

● **LR: SUPER 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	-	650	-	nm
Dominant Wavelength	λ <sub>D</sub>	I <sub>F</sub> =20mA	635	639	648	nm
Luminous Intensity	I <sub>V</sub>	I <sub>F</sub> =20mA	-	40	-	mcd
Spectral Line Half-Bandwidth	Δλ	I <sub>F</sub> =20mA	-	20	-	nm



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## 1.5" Case Mold Type LED Display

### OPD-S15012LR-BW

### OPD-S15013LR-BW

#### ● LR: SUPER RED (AlGaInP/GaAs) CURVE

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

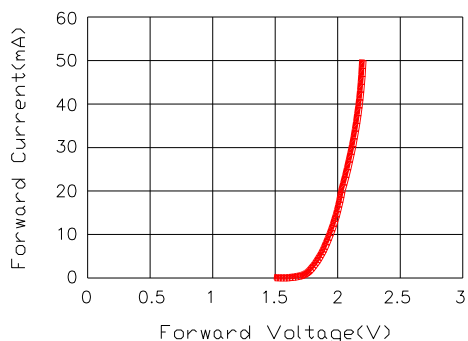


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

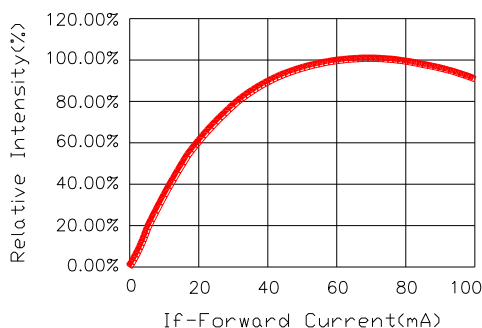


Fig.2 RELATIVE INTENSITY VS. FORWARD CURRENT

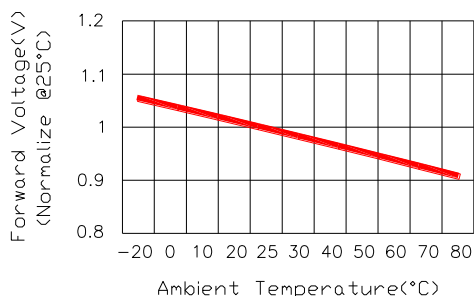


Fig.3 FORWARD VOLTAGE VS. TEMPERATURE

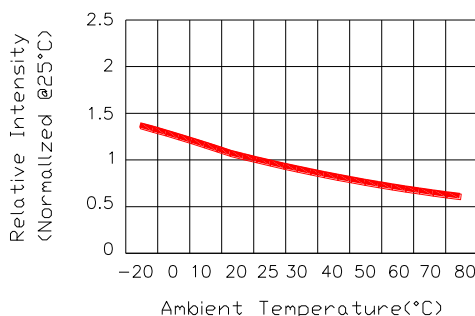


Fig.4 RELATIVE INTENSITY VS. TEMPERATURE

