



**American Opto Plus LED Corp.**  
**SMD Type LED Display**  
**SMA-B500LB G/W**

● **EDIT HISTORY**

Version A: Nov. 26, 2013

Preliminary spec.



# American Opto Plus LED Corp.

## SMD Type LED Display

### SMA-B500LB G/W

#### ● FEATURES

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

#### ● DESCRIPTION

The SMA-B500LB G/W is a rectangular bar graph display.

This device utilizes Super Bright Blue LED chip which are made from InGaN on a transparent GaN substrate.

The display has Gray face and white bars.

#### ● DEVICE

PART NO	DESCRIPTION
Super Bright Blue	Common Anode
SMA-B500LB G/W	

**RoHS Compliance**



**Pb free.**



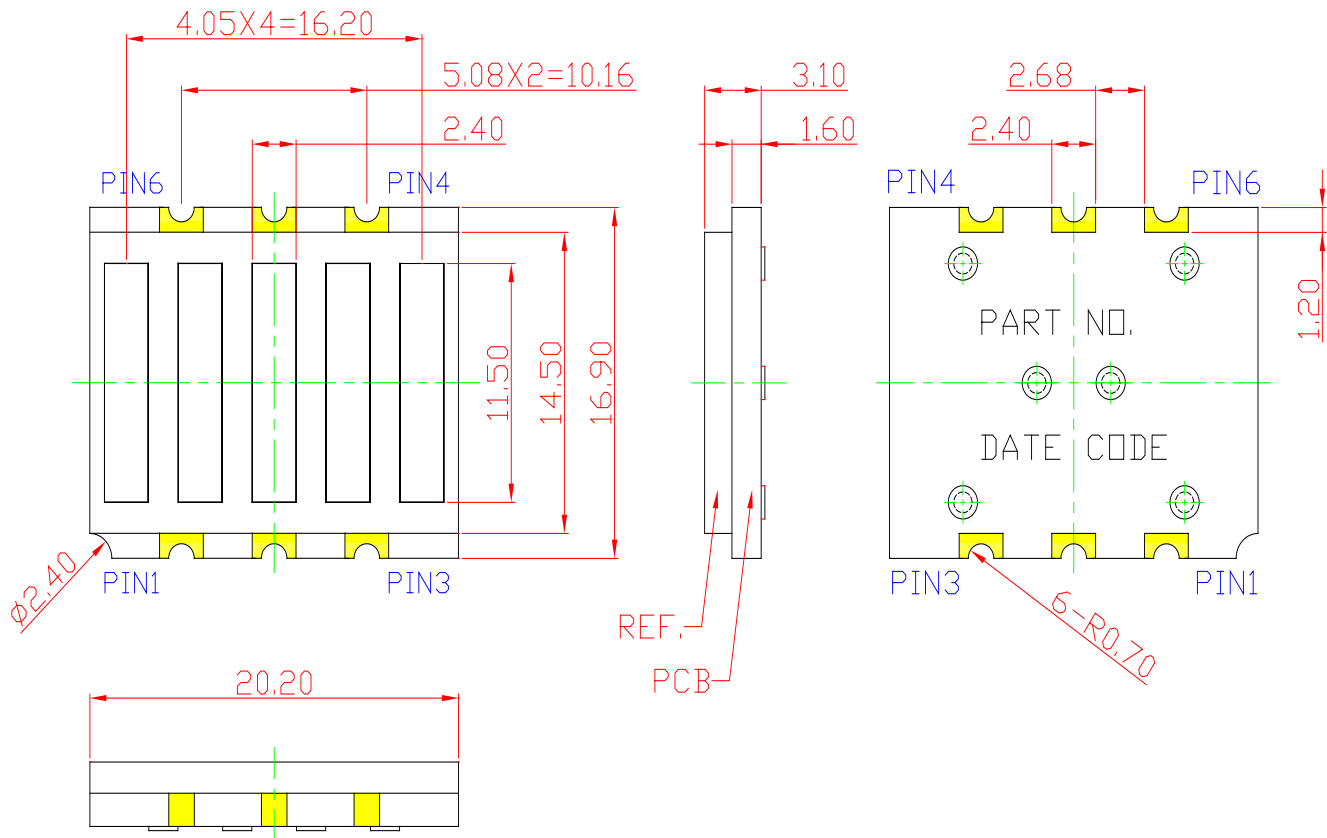


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### SMA-B500LB G/W

