



**Opto Plus LED Corp.**  
**0.56" SMD Type LED Display**  
**OPS-T5610PG-GW**  
**OPS-T5611PG-GW**

● **EDIT HISTORY**

Version A: Sep. 06, 2013

Preliminary spec.

Version B: Mar. 13, 2015

Add package spec.

Version C: Jul. 09, 2015

1. Modify mechanical dimensions.
2. Add bin & hue data.

| Manufacture | Examination | Approving |
|-------------|-------------|-----------|
|             |             |           |



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● **FEATURES**

- 0.56 inch (14.20 mm) Digit Height.
- SMD type.
- Low current operation.
- Gray face, White segment.
- RoHS compliant, Pb Free.

● **DESCRIPTION**

The OPS-T5610PG-GW & OPS-T5611PG-GW are 0.56 inch (14.20mm) height Triple digit 7-segment displays.

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

The display has Gray face, White segment.

● **DEVICE**

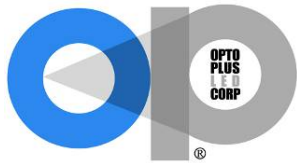
| PART NO        | DESCRIPTION    |
|----------------|----------------|
| OPS-T5610PG-GW | Common Anode   |
| OPS-T5611PG-GW | Common Cathode |

