



American Opto Plus LED Corp.

SMD Type LED Display

SMA-B500LE

● EDIT HISTORY

Version A: June 09, 2008

Counter drawing

Version B: June 27, 2008

- a. Add solder pad dimension.
- b. Add Electrical Character data.
- c. Modify identify rib design.

Version C: July 03, 2008

- a. Modify ▼ on pin 1.
- b. Add reverse mount solder pad.

Version D: July 04, 2008

Modify dimension from 13.74mm to 14.80mm.

Version E: Sep 08, 2008

Modify REF lector thick tolerance from 1.5 ± 0.25 mm to $1.5 + 0 / - 0.25$ mm.

Version F: Sep 17, 2008

Modify Reflector thick tolerance from $1.5 + 0 / - 0.25$ mm to 1.4 ± 0.1 mm.



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● FEATURES

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

● DESCRIPTION

The SMA-B500LE is a rectangular bar graph display. This device utilizes Super Bright Red Orange LED chip which are made from AlGaInP on a transparent GaAs substrate. The display has gray face and white segments.

● DEVICE

PART NO	DESCRIPTION
Super Bright Red Orange	Common Anode
SMA-B500LE	

RoHS Compliance



Pb free.