#### ● MECHANICAL DIMENSIONS



#### NOTE:

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



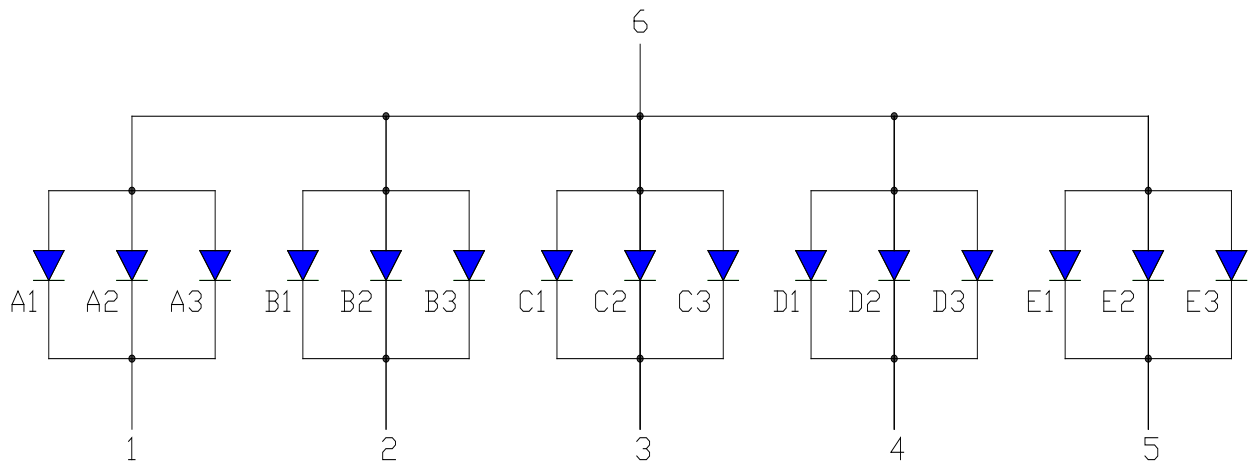
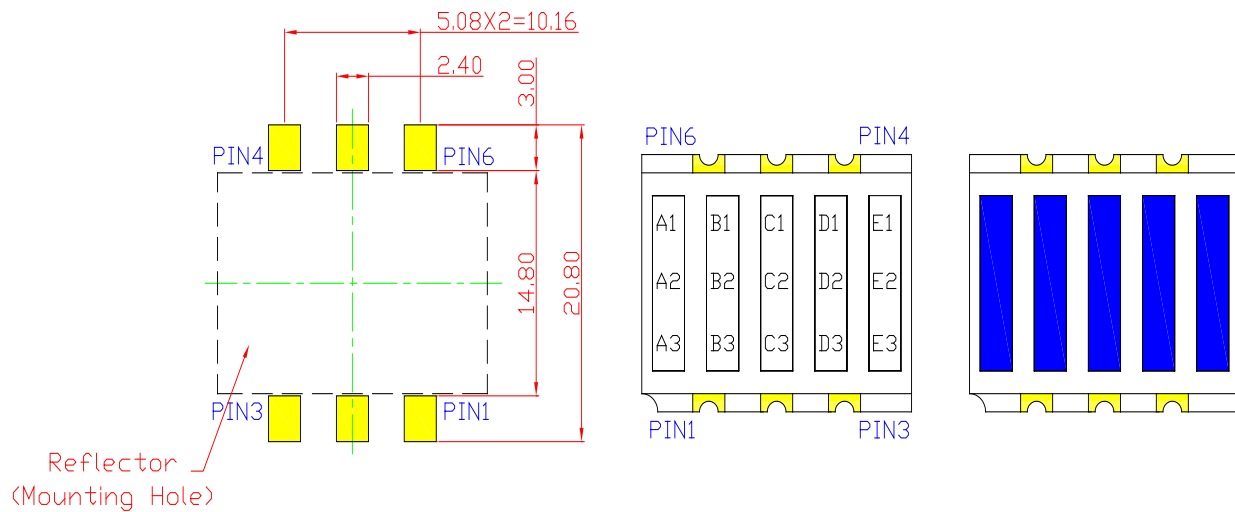
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#### ● INTERNAL CIRCUIT DIAGRAM PIN CONNECTION

Recommended  
Reverse Mount  
Solder Pattern





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## SMD Type LED Display

### SMA-B500LB G/W

#### ● LB: SUPER BRIGHT BLUE (InGaN/GaN)

ABSOLUTE MAXIMUM RATING AT  $T_a=25^{\circ}\text{C}$

Parameter	Symbol	Maximum Rating	Unit
Power dissipation	$P_{AD}$	120	mW
Derating liner from $25^{\circ}\text{C}$	-	0.3	mA / $^{\circ}\text{C}$
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	$^{\circ}\text{C}$
Storage temperature	$T_{STG}$	-40 to +105	$^{\circ}\text{C}$

