



**American Opto Plus LED Corp.**  
**SMD Type LED Display**  
**SMA-B500LR B/W**

● **EDIT HISTORY**

Version A: Nov. 26, 2013

Preliminary spec.

Version B: Jul. 29, 2014

Change P/N to SMA-B500LR B/W.



# American Opto Plus LED Corp.

## SMD Type LED Display

### SMA-B500LR 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 B500LR B/W is a rectangular bar graph display.

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

The display has Black face and white bars.

#### ● DEVICE

PART NO	DESCRIPTION
Super Red	Common Anode
SMA B500LR B/W	

**RoHS Compliance**



**Pb free.**



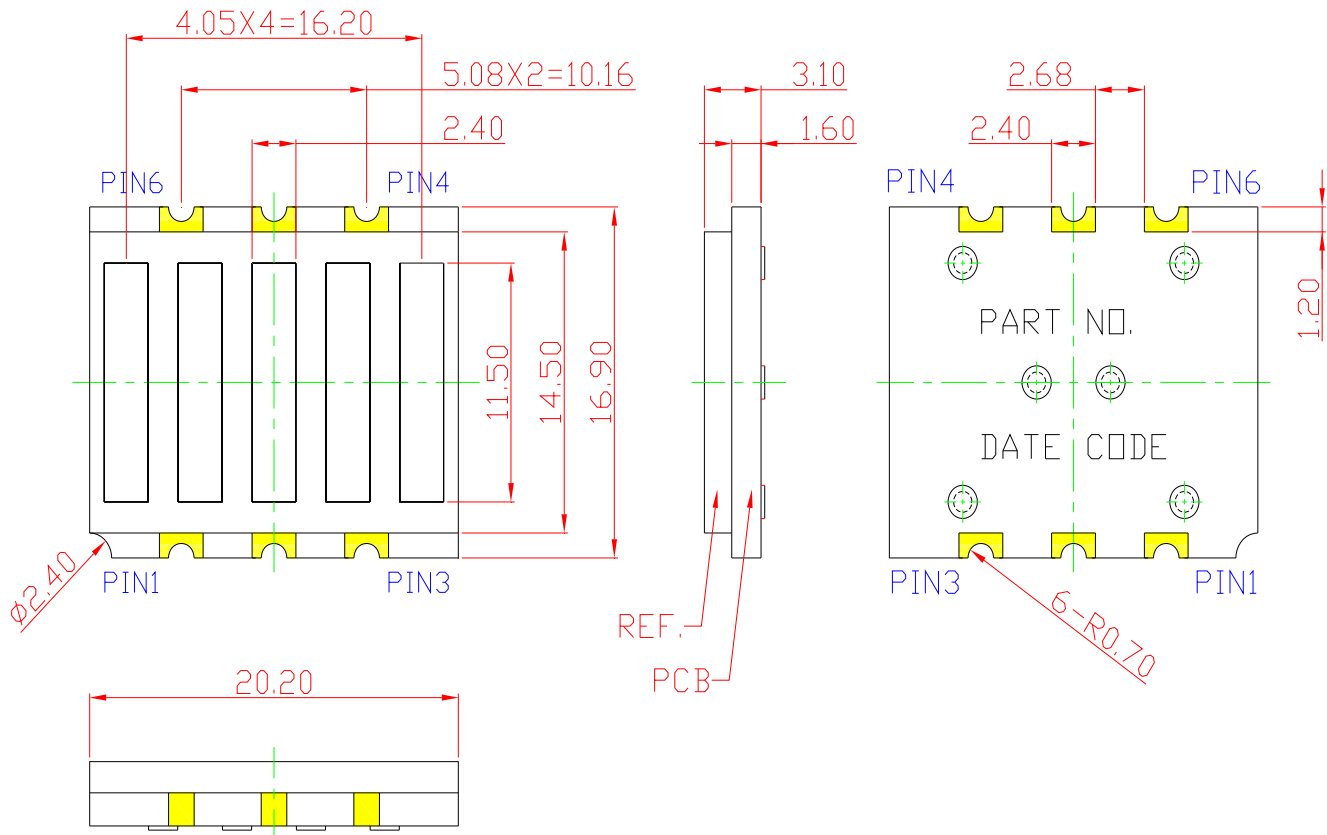


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## SMD Type LED Display

### SMA-B500LR B/W

#### ● MECHANICAL DIMENSIONS



#### NOTE:

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



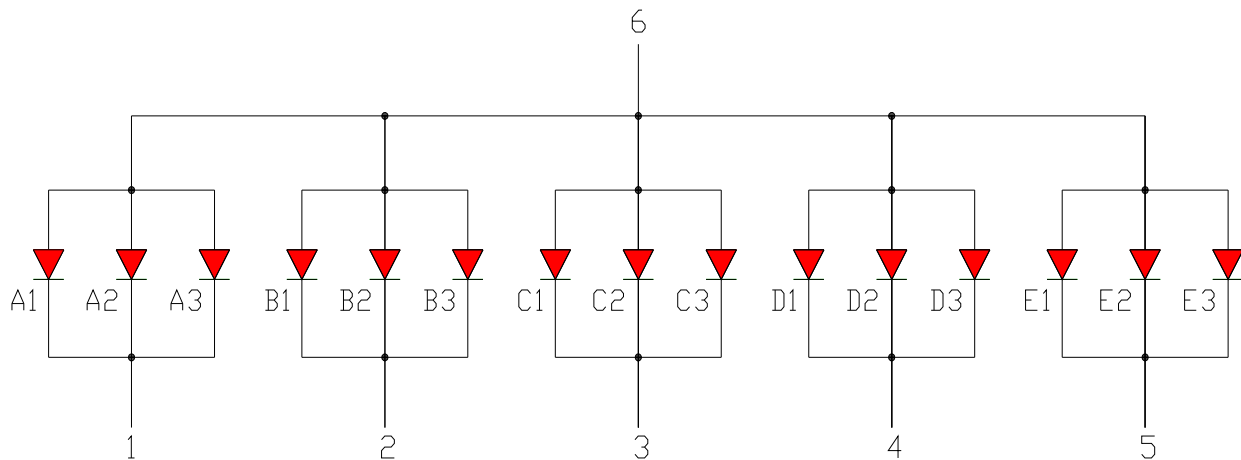
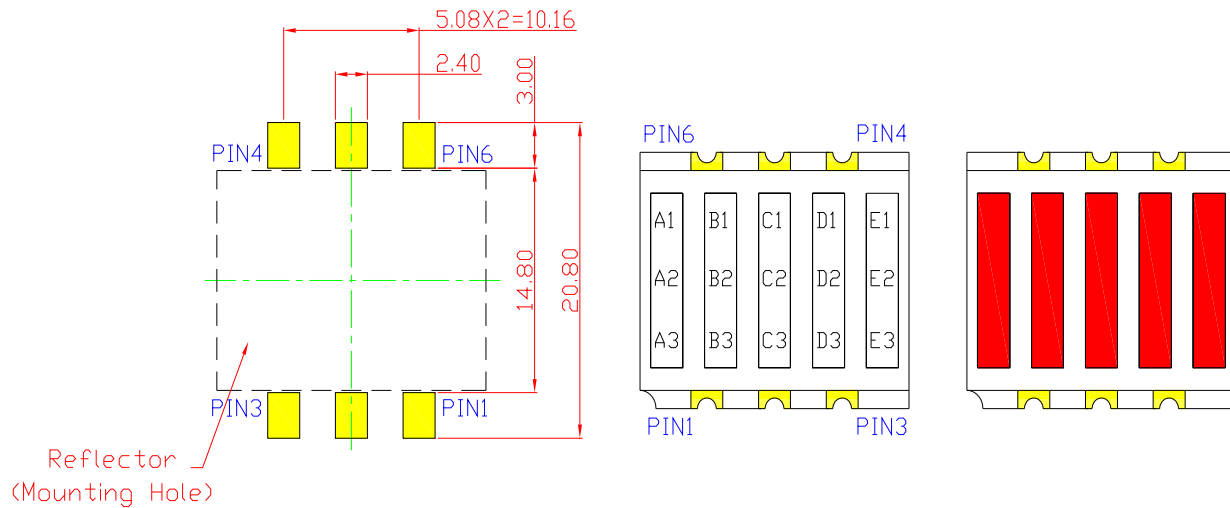
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#### ● INTERNAL CIRCUIT DIAGRAM PIN CONNECTION

