# Opto Plus LED Corp.
# 0.56” SMD Type LED Display
# OPS-T5610LR-GW
# OPS-T5611LR-GW

## EDIT HISTORY

Version A: Mar. 13, 2015

Preliminary spec.

Version B: Mar. 19, 2015

Modify IV type data, from 4mcd to 12mcd.

Version C: Oct. 21, 2015

Add bin & hue data.

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


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# 0.56” SMD Type LED Display
# OPS-T5610LR-GW
# OPS-T5611LR-GW

## 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-T5610LR-GW & OPS-T5611LR-GW are 0.56 inch (14.20mm) height Triple digits 7-segment display.

This device utilizes Super Red LED chip which are made from AlGaInP On a transparent GaAs, substrate.

The display has Gray face, White segment.

## DEVICE

| PART NO | DESCRIPTION |
|---|---|
| OPS-T5610LR-GW | Common Anode |
| OPS-T5611LR-GW | Common Cathode |

**RoHS Compliance** **Pb free.**

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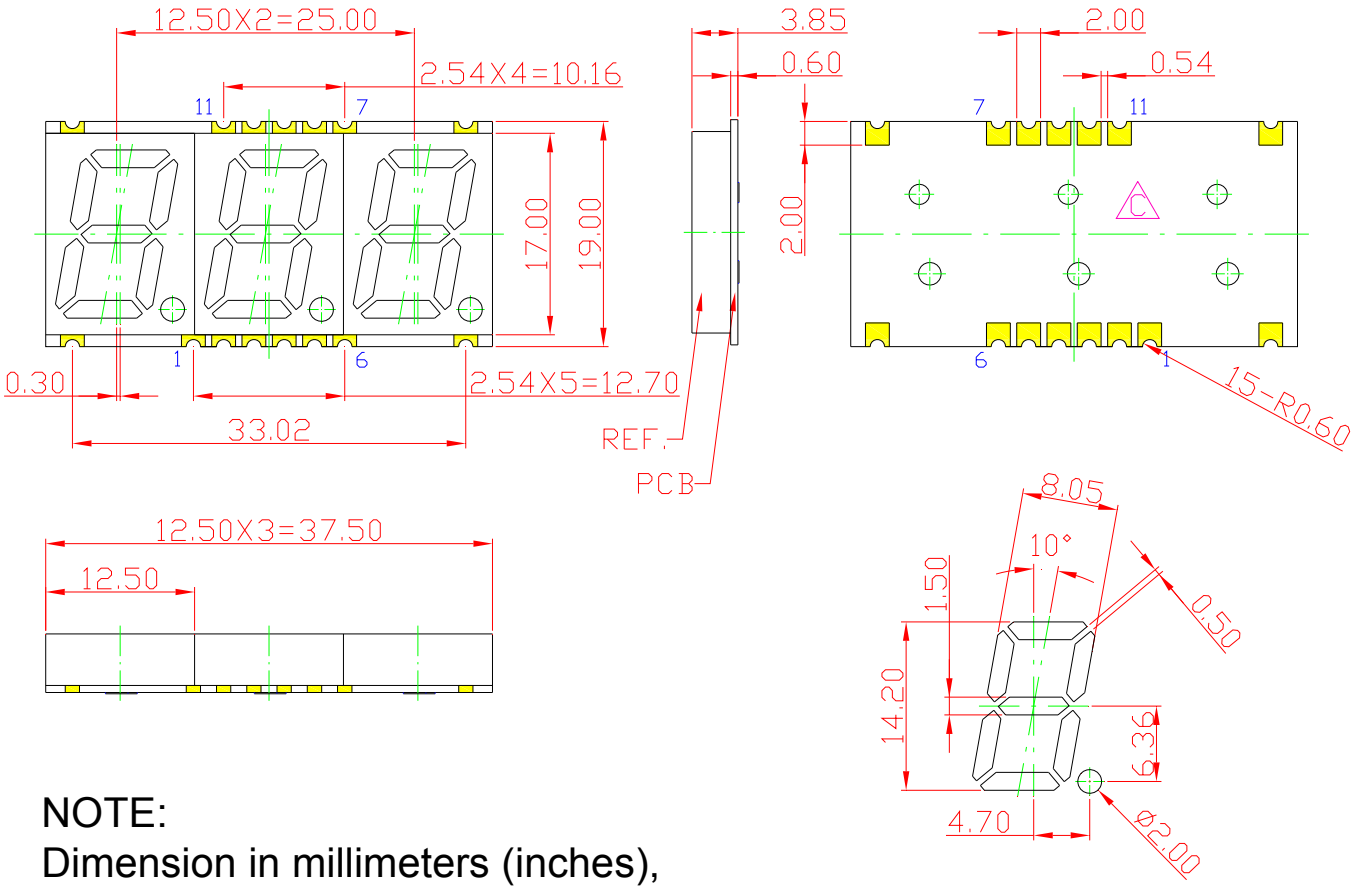
## ● MECHANICAL DIMENSIONS




