



**American Opto Plus LED Corp.**  
**SMD Type LED Display**  
**SMA-B500PG B/W**

● **EDIT HISTORY**

Version A: Nov. 26, 2013

Preliminary spec.

Version B: Jul. 29, 2014

Change P/N to SMA-B500PG B/W.



# American Opto Plus LED Corp.

## SMD Type LED Display

### SMA-B500PG B/W

#### ● FEATURES

- Bar graph display.
- Excellent character appearance.
- Wide viewing angle.
- Black face, white bar.
- Super Thin SMD Type.
- RoHS compliant, Pb Free.

#### ● DESCRIPTION

The SMA B500PG B/W is a rectangular bar graph display.

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

The display has Black face and white bars.

#### ● DEVICE

PART NO	DESCRIPTION
Pure Green	Common Anode
SMA B500PG B/W	

**RoHS Compliance**



**Pb free.**



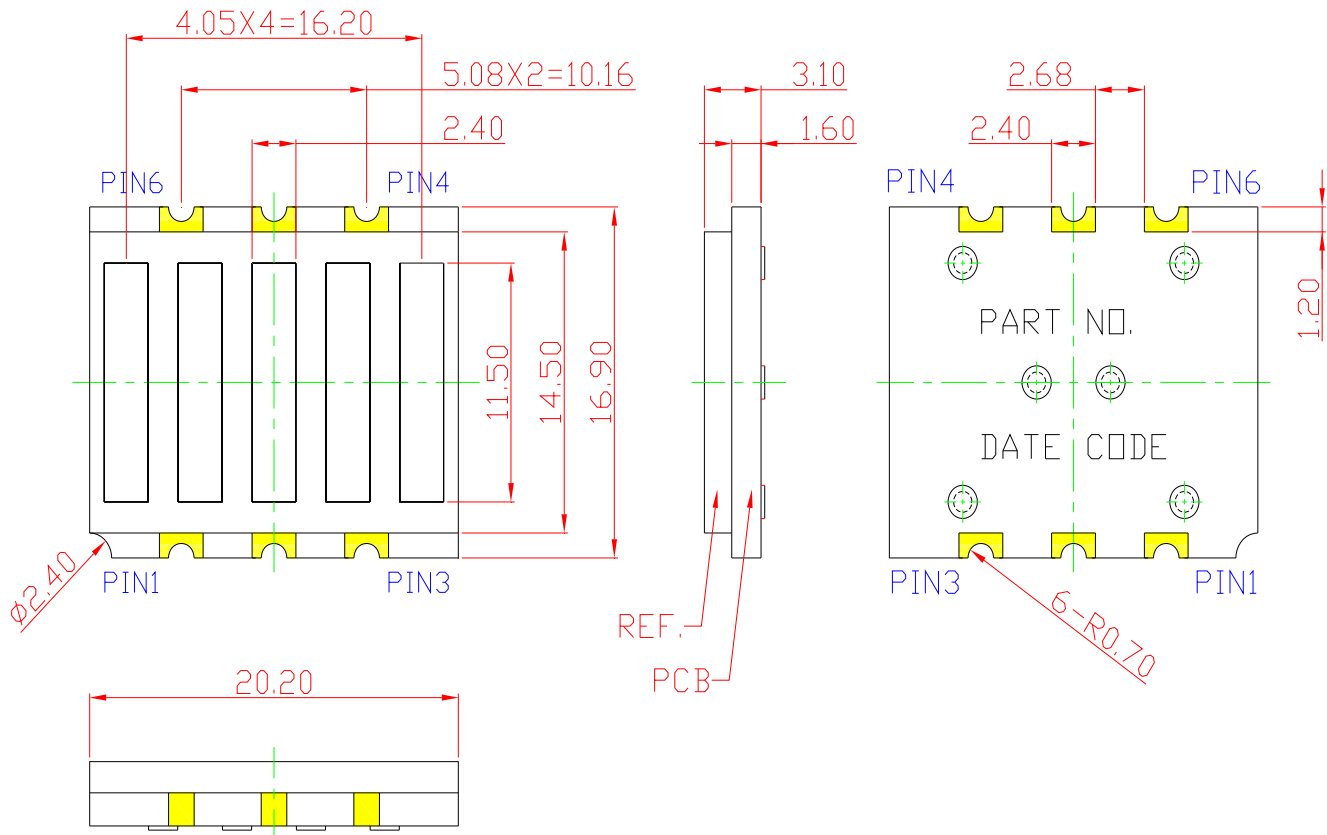


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#### ● MECHANICAL DIMENSIONS



