



[www.opledtw.com](http://www.opledtw.com)

**Opto Plus LED Corp.**  
**0.39" SMD Type LED Display**  
**OPS-S3910SPG | OPS-S3911SPG**

● **EDIT HISTORY**

Version A: Oct. 27, 2020

Preliminary Spec.

Version B: Feb. 27, 2024

Modify IV data & bin grade.



# Opto Plus LED Corp.

## 0.39" SMD Type LED Display

### OPS-S3910SPG | OPS-S3911SPG

#### ● FEATURES

- 0.39 inch (10.0 mm) digit height.
- SMD type.
- Low current operation.
- RoHS Compliant, Pb Free.

#### ● DESCRIPTION

The device are 0.39 inch (10.0mm) height single digit 7-segment displays.

The device is Opto Plus LED Corp standard LED Display.

This device utilizes Pure Green LED chip which are made from InGaN on a Transparent GaN, substrate.

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

#### ● DEVICE

| PART NO.        | DESCRIPTION                                 |
|-----------------|---|
| OPS-S3910SPG-GW | Common Anode   Gray face   White segment    |
| OPS-S3911SPG-GW | Common Cathode   Gray face   White segment  |
| OPS-S3910SPG-BW | Common Anode   Black face   White segment   |
| OPS-S3911SPG-BW | Common Cathode   Black face   White segment |