NOTE:
Dimension in millimeters (inches),
and tolerances are ± 0.25mm (.01") specified.



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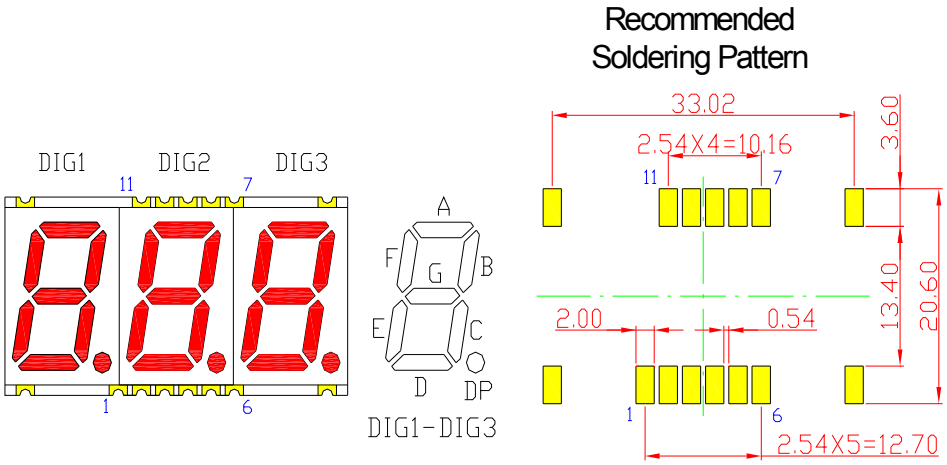
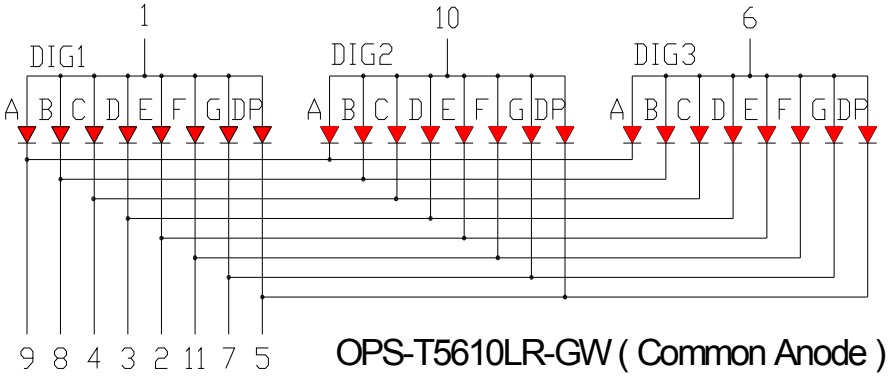
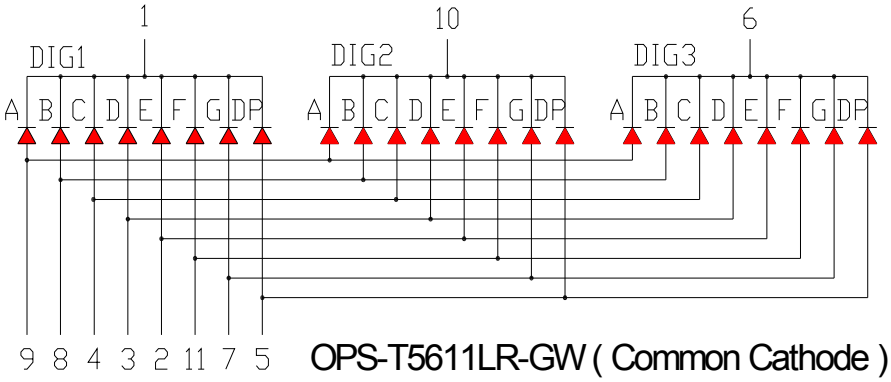
## ● TYPICAL INTERNAL EQUIVALENT CIRCUIT