#### NOTE:

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



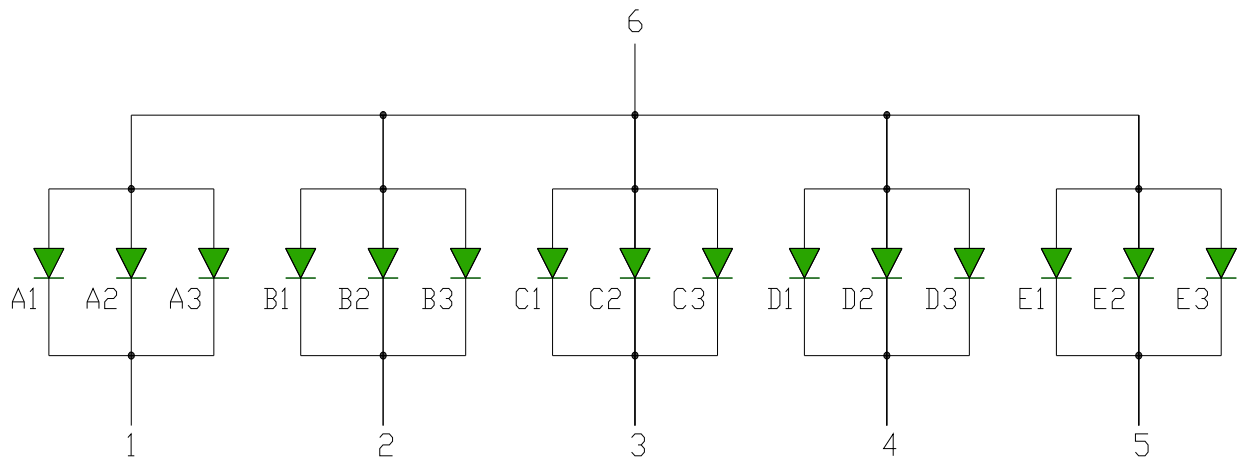
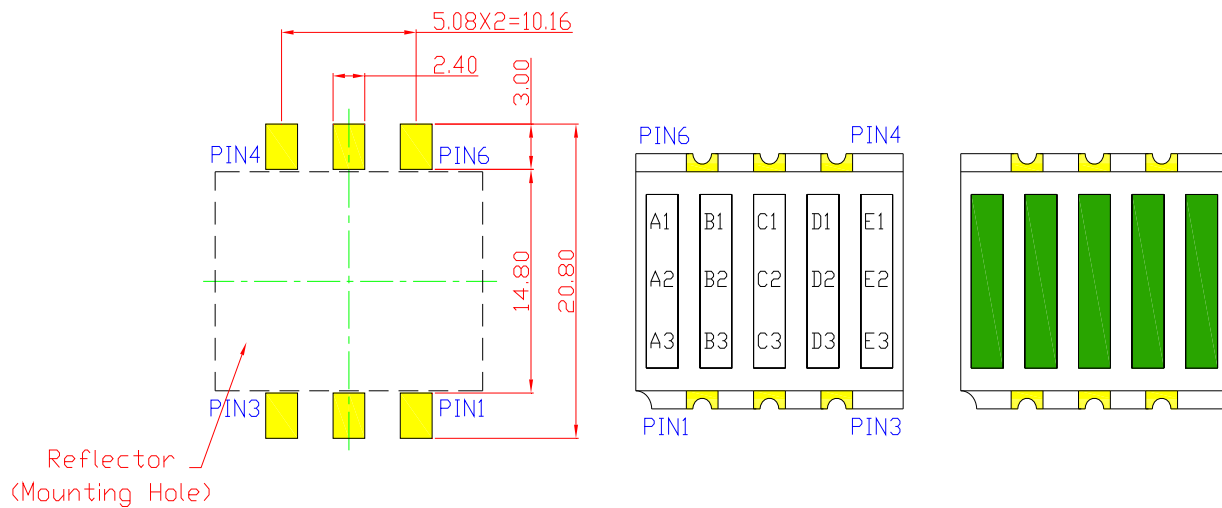
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#### ● INTERNAL CIRCUIT DIAGRAM PIN CONNECTION

Recommended  
Reverse Mount  
Solder Pattern





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#### ● 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	-	525	-	nm
Luminous Intensity	I <sub>V</sub>	I <sub>F</sub> =20mA	-	120	-	mcd
Spectral radiation bandwidth	Δλ	I <sub>F</sub> =20mA	-	30	-	nm