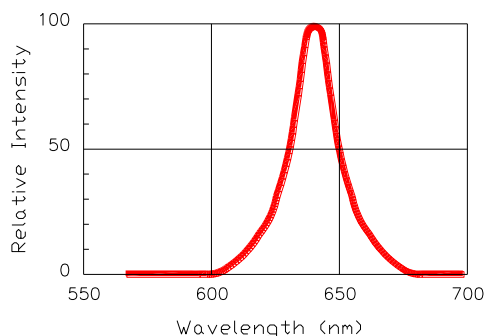


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

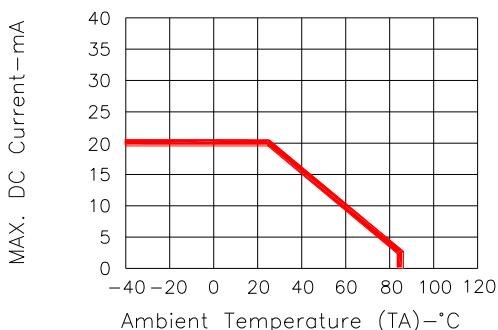


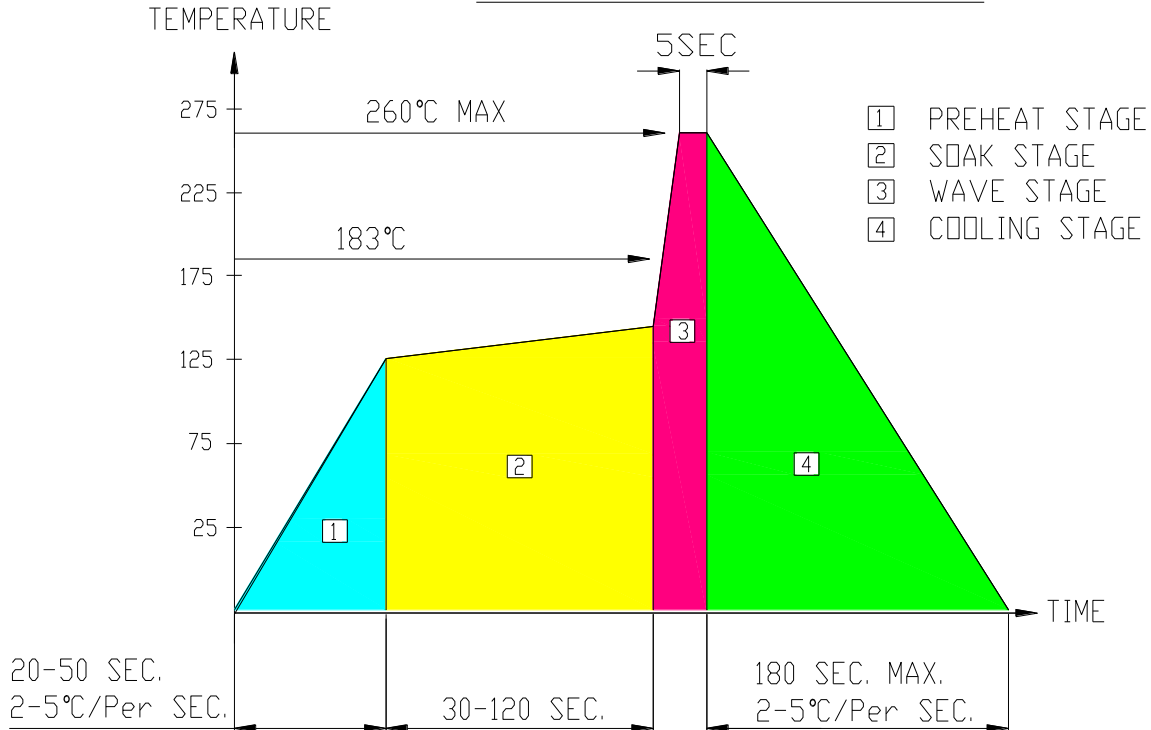
Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE



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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**

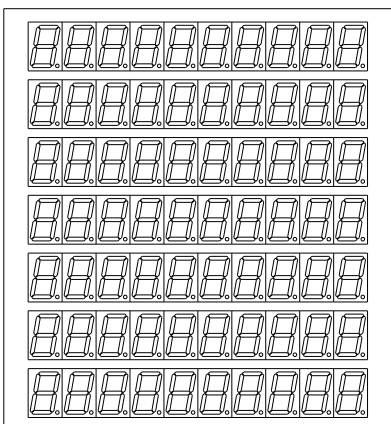
Customer must finish rework within  $\leq 3$  sec under 350°C.  
 The head of soldering iron cannot touch copper foil.



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● **PACKAGE DIMENSIONS**

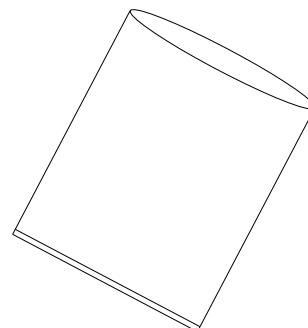
70PCS ( 10 X 7 ) / 1 White Polyform



12 White Polyform & 1 CARDBOARD / 1 BAG

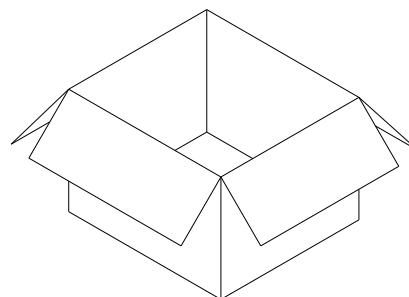


A reference for packing within bag.



BAG SIZE : 450X410X560

840 PCS / 1 BAG / 1 Outer Carton



OUTER BOX SIZE : 430 x 390 x 300 mm