ELECTRICAL - OPTICAL CHARACTERISTICS AT  $T_a=25^{\circ}\text{C}$

Characteristic	Symbol	Condition	Min.	Type.	Max.	Unit
Forward Voltage, (Per Dice)	$V_F$	$I_F = 20\text{mA}$	-	3.2	4.0	V
Reverse Current, (Per Dice)	$I_R$	$V_R = 8\text{V}$	-	-	10	$\mu\text{A}$
Dominant Wavelength	$\lambda_D$	$I_F = 20\text{mA}$	-	470	-	nm
Luminous Intensity	$I_V$	$I_F = 20\text{mA}$	-	50	-	mcd
Spectral radiation bandwidth	$\Delta\lambda$	$I_F = 20\text{mA}$	-	30	-	nm



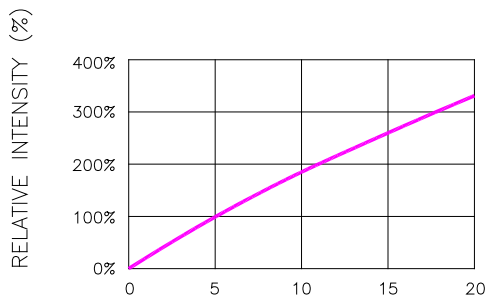
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## SMD Type LED Display

### SMA-B500LB G/W

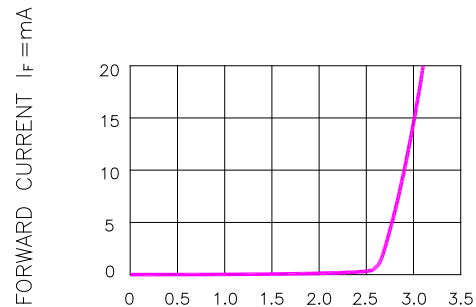
#### ● LB: SUPER BRIGHT BLUE (InGaN/GaN) CURVE

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



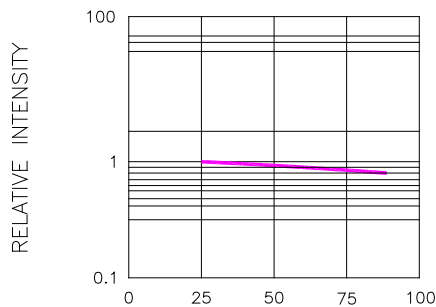
$I_F @ 20\text{mA}$  (mA)

Fig.1 RELATIVE INTENSITY VS. FORWARD CURRENT



FORWARD VOLTAGE (V)

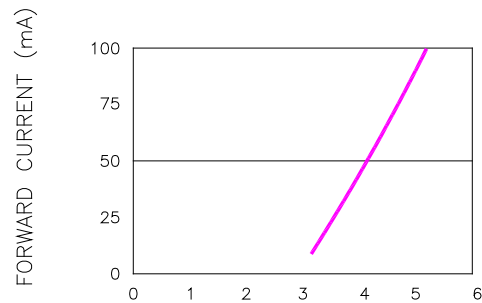
Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE



LEAD TEMPERATURE(°C)

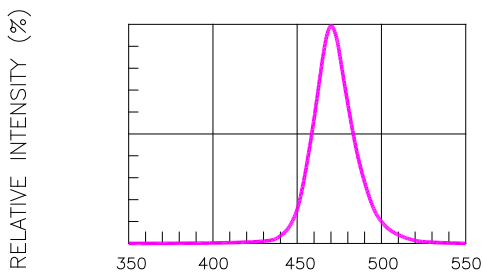
Fig.3 RELATIVE INTENSITY VS. LEAD TEMPERATURE

(PULSED 20 mA; 300us  
PULSE, 10ms PERIOD)



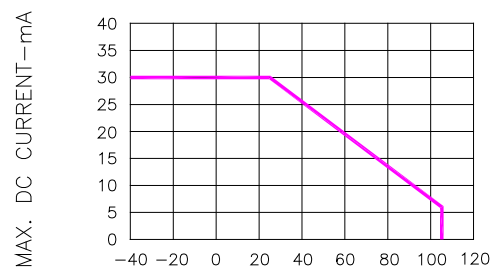
FORWARD VOLTAGE(V)

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



WAVELENGTH (nm)

