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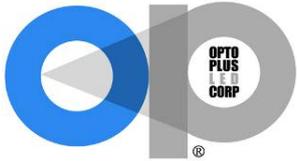
**Opto Plus LED Corp.**  
**0.30" SMD Type LED Display**  
**OPS-D3050SYG-ST-1.5**  
**OPS-D3051SYG-ST-1.5**

● **EDIT HISTORY**

Version A: Jun. 15, 2024

Preliminary Spec.

Confidential Document



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# Opto Plus LED Corp.

## 0.30" SMD Type LED Display

### OPS-D3050SYG-ST-1.5

### OPS-D3051SYG-ST-1.5

#### ● FEATURES

- 0.30 inch (7.62 mm) Digit Height.
- Low current operation.
- Excellent character appearance.
- Super thin SMD type.
- RoHS compliant, Pb Free.

#### ● DESCRIPTION

The device are 0.30 inch (7.62 mm) height dual digit 7-segment displays.

The device is Opto Plus LED Corp standard LED Display.

This device utilizes Super Bright Yellow Green LED chip which are made from AlGaInP on a transparent GaAs, substrate.

The device has face and segment option, please refer to **PRODUCT APPEARANCE**.

#### ● DEVICE

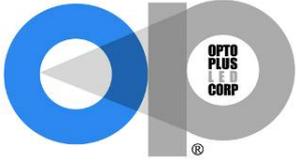
PART NO.	DESCRIPTION
OPS-D3050SYG-ST-1.5-GW	Common Anode   Gray face   White segment
OPS-D3051SYG-ST-1.5-GW	Common Cathode   Gray face   White segment
OPS-D3050SYG-ST-1.5-BW	Common Anode   Black face   White segment
OPS-D3051SYG-ST-1.5-BW	Common Cathode   Black face   White segment

### RoHS Compliance



### Pb Free.





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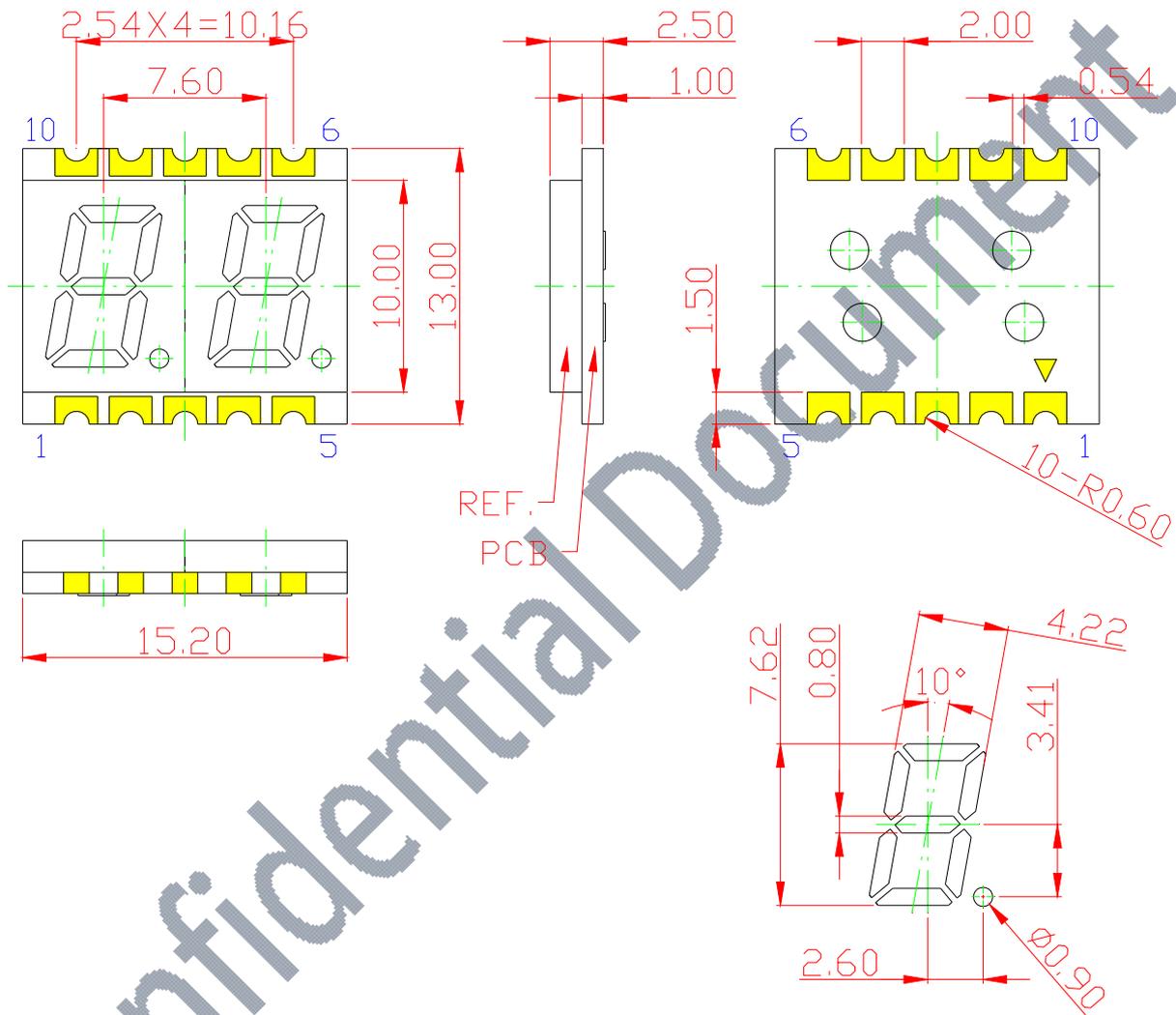
# Opto Plus LED Corp.