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### SMA-B500PG B/W

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

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

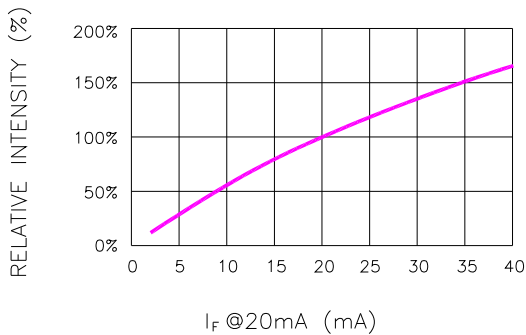


Fig.1 RELATIVE INTENSITY VS. FORWARD CURRENT

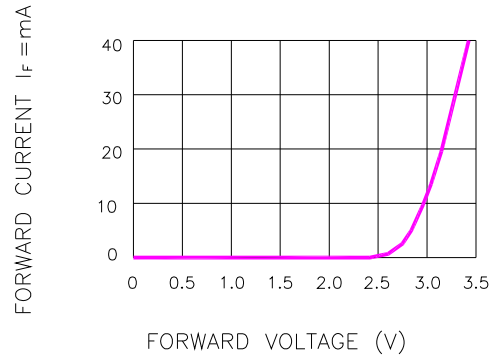


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

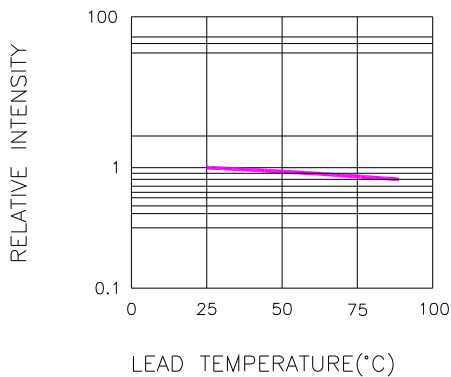


Fig.3 RELATIVE INTENSITY VS. LEAD TEMPERATURE  
(PULSED 20 mA; 300us PULSE, 10ms PERIOD)

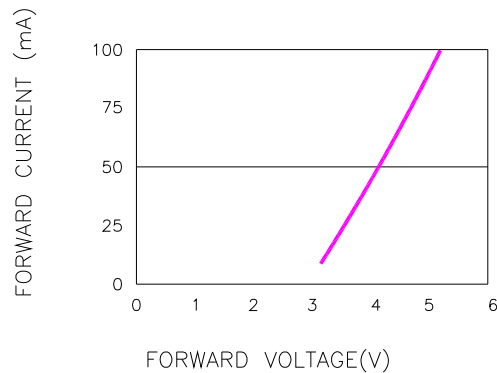


Fig.4 PEAK FORWARD VOLTAGE VS. FORWARD (100us TEST PULSE, 1% DUTY CYCLE)