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## ● LR: SUPER RED (AlGaInP/GaAs)

ABSOLUTE MAXIMUM RATING AT Ta=25ºC

| Parameter | Symbol | Maximum Rating | Unit |
|---|---|---|---|
| Power dissipation | $P_{AD}$ | 75 | mW |
| Derating liner from 25°C | - | 0.3 | mA / °C |
| Continuous forward current | $I_{AF}$ | 30 | mA |
| Peak current (duty cycle 1/10, 1kHz) | $I_{PF}$ | 100 | 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=25ºC

| Characteristic | Symbol | Condition | Min. | Type. | Max. | Unit |
|---|---|---|---|---|---|---|
| Forward Voltage, (Per Dice) | $V_F$ | $I_F$ =20mA | - | 2.0 | 2.6 | V |
| Reverse Current, (Per Dice) | $I_R$ | $V_R$ =5V | - | - | 10 | μA |
| Peak Wavelength | $\lambda_P$ | $I_F$ =20mA | - | 650 | - | nm |
| Dominant Wavelength | $\lambda_D$ | $I_F$ =20mA | - | 640 | - | nm |
| Luminous Intensity | $I_V$ | $I_F$ =20mA | 2 | - | 20 | mcd |
| Spectral radiation bandwidth | $\Delta\lambda$ | $I_F$ =20mA | - | 20 | - | nm |

## LR: BIN GRADE (Unit : mcd) 20mA

| Super Red | H | I | J |
|---|---|---|---|
| | 2.0 - 6.0 | 6.1 - 10.0 | 10.1 - 20.0 |

## LR: HUE GRADE ($\lambda_D$ : nm)

| 1 | 2 | 3 |
|---|---|---|
| 636.0 – 640.0 | 640.1 – 643.0 | 643.1 – 646.0 |

## AVAILABLE BIN / HUE TABLE

| | | |
|---|---|---|
| H1 | I1 | J1 |
| H2 | I2 | J2 |
| H3 | I3 | J3 |

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

Typical Electro-optical Characteristic Curves

(25 ℃ Free Air Temperature Unless Otherwise Specified)