## 0.30" SMD Type LED Display

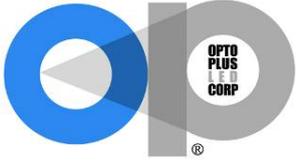
### OPS-D3050SYG-ST-1.5

### OPS-D3051SYG-ST-1.5

#### MECHANICAL DIMENSIONS



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



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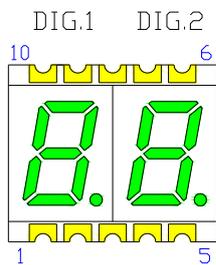
## 0.30" SMD Type LED Display

### OPS-D3050SYG-ST-1.5

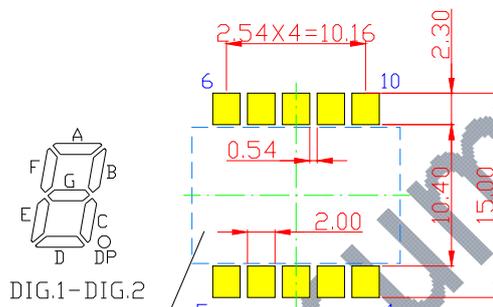
### OPS-D3051SYG-ST-1.5

#### ● TYPICAL INTERNAL EQUIVALENT CIRCUIT

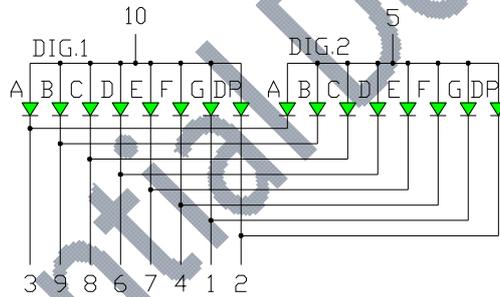
Turn On Color



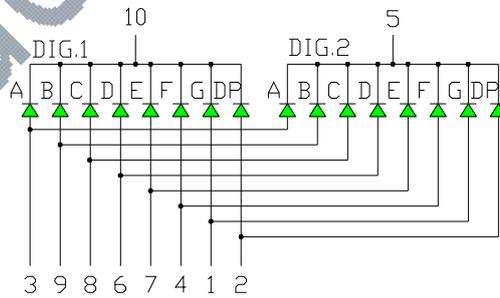
Recommended Reverse Mount Soldering Pattern



Reflector (Mounting Hole)

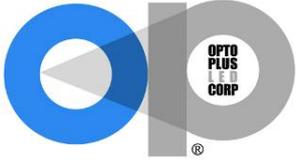


OPS-D3050SYG-ST-1.5 (Common Anode)



OPS-D3051SYG-ST-1.5 (Common Cathode)

※EMITTED COLOR : SUPER BRIGHT YELLOW GREEN



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● **PRODUCT APPEARANCE**

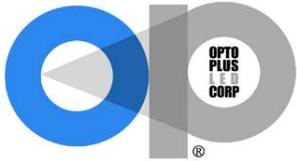
The most common reflector color and segment color are show in below diagram.

