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**Opto Plus LED Corp.**  
**Case Mold Type LED Display**  
**OPD-V1515PG-PD-BW**

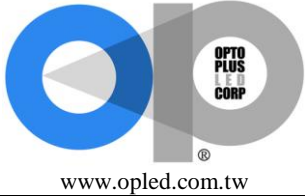
● **EDIT HISTORY**

Version A: Nov.18, 2017

Preliminary Spec.

Version B: Feb.26, 2018

Add Package.



# Opto Plus LED Corp. Case Mold Type LED Display OPD-V1515PG-PD-BW

## ● FEATURES

- Excellent character appearance.
- Case mold type.
- Touch pad.
- Black face (overlay) / White segment.
- RoHS compliant, Pb Free.

## ● DESCRIPTION

The OPD-V1515PG-PD-BW is a Touch Pad with 15.0 mm X 15.0 mm icon LED display. This device utilizes Pure Green LED chip which are made from InGaN on a transparent GaN substrate. The display has Black face (overlay), White segment. This mold of display is attached with overlay.

## ● DEVICE

PART NO.	DESCRIPTION
OPD-V1515PG-PD-BW	Touch pad with LED Display

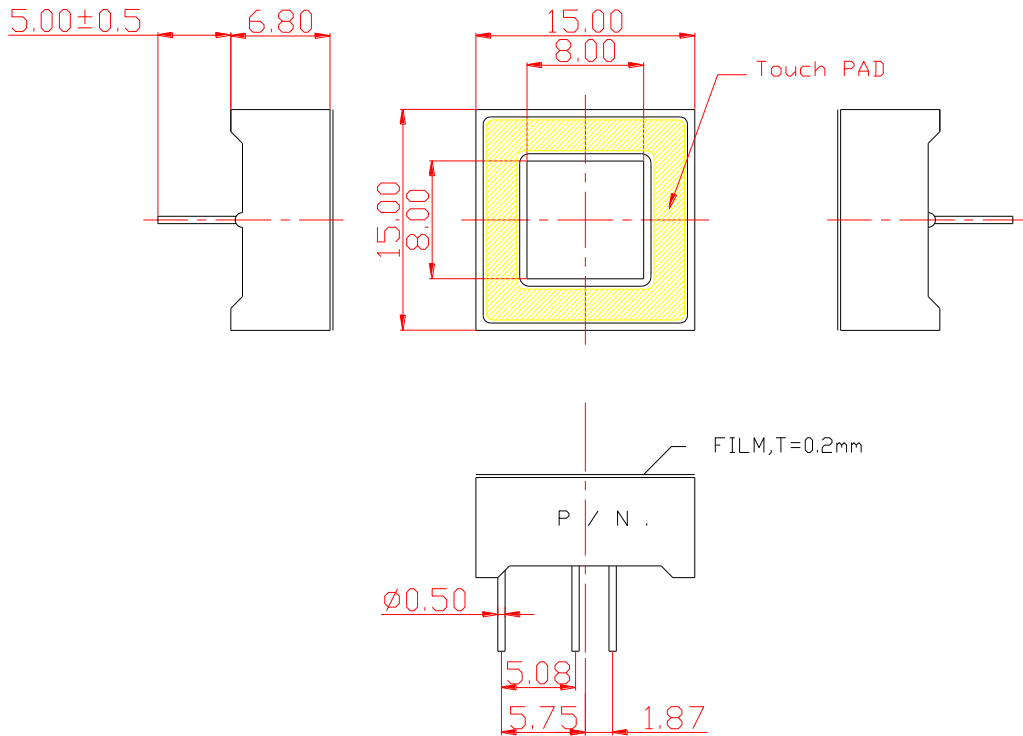
### RoHS Compliance



### Pb free.

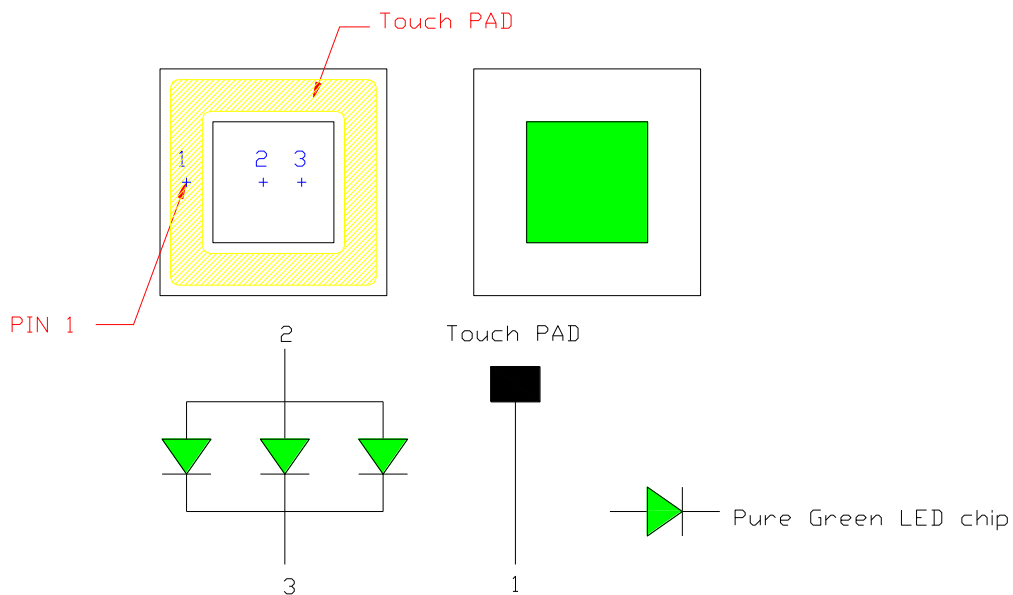


### ● MECHANICAL DIMENSIONS

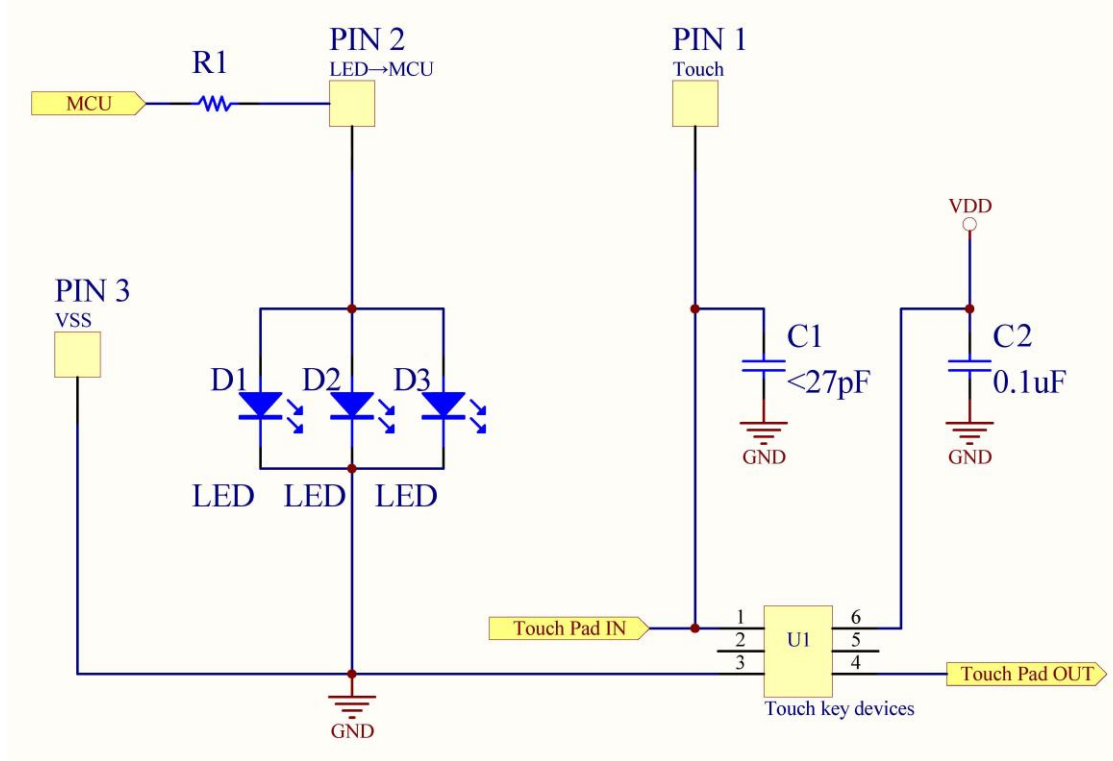


Dimension in millimeters (inches), and tolerances are  $\pm 0.25\text{mm}$  (.01") specified.

### ● TYPICAL INTERNAL EQUIVALENT CIRCUIT

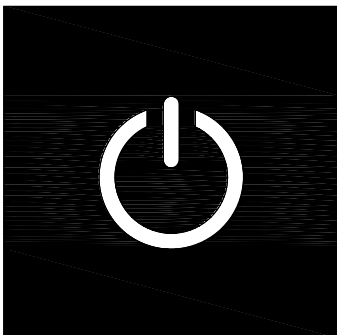


## ● Application Circuits



INTERNAL COMPONENTS , NOT CUSTOMER ACCESSINLE.