Fig.5 RELATIVE INTENSITY VS. WAVELENGTH



AMBIENT TEMPERATURE (TA)-°C

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



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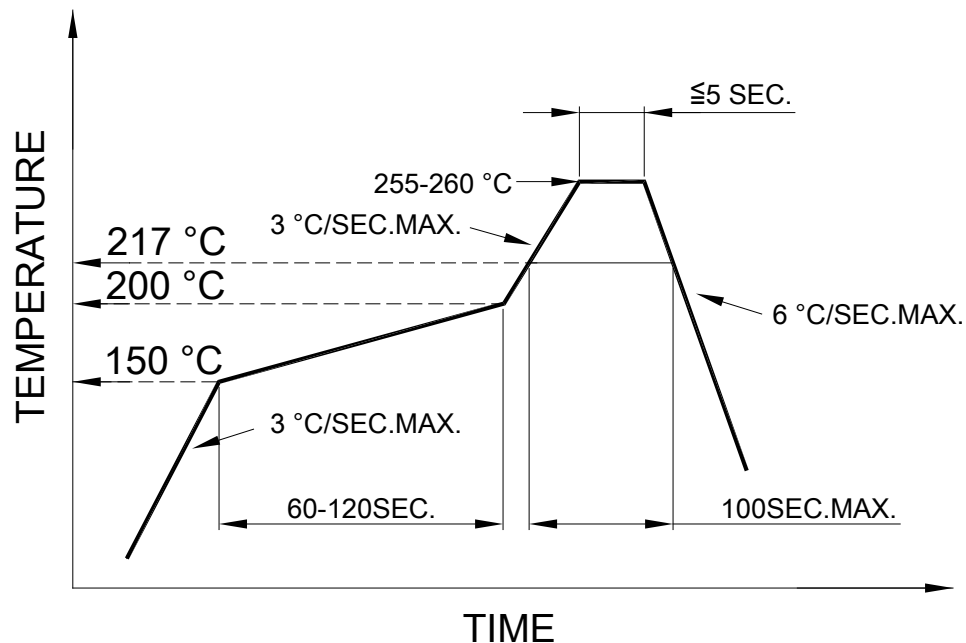
## SMD Type LED Display

### SMA-B500LB G/W

#### ● 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.

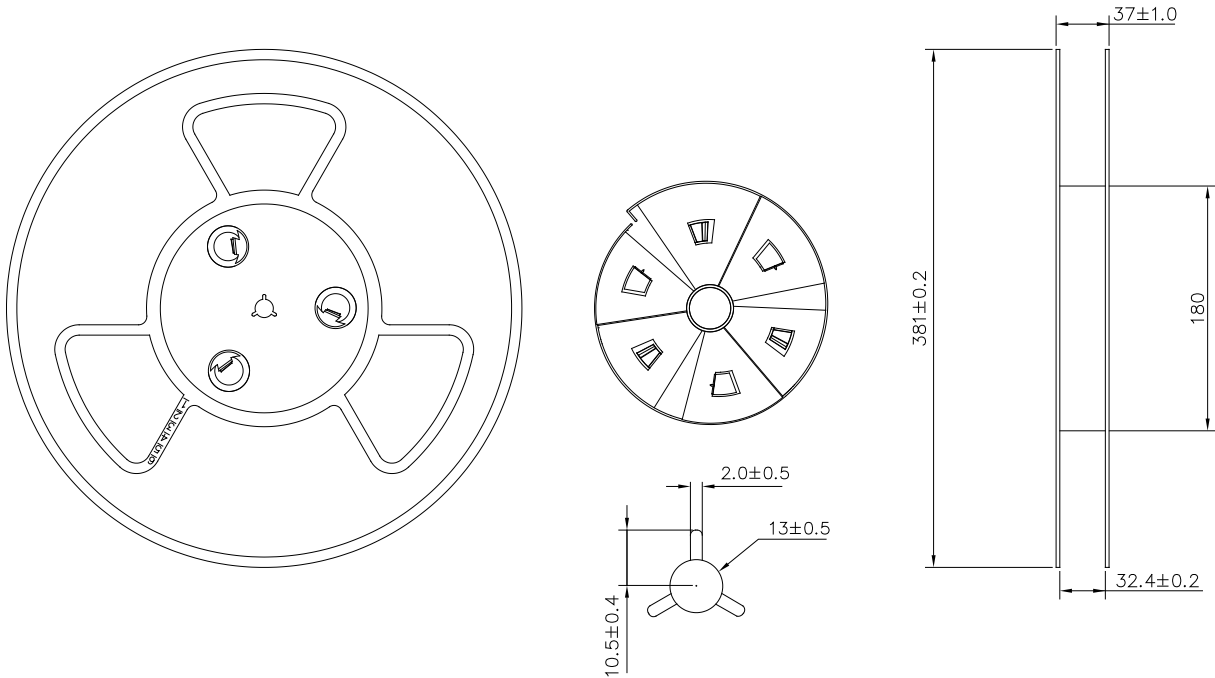


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#### ● REEL DIMENSIONS



#### ● PACKING & LABEL SPECIFICATIONS