**RoHS Compliance**



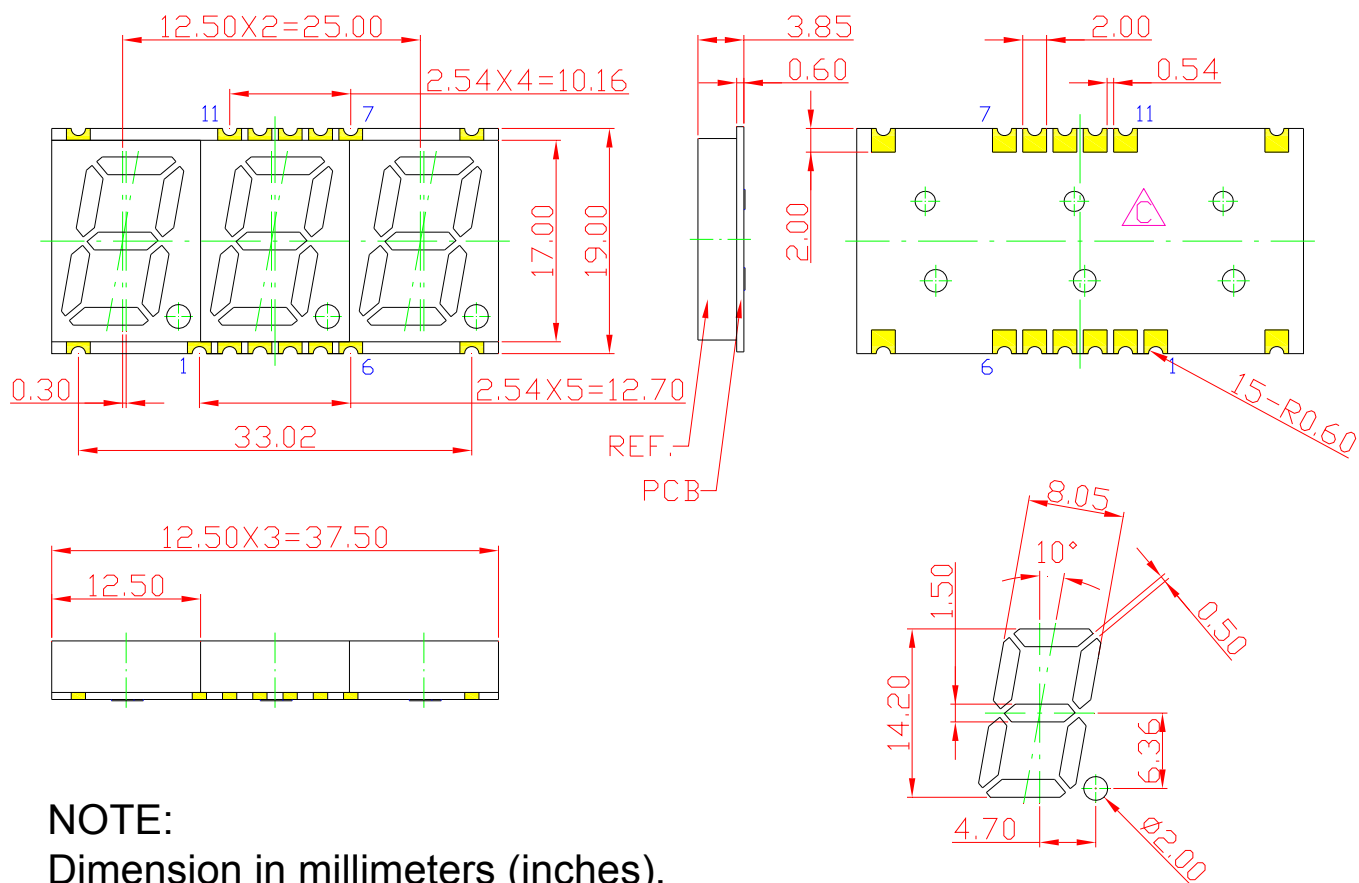
**Pb free.**





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● **MECHANICAL DIMENSIONS**



**NOTE:**

Dimension in millimeters (inches),  
 and tolerances are  $\pm 0.25\text{mm}$  (.01") specified.



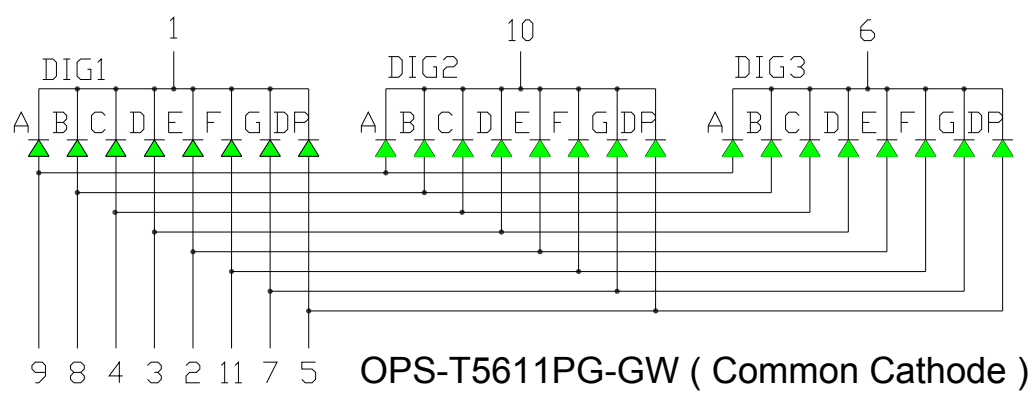
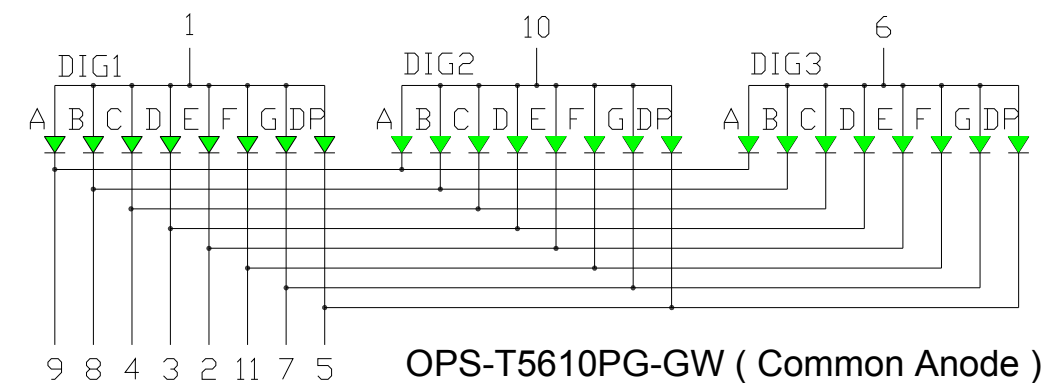
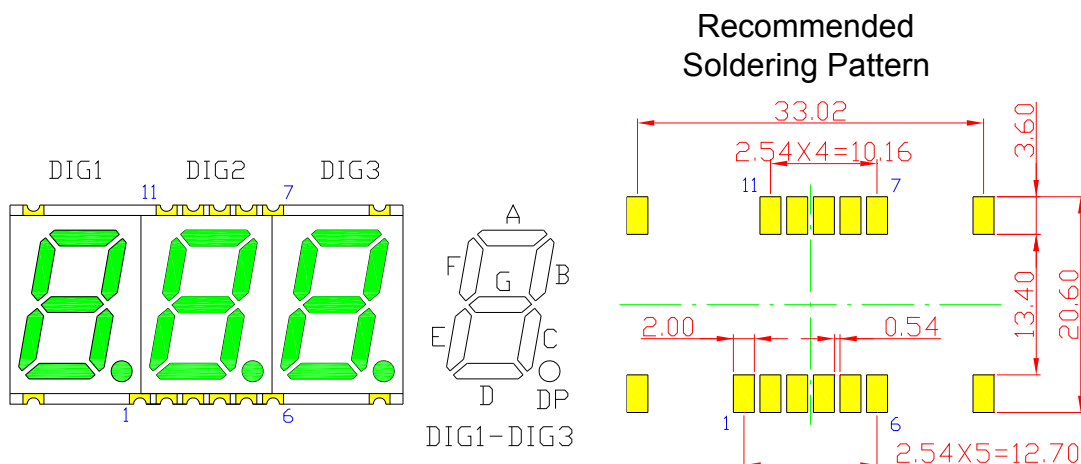
# Opto Plus LED Corp.