**RoHS Compliance**



**Pb Free.**



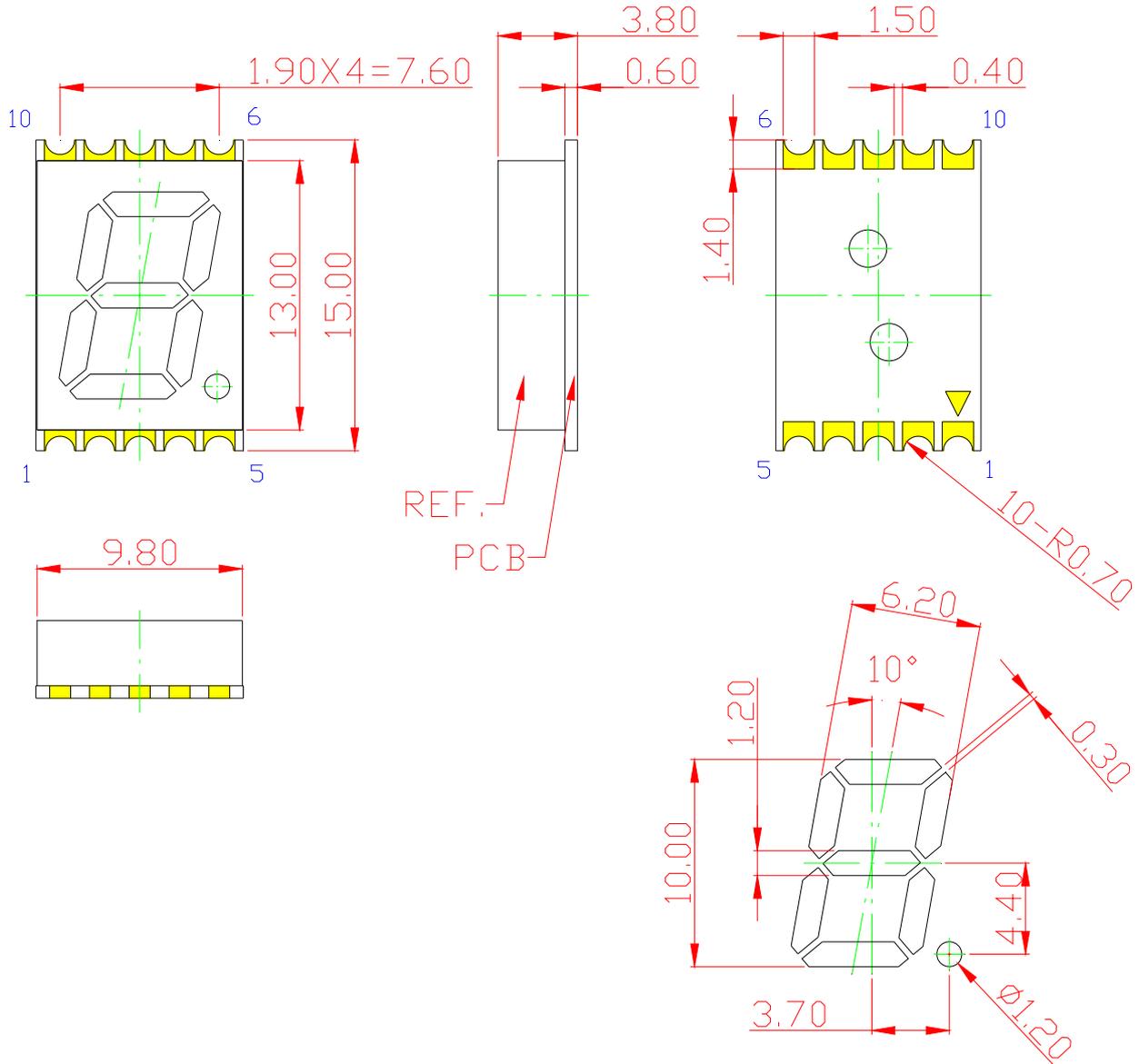


# Opto Plus LED Corp.

## 0.39" SMD Type LED Display

### OPS-S3910SPG | OPS-S3911SPG

#### ● MECHANICAL DIMENSIONS



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



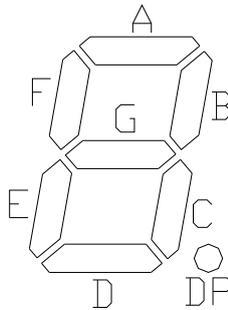
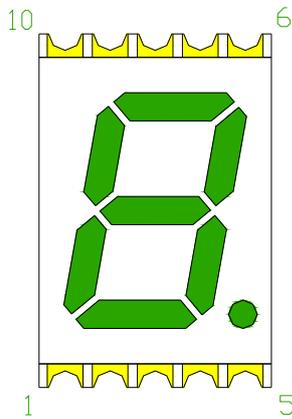
# Opto Plus LED Corp.

## 0.39" SMD Type LED Display

### OPS-S3910SPG | OPS-S3911SPG

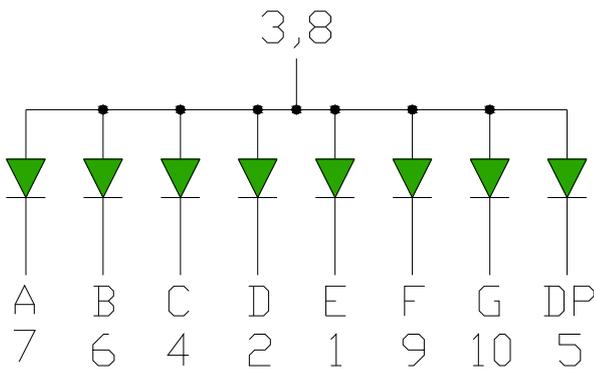
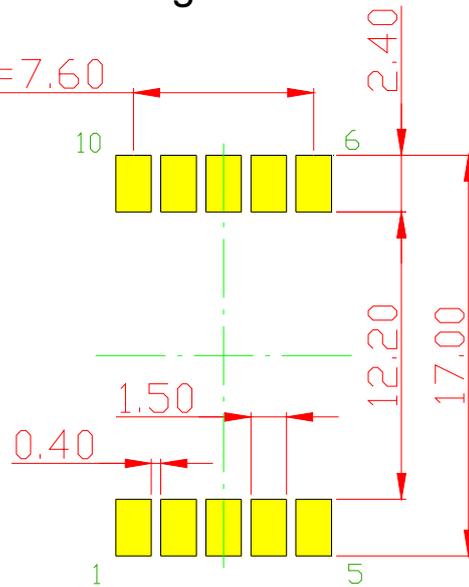
#### ● TYPICAL INTERNAL EQUIVALENT CIRCUIT