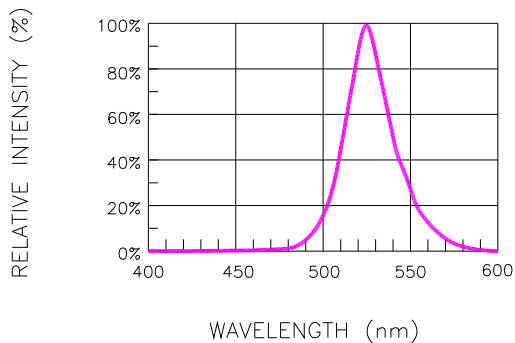


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

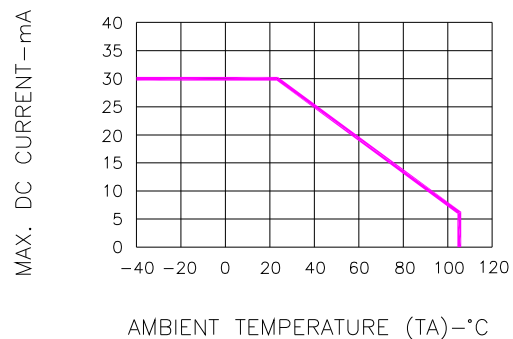


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE



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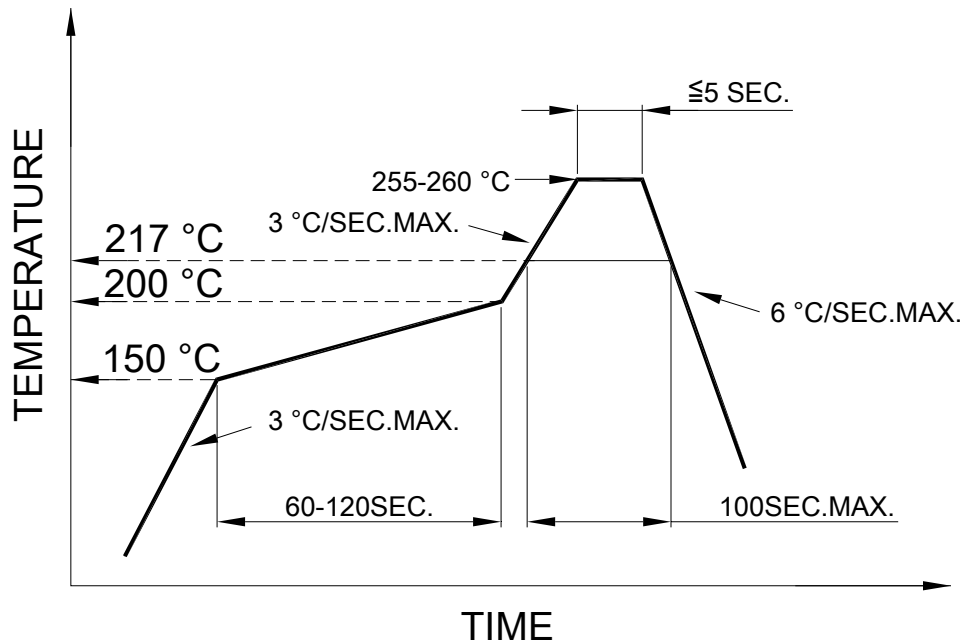
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#### ● SMT REFLOW SOLDERING INSTRUCTIONS

SMT Soldering Profile

Pb free reflow soldering Profile



#### ● SOLDERING IRON

Basic spec is  $\leq 4$  sec when  $260^{\circ}\text{C}$ . If temperature is higher, time should be shorter ( $+10^{\circ}\text{C} \rightarrow 1$  sec). Power dissipation of Iron should be smaller than 15W, and temperature should be controllable. Surface temperature of the device should be under  $230^{\circ}\text{C}$ .

#### ● REWORK

- Customer must finish rework within 3 sec. under  $350^{\circ}\text{C}$ .
- The head of soldering iron cannot touch copper foil.

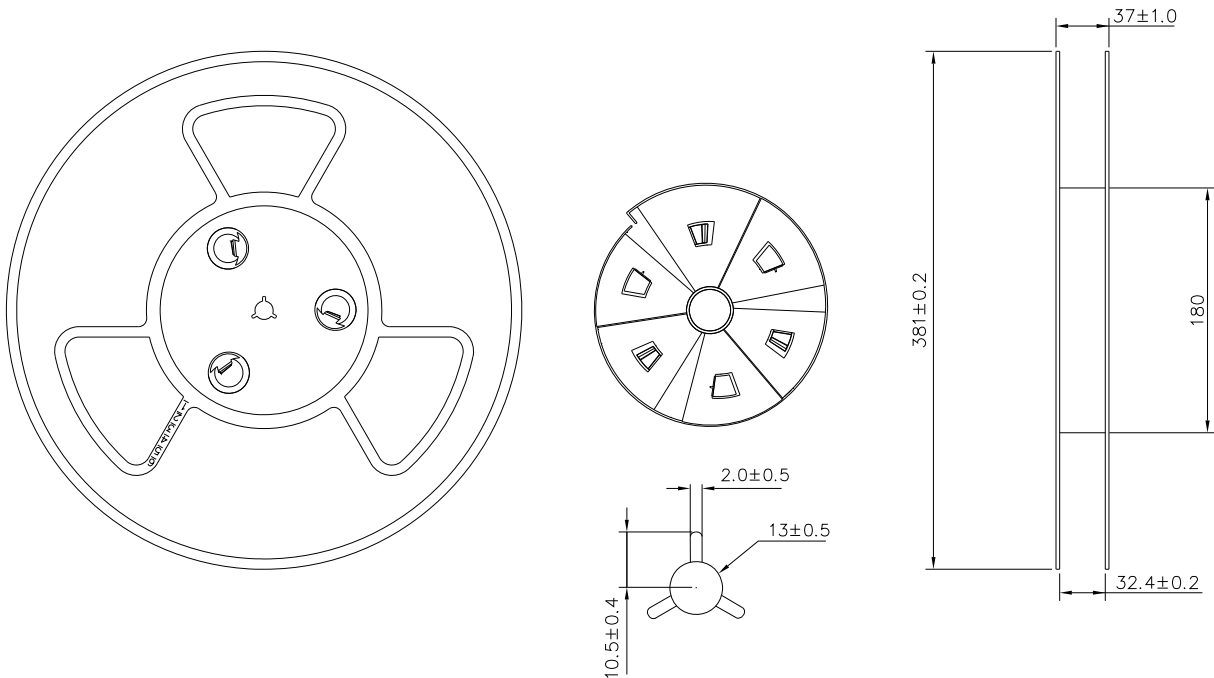


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#### ● REEL DIMENSIONS



#### ● PACKING & LABEL SPECIFICATIONS