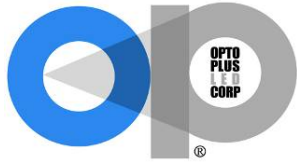
## 0.56" SMD Type LED Display

### OPS-T5610PG-GW

### OPS-T5611PG-GW

#### ● TYPICAL INTERNAL EQUIVALENT CIRCUIT





**Opto Plus LED Corp.**  
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**OPS-T5611PG-GW**

● **PG: PURE GREEN (InGaN/GaN)**

ABSOLUTE MAXIMUM RATING AT Ta=25°C

| Parameter                            | Symbol           | Maximum Rating | Unit    |
|--------------------------------------|------------------|----------------|---------|
| Power dissipation                    | P <sub>AD</sub>  | 120            | mW      |
| Derating liner from 25°C             | -                | 0.3            | mA / °C |
| Continuous forward current           | I <sub>AF</sub>  | 30             | mA      |
| Peak current (duty cycle 1/10, 1kHz) | I <sub>PF</sub>  | 100            | mA      |
| Reverse voltage                      | V <sub>R</sub>   | 5              | V       |
| Operating temperature                | T <sub>OPR</sub> | -40 to +105    | °C      |
| Storage temperature                  | T <sub>STG</sub> | -40 to +105    | °C      |

ELECTRICAL - OPTICAL CHARACTERISTICS AT Ta=25°C

| Characteristic               | Symbol         | Condition             | Min. | Type. | Max. | Unit |
|------------------------------|----------------|-----------------------|------|-------|------|------|
| Forward Voltage, (Per Dice)  | V <sub>F</sub> | I <sub>F</sub> = 20mA | -    | 3.2   | 4.0  | V    |
| Reverse Current, (Per Dice)  | I <sub>R</sub> | V <sub>R</sub> = 8V   | -    | -     | 10   | μA   |
| Dominant Wavelength          | λ <sub>D</sub> | I <sub>F</sub> = 20mA | 515  | -     | 530  | nm   |
| Luminous Intensity           | I <sub>v</sub> | I <sub>F</sub> = 20mA | 50   | -     | 130  | mcd  |
| Spectral radiation bandwidth | Δλ             | I <sub>F</sub> = 20mA | -    | 30    | -    | nm   |



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● **PG: BIN GRADE (Unit : mcd)  $I_F = 20\text{mA}$**

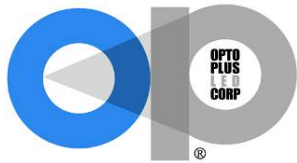
| PURE GREEN | O           | P            | Q             |
|------------|-------------|--------------|---------------|
|            | 50.0 – 75.0 | 75.1 – 100.0 | 100.1 – 130.0 |