Turn On Color

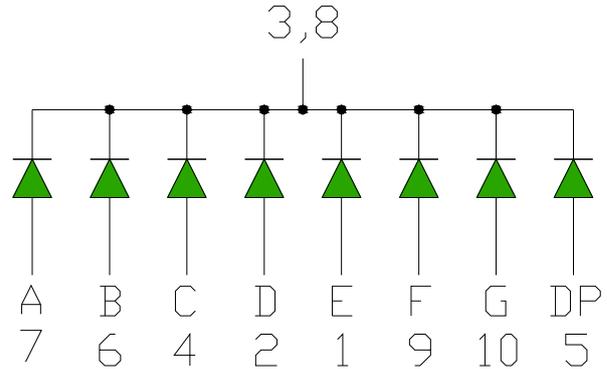


Recommended Soldering Pattern

$$1.90 \times 4 = 7.60$$



**OPS-S3910SPG**  
(Common Anode)



**OPS-S3911SPG**  
(Common Cathode)

※EMITTED COLOR : PURE GREEN



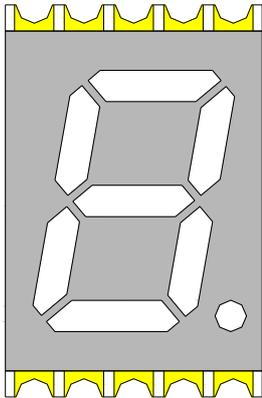
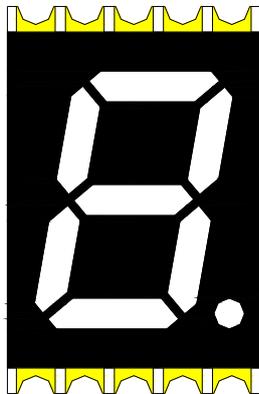
# Opto Plus LED Corp.

## 0.39" SMD Type LED Display

### OPS-S3910SPG | OPS-S3911SPG

#### ● PRODUCT APPEARANCE

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

| -GW  | -BW   |
|--|---|
|  |  |
| ※ REFLECTOR COLOR: Gray<br>※ SEGMENT COLOR: White                                  | ※ REFLECTOR COLOR: Black<br>※ 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-S3910SPG-GW | Common Anode   Gray face   White segment    |
| OPS-S3911SPG-GW | Common Cathode   Gray face   White segment  |
| OPS-S3910SPG-BW | Common Anode   Black face   White segment   |
| OPS-S3911SPG-BW | Common Cathode   Black face   White segment |



**Opto Plus LED Corp.**  
**0.39'' SMD Type LED Display**  
**OPS-S3910SPG | OPS-S3911SPG**

● **SPG: PURE GREEN (InGaN/GaN)**

ABSOLUTE MAXIMUM RATING AT Ta=25°C

| Parameter                            | Symbol    | Maximum Rating | Unit |
|--------------------------------------|-----------|----------------|------|
| Power dissipation                    | $P_{AD}$  | 90             | mW   |
| Continuous forward current           | $I_{AF}$  | 30             | mA   |
| Peak current (duty cycle 1/10, 1kHz) | $I_{PF}$  | 60             | 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)  | $V_F$           | $I_F = 20\text{mA}$ | -    | 3.0   | 3.4 | V             |
| Reverse Current, (Per Dice)  | $I_R$           | $V_R = 5\text{V}$   | -    | -     | 10  | $\mu\text{A}$ |
| Dominant Wavelength          | $\lambda_D$     | $I_F = 20\text{mA}$ | 515  | -     | 530 | nm            |
| Luminous Intensity           | $I_V$           | $I_F = 20\text{mA}$ | 285  | 373   | 460 | mcd           |
| Spectral Line Half-Bandwidth | $\Delta\lambda$ | $I_F = 20\text{mA}$ | -    | 30    | -   | nm            |



**Opto Plus LED Corp.**  
**0.39" SMD Type LED Display**  
**OPS-S3910SPG | OPS-S3911SPG**

- **SPG: BIN GRADE (Unit : mcd) 20mA**

| PURE GREEN | U | V             | W             |
|------------|---|---------------|---------------|
|            |   | 285.0 – 340.0 | 340.1 – 400.0 |

- **SPG: HUE GRADE ( $\lambda_D$  : nm)**

| 1             | 2             | 3             |
|---------------|---------------|---------------|
| 515.0 – 520.0 | 520.1 – 525.0 | 525.1 – 530.0 |