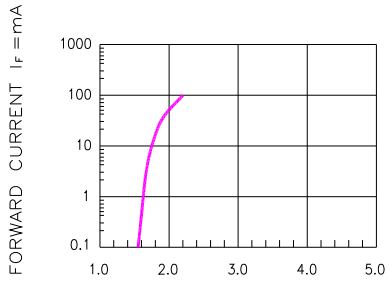


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

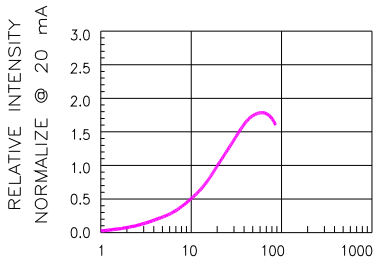


Fig.2 RELATIVE INTENSITY VS. FORWARD CURRENT

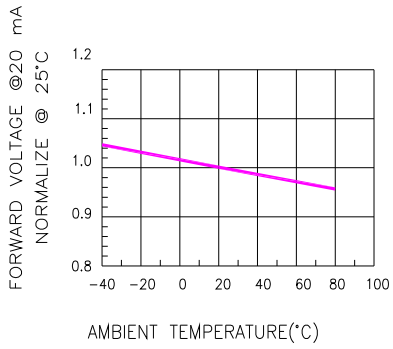


Fig.3 FORWARD VOLTAGE VS. TEMPERATURE

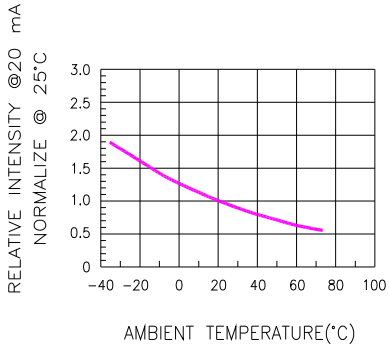


Fig.4 RELATIVE INTENSITY VS. TEMPERATURE

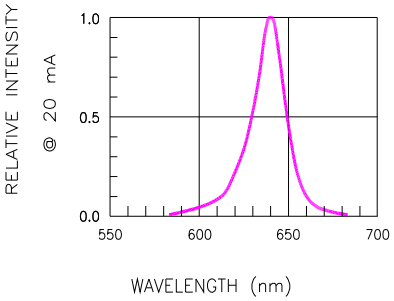


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

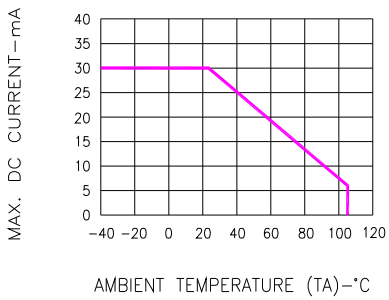


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE



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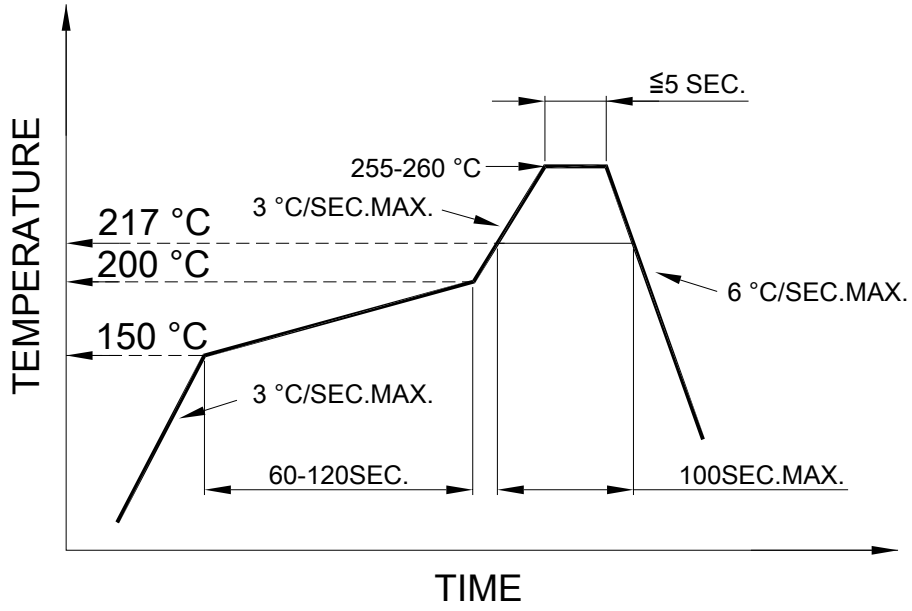
## RECOMMEND SOLDERING PROFILE

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 ≦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℃.
- The head of soldering iron cannot touch copper foil.