Recommended  
Reverse Mount  
Solder Pattern





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## SMD Type LED Display

### SMA-B500LR B/W

#### ● LR: SUPER RED (AlGaInP/GaAs)

ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Maximum Rating	Unit
Power dissipation	P <sub>AD</sub>	75	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	-	2.0	2.6	V
Reverse Current, (Per Dice)	I <sub>R</sub>	V <sub>R</sub> =5V	-	-	10	µA
Peak Wavelength	λ <sub>P</sub>	I <sub>F</sub> =20mA	-	650	-	nm
Dominant Wavelength	λ <sub>D</sub>	I <sub>F</sub> =20mA	-	640	-	nm
Luminous Intensity	I <sub>V</sub>	I <sub>F</sub> =20mA	-	8	-	mcd
Spectral radiation bandwidth	Δλ	I <sub>F</sub> =20mA	-	20	-	nm



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### SMA-B500LR B/W

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

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

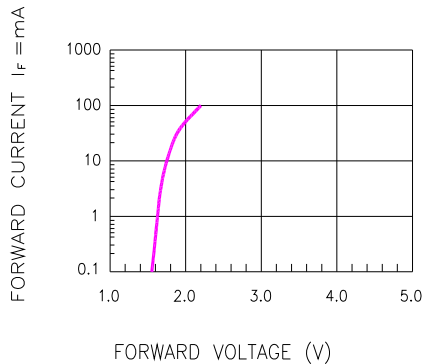


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

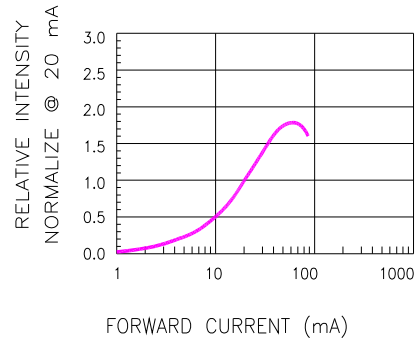


Fig.2 RELATIVE INTENSITY VS. FORWARD CURRENT

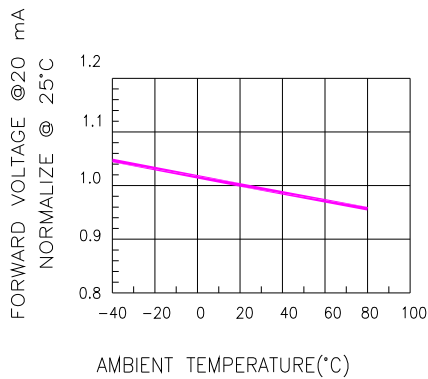


Fig.3 FORWARD VOLTAGE VS. TEMPERATURE

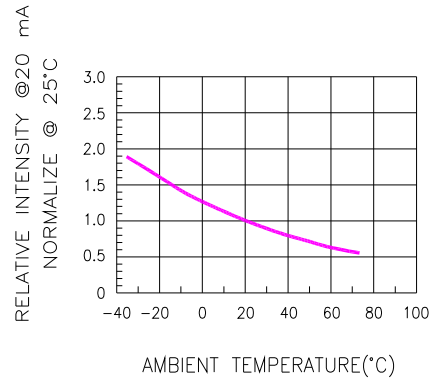


Fig.4 RELATIVE INTENSITY VS. TEMPERATURE

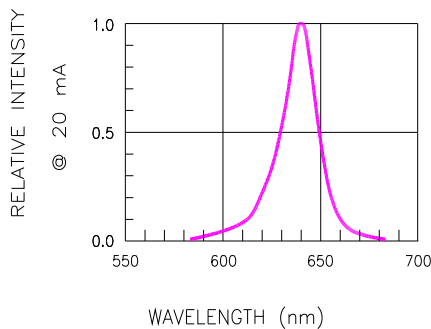


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

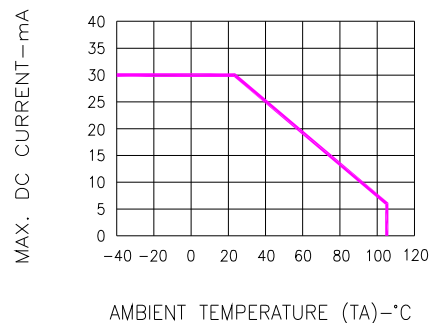


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE



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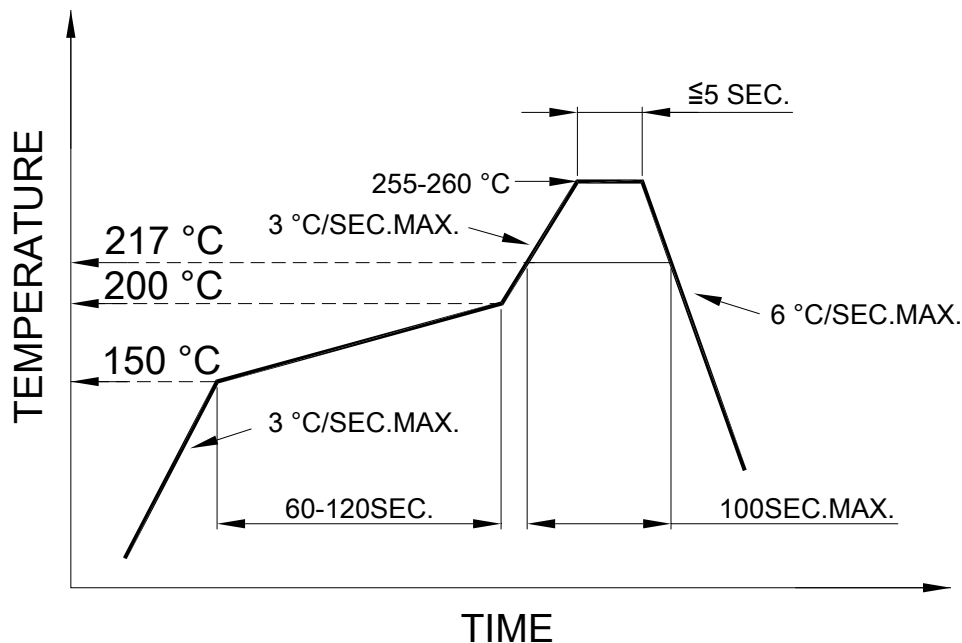
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### SMA-B500LR B/W

#### ● 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.

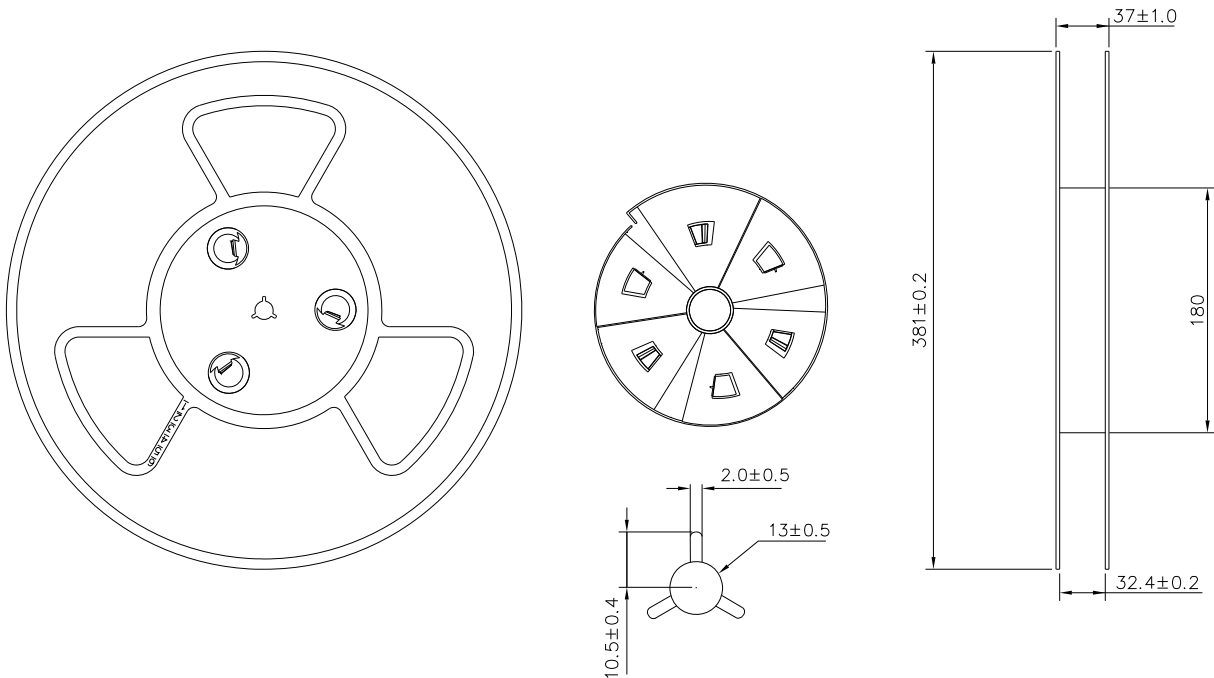


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## SMD Type LED Display

### SMA-B500LR B/W

#### ● REEL DIMENSIONS



#### ● PACKING & LABEL SPECIFICATIONS