- **AVAILABLE BIN / HUE TABLE**

|    |    |    |
|----|----|----|
| U1 | V1 | W1 |
| U2 | V2 | W2 |
| U3 | V3 | W3 |



# Opto Plus LED Corp.

## 0.39" SMD Type LED Display

### OPS-S3910SPG | OPS-S3911SPG

#### ● SPG: PURE GREEN (InGaN/GaN) CURVE

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

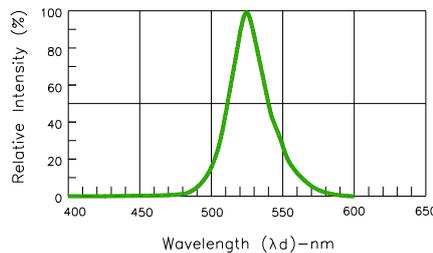


Fig.-1 Relative Intensity VS. Wavelength

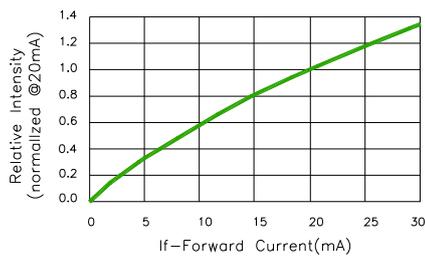


Fig.2-Relative Luminous Intensity vs. Forward Current

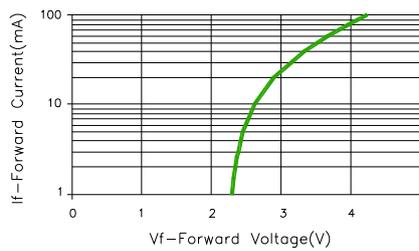


Fig.3-Forward Current vs. Forward Voltage

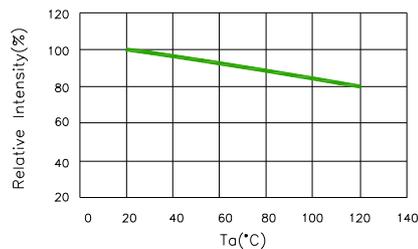


Fig.4-Relative Intensity(@20mA)VS. Ambient Temperature

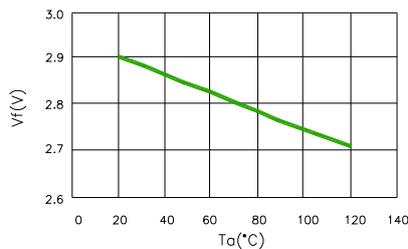


Fig.5-Forward Voltage(@20mA)VS. Ambient Temperature

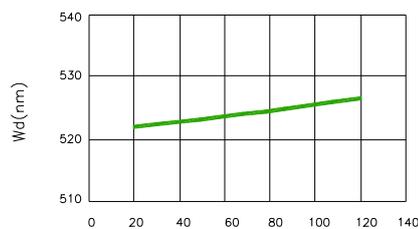


Fig.6-Dominant Wavelength(@20mA)  
VS. Ambient Temperature

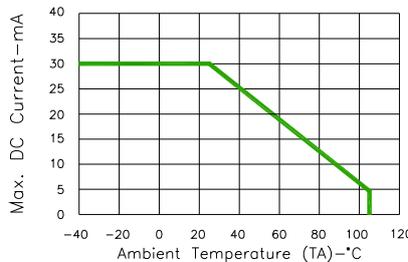


Fig.7-Max. Allowable DC Current  
VS. Ambient Temperature



[www.opledtw.com](http://www.opledtw.com)