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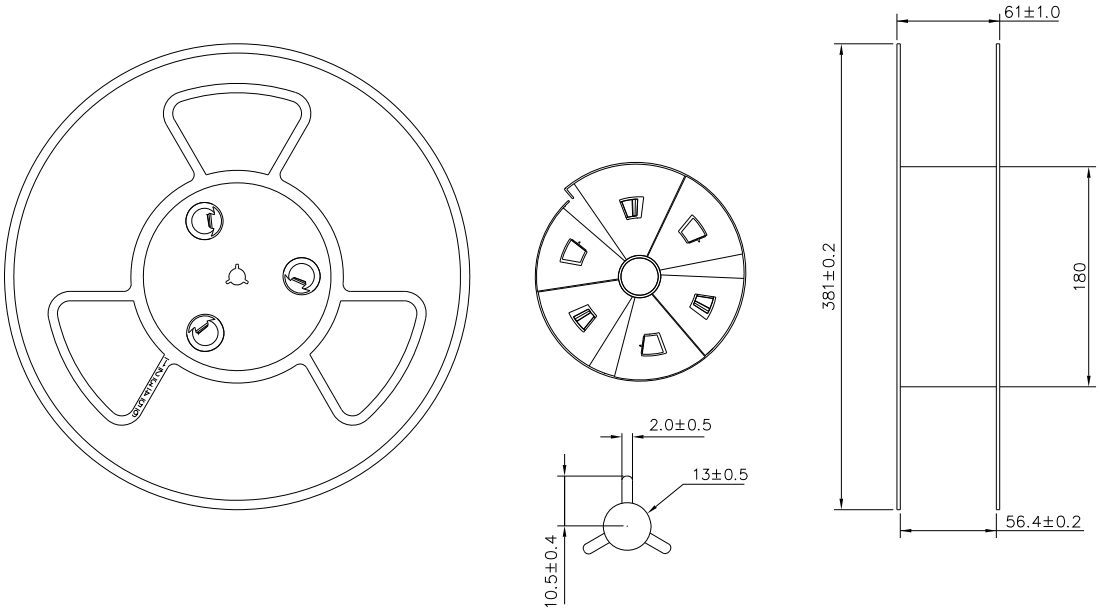
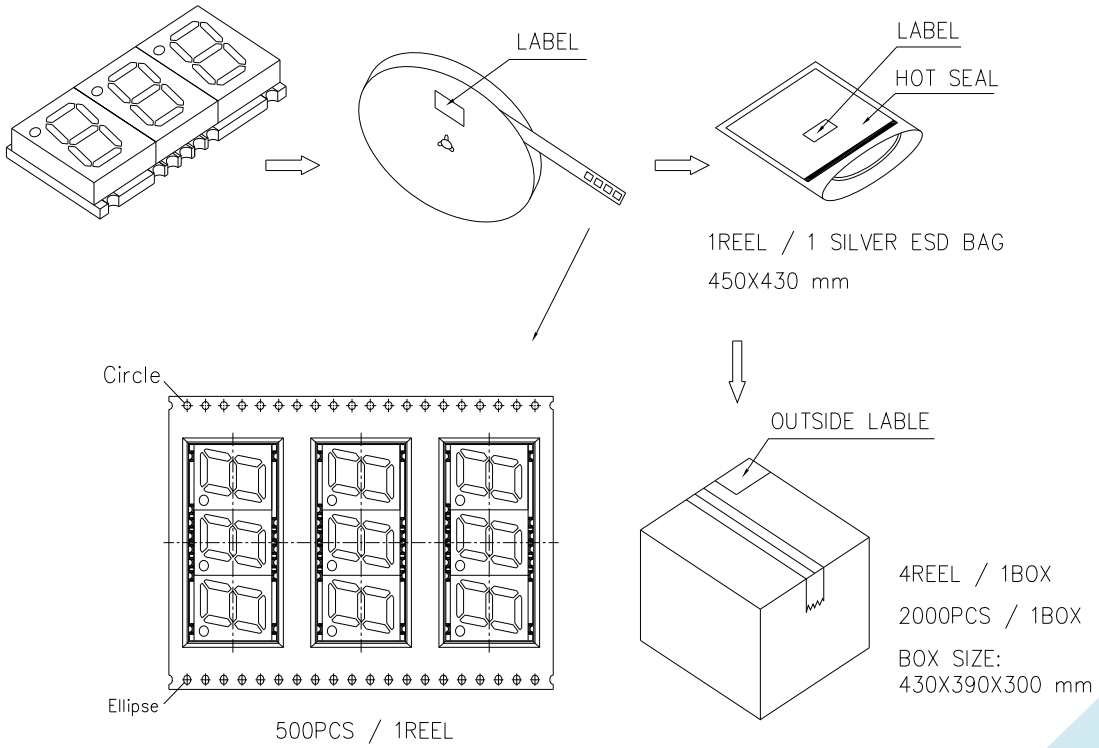
## ● REEL DIMENSIONS




## ● PACKING & LABEL SPECIFICATIONS



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