-GW	-BW
※ REFLECTOR COLOR: Gray ※ SEGMENT COLOR: White	※ REFLECTOR COLOR: Black ※ SEGMENT COLOR: White

Opto Plus can customize reflector and segment colors by customer's request. If you have these request please visit [www.opledtw.com](http://www.opledtw.com) or contact [sales@opledtw.com](mailto:sales@opledtw.com) for more **Standard Product Customization** information.

Part NO. related to reflector and segment colors show as table below.

PART NO.	DESCRIPTION
OPS-D3050SYG-ST-1.5-GW	Common Anode   Gray face   White segment
OPS-D3051SYG-ST-1.5-GW	Common Cathode   Gray face   White segment
OPS-D3050SYG-ST-1.5-BW	Common Anode   Black face   White segment
OPS-D3051SYG-ST-1.5-BW	Common Cathode   Black face   White segment



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## 0.30" SMD Type LED Display

### OPS-D3050SYG-ST-1.5

### OPS-D3051SYG-ST-1.5

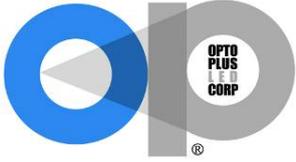
#### ● SYG: SUPER BRIGHT YELLOW GREEN (AlGaInP/GaAs)

ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Maximum Rating	Unit
Power dissipation	$P_{AD}$	48	mW
Continuous forward current	$I_{AF}$	20	mA
Peak current (duty cycle 1/10, 1kHz)	$I_{PF}$	40	mA
Reverse voltage	$V_R$	5	V
Operating temperature	$T_{OPR}$	-40 to +105	°C
Storage temperature	$T_{STG}$	-40 to +105	°C

ELECTRICAL - OPTICAL CHARACTERISTICS AT Ta=25°C

Characteristic	Symbol	Condition	Min.	Type.	Max.	Unit
Forward Voltage, (Per Dice)	$V_F$	$I_F = 20\text{mA}$	-	2.1	2.4	V
Reverse Current, (Per Dice)	$I_R$	$V_R = 5\text{V}$	-	-	10	$\mu\text{A}$
Peak Wavelength	$\lambda_P$	$I_F = 20\text{mA}$	-	573	-	nm
Dominant Wavelength	$\lambda_D$	$I_F = 20\text{mA}$	567	-	576	nm
Luminous Intensity	$I_V$	$I_F = 20\text{mA}$	3	-	15	mcd
Spectral Line Half-Bandwidth	$\Delta\lambda$	$I_F = 20\text{mA}$	-	20	-	nm



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● SYG: BIN GRADE (Unit :mcd) 20mA

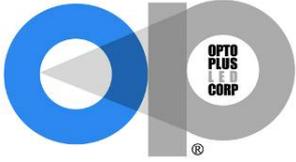
Super Bright Yellow Green	<b>F</b>	<b>G</b>	<b>H</b>
	3.0 - 7.0	7.1 - 11.0	11.1 - 15.0

● SYG: HUE GRADE ( $\lambda D$  : nm)

<b>1</b>	<b>2</b>	<b>3</b>
567.0 - 570.0	570.1 - 573.0	573.1 - 576.0

● AVAILABLE BIN / HUE TABLE

F1	F2	F3
G1	G2	G3
H1	H2	H3



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## 0.30" SMD Type LED Display