# Opto Plus LED Corp.

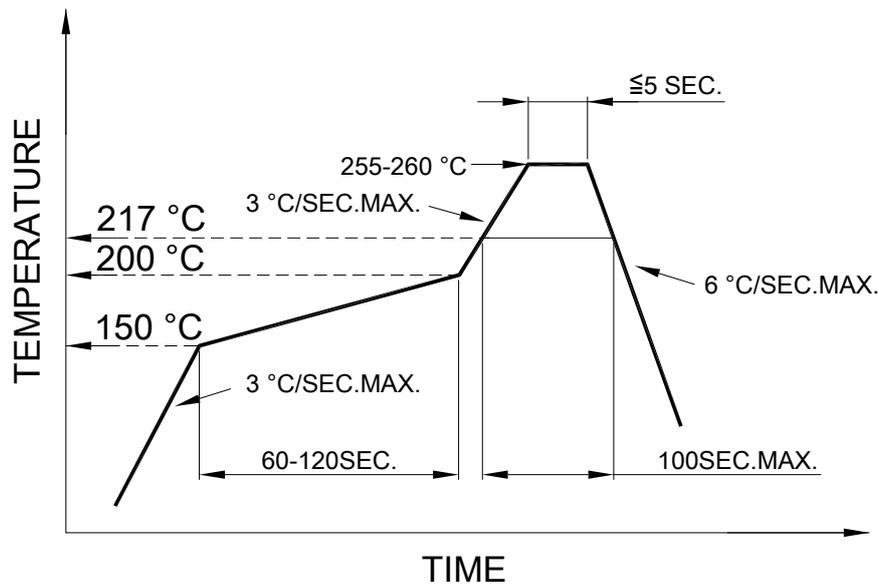
## 0.39" SMD Type LED Display

### OPS-S3910SPG | OPS-S3911SPG

#### ● 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.

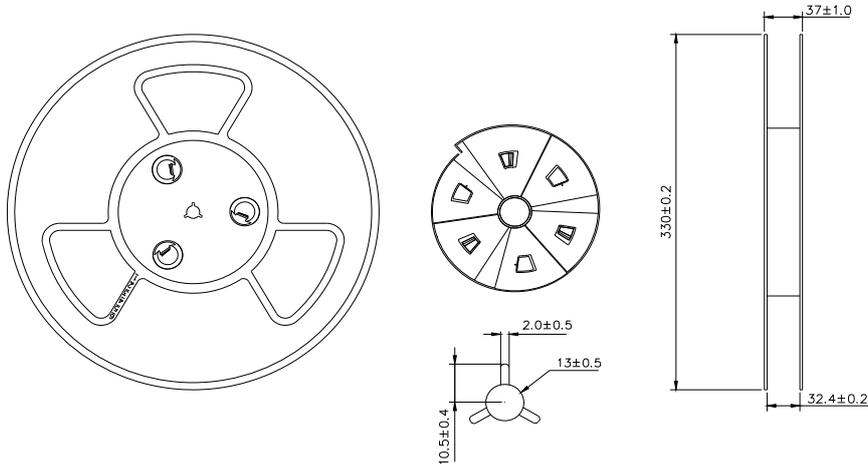


# Opto Plus LED Corp.

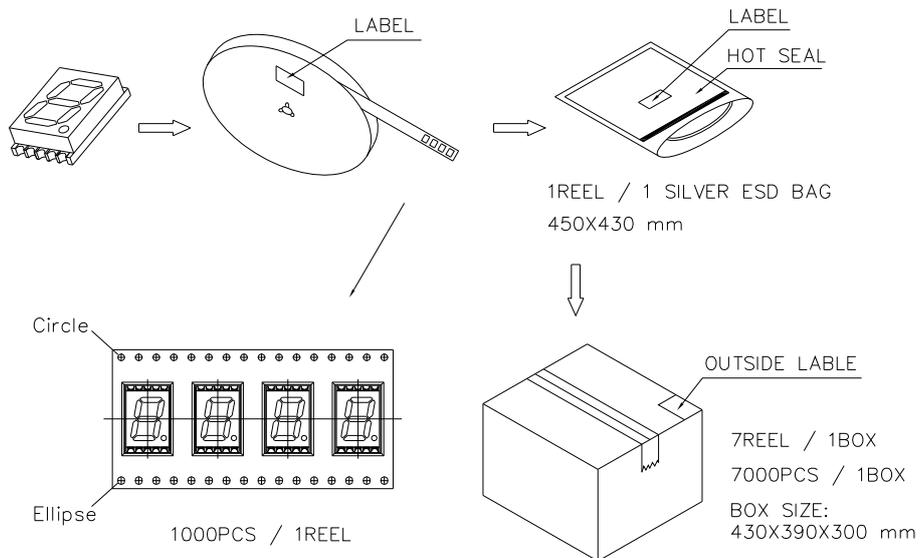
## 0.39" SMD Type LED Display

### OPS-S3910SPG | OPS-S3911SPG

#### ● REEL DIMENSIONS



#### ● PACKING & LABEL SPECIFICATIONS



#### ● STORAGE CONDITION

In factory original sealed bag package

|                       |                    |
|-----------------------|--------------------|
| TEMPERATURE CONDITION | HUMIDITY CONDITION |
| 5°C ~ 30°C            | Below 60%RH        |

After opened and not in factory original sealed bag package

|                       |                    |                                  |
|-----------------------|--------------------|----------------------------------|
| TEMPERATURE CONDITION | HUMIDITY CONDITION | STORAGE TIME                     |
| 5°C ~ 30°C            | Below 60%RH        | Within 4 weeks (MSL as level 2a) |