● **PG: HUE GRADE ( $\lambda_D$  : nm)**

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

● **AVAILABLE BIN / HUE TABLE**

|    |    |    |
|----|----|----|
| O1 | P1 | Q1 |
| O2 | P2 | Q2 |
| O3 | P3 | Q3 |



# Opto Plus LED Corp.

## 0.56'' SMD Type LED Display

### OPS-T5610PG-GW

### OPS-T5611PG-GW

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

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

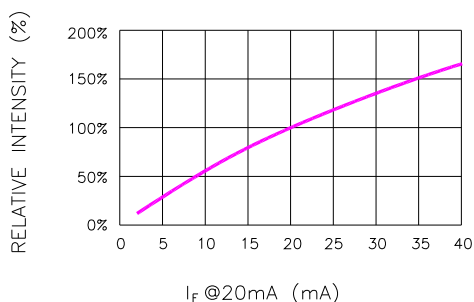


Fig.1 RELATIVE INTENSITY VS. FORWARD CURRENT

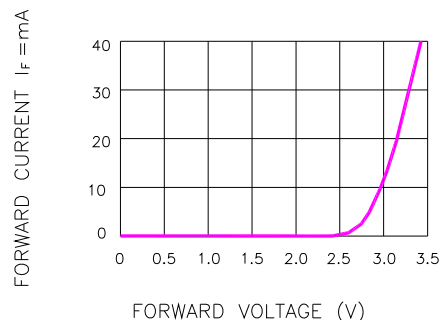


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

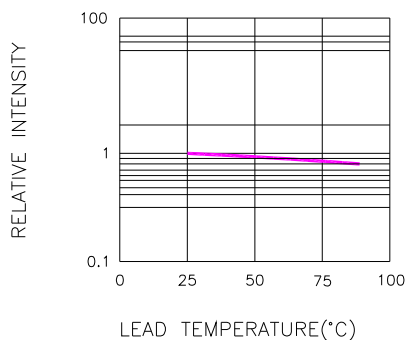


Fig.3 RELATIVE INTENSITY VS. LEAD TEMPERATURE  
(PULSED 20 mA; 300us PULSE, 10ms PERIOD)

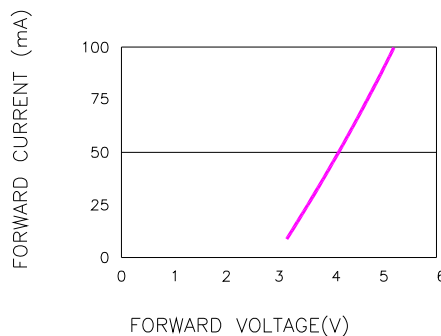


Fig.4 PEAK FORWARD VOLTAGE VS. FORWARD CURRENT  
(100us TEST PULSE, 1% DUTY CYCLE)

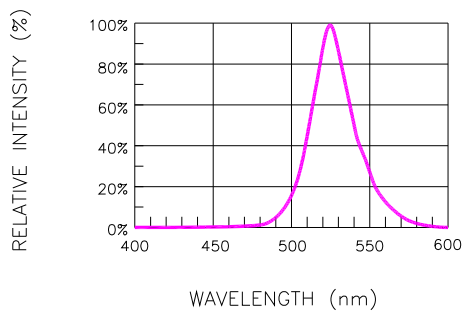


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

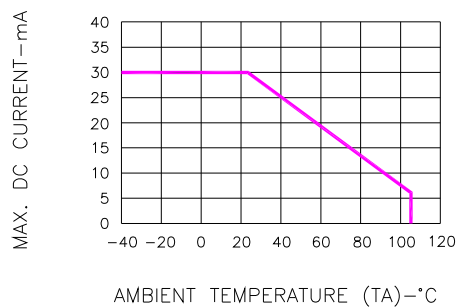


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE

Version: C Date: 07/09/2015

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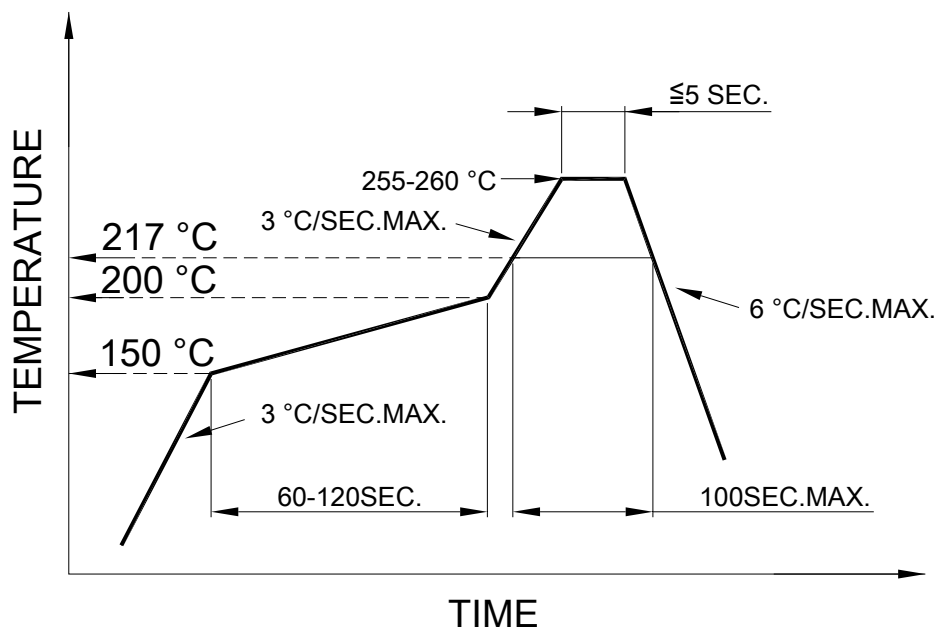


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● **SMT REFLOW SOLDERING INSTRUCTIONS**

SMT Soldering Profile

Pb free reflow soldering Profile



● **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**

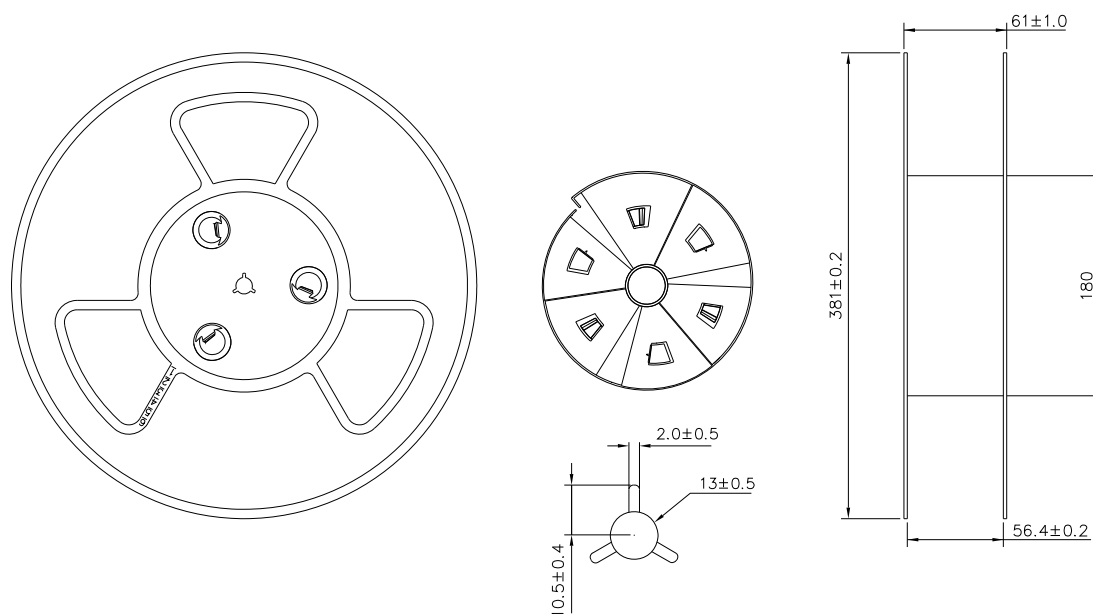
Customer must finish rework within 3 sec. under 350°C.  
The head of soldering iron cannot touch copper foil.





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● **REEL DIMENSIONS**



● **PACKING & LABEL SPECIFICATIONS**