### OPS-D3050SYG-ST-1.5

### OPS-D3051SYG-ST-1.5

#### ● SYG: SUPER BRIGHT YELLOW GREEN (AlGaInP/GaAs) CURVE

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

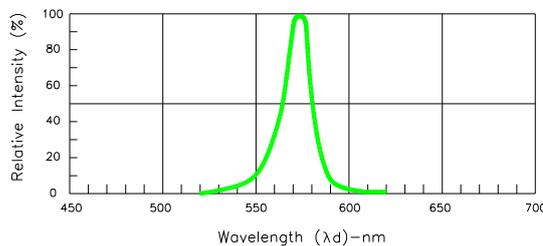


Fig.1-Relative Intensity VS. Wavelength

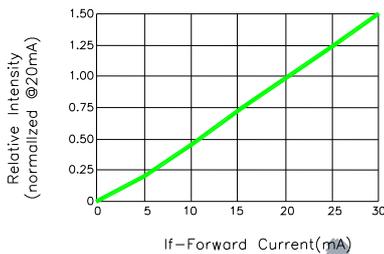


Fig.2-Relative Luminous Intensity vs. Forward Current

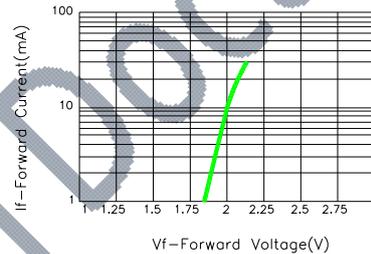


Fig.3-Forward Current vs. Forward Voltage

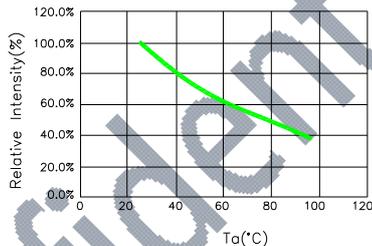


Fig.4-Relative Intensity(@20mA)VS. Ambient Temperature

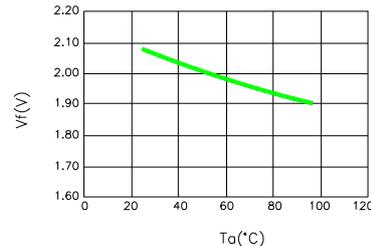


Fig.5-Forward Voltage(@20mA)VS. Ambient Temperature

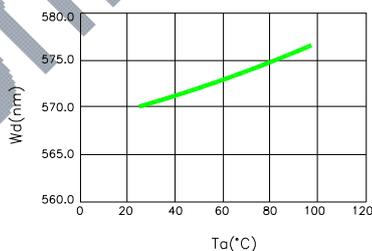


Fig.6-Dominant Wavelength(@20mA) VS. Ambient Temperature

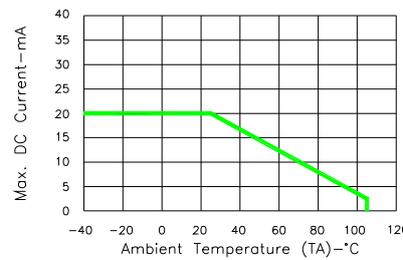
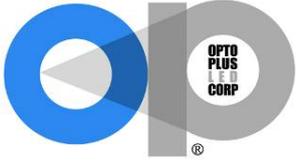


Fig.7-Max. Allowable DC Current VS. Ambient Temperature



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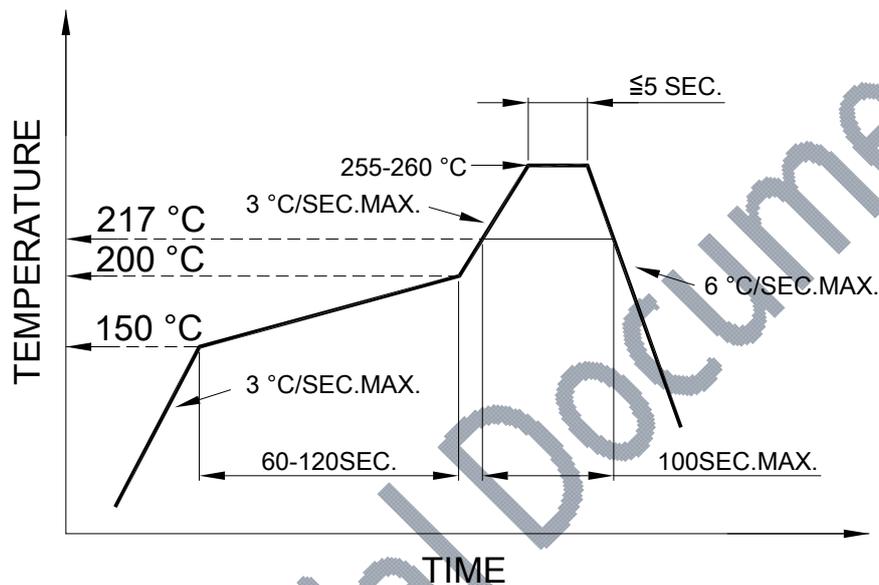
### OPS-D3050SYG-ST-1.5

### OPS-D3051SYG-ST-1.5

## ● SMT REFLOW SOLDERING INSTRUCTIONS

SMT Soldering Profile

Pb free reflow soldering Profile



- We recommend the reflow temperature 245°C (+/- 5°C).  
The maximum soldering temperature should be limited to 260°C.
- Number of reflow process shall be 2 times or less.

## ● 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 3 sec. under 350°C.
- The head of soldering iron cannot touch copper foil.