## ● FILM





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## ● PG: PURE GREEN (InGaN/GaN)

ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Pure Green	Unit
Power dissipation per dice	P <sub>AD</sub>	120	mW
Derating liner from 25°C per dice	-	0.3	mA / °C
Continuous forward current per dice	I <sub>AF</sub>	30	mA
Peak current per dice (duty cycle 1/10, 1kHz)	I <sub>PF</sub>	100	mA
Reverse voltage per dice	V <sub>R</sub>	5	V
Operating temperature	T <sub>OPR</sub>	-25 to +85	°C
Storage temperature	T <sub>STG</sub>	-25 to +85	°C

ELECTRICAL - OPTICAL CHARACTERISTICS AT Ta=25°C

Characteristic	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward voltage	V <sub>F</sub>	I <sub>F</sub> =20mA	-	3.2	4.0	V
Reverse current	I <sub>R</sub>	V <sub>R</sub> =8V	-	-	10	μA
Dominant wavelength	λ <sub>D</sub>	I <sub>F</sub> =20mA	-	525	-	nm
Luminous intensity	I <sub>v</sub>	I <sub>F</sub> =20mA	-	90	-	mcd
Spectral radiation bandwidth	Δλ	I <sub>F</sub> =20mA	-	30	-	nm

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

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

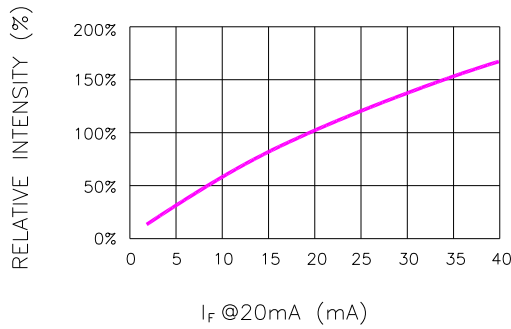


Fig.1 RELATIVE INTENSITY VS. FORWARD CURRENT

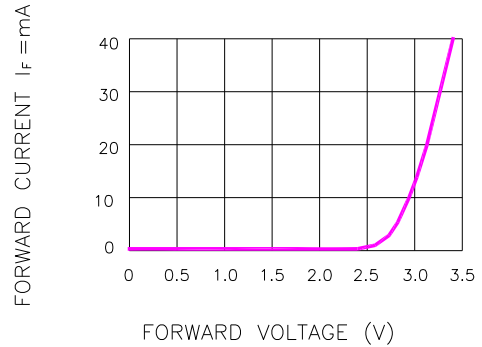


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

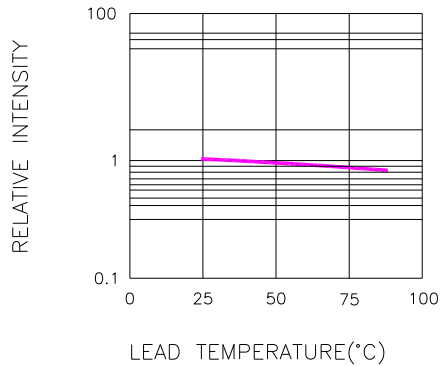


Fig.3 RELATIVE INTENSITY VS. LEAD TEMPERATURE  
(PULSED 20 mA; 300us PULSE, 10ms PERIOD)

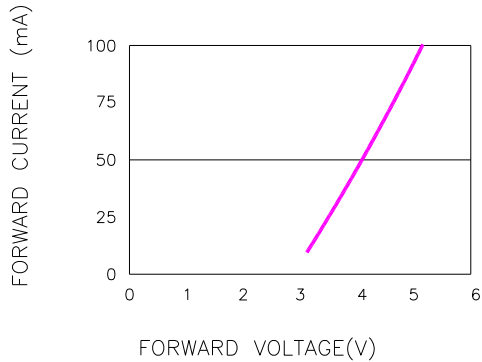


Fig.4 PEAK FORWARD VOLTAGE VS. FORWARD CURRENT  
(100us TEST PULSE, 1% DUTY CYCLE)

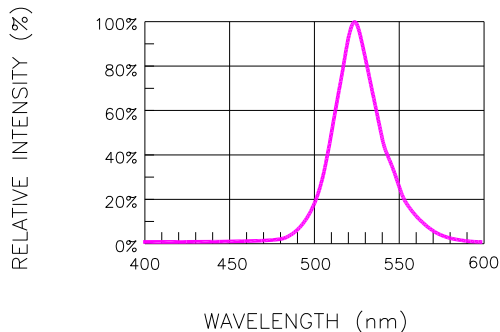


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

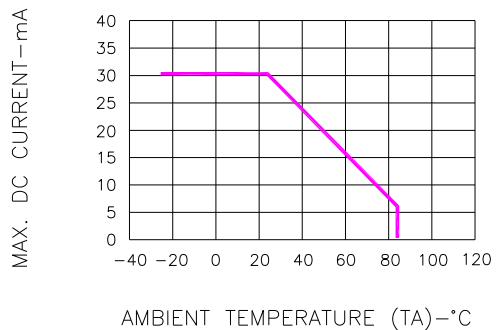
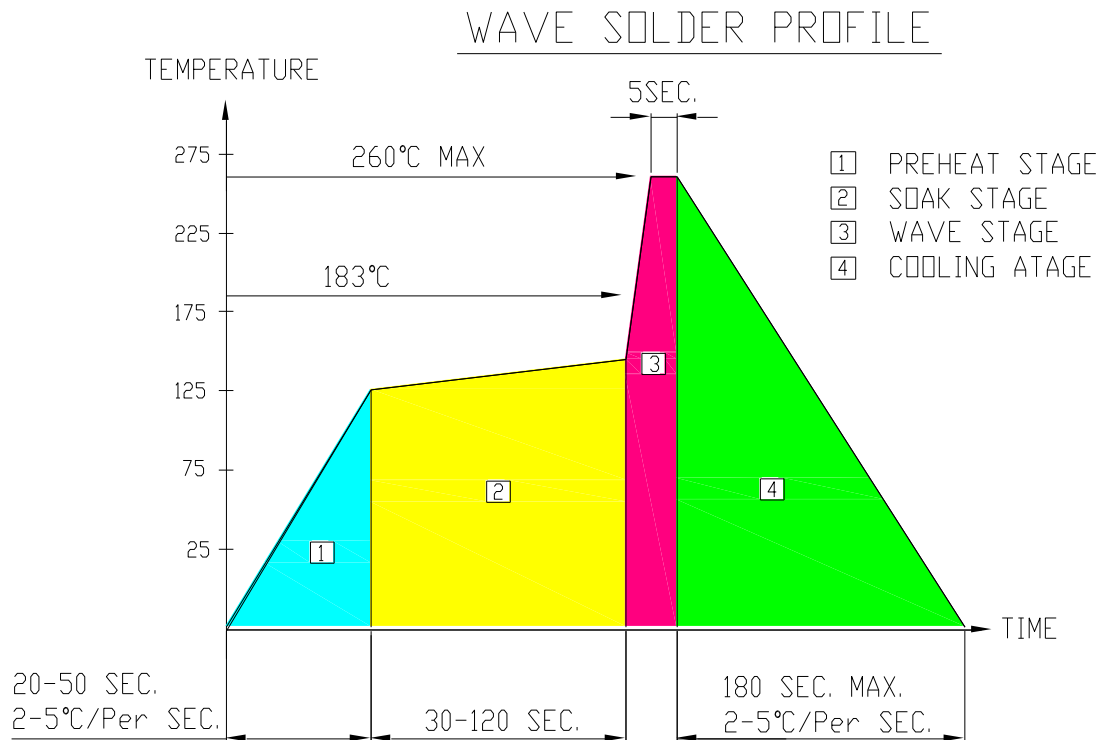


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE

● **RECOMMEND SOLDERING 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.



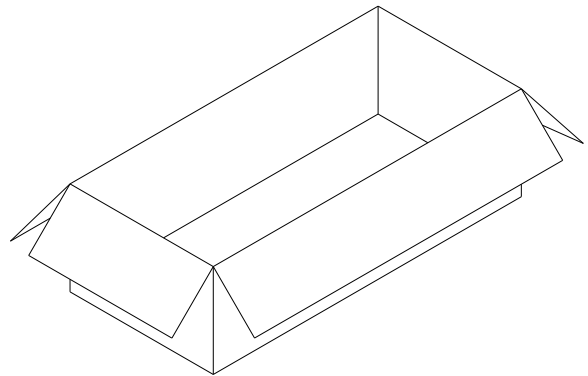
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## ● PACKAGE DIMENSIONS

<1> 32 PCS / 1 NIXIE TUBE

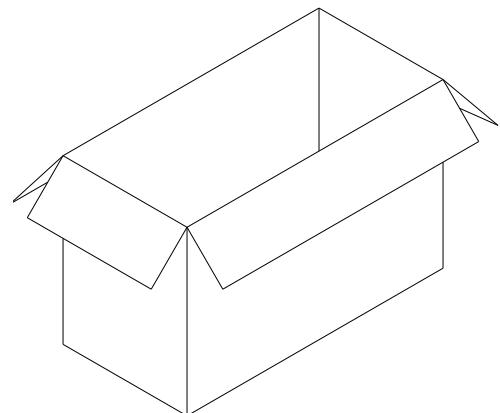


<2> 4576 PCS / 143 (13X11) NIXIE TUBE / 1 INNER CARTON



INNER BOX SIZE : 522 x 240 x 175 mm

<3> 9152 PCS / 286 NIXIE TUBE / 2 INNER CARTON / 1 OUTER CARTON



INNER BOX SIZE : 540 x 255 x 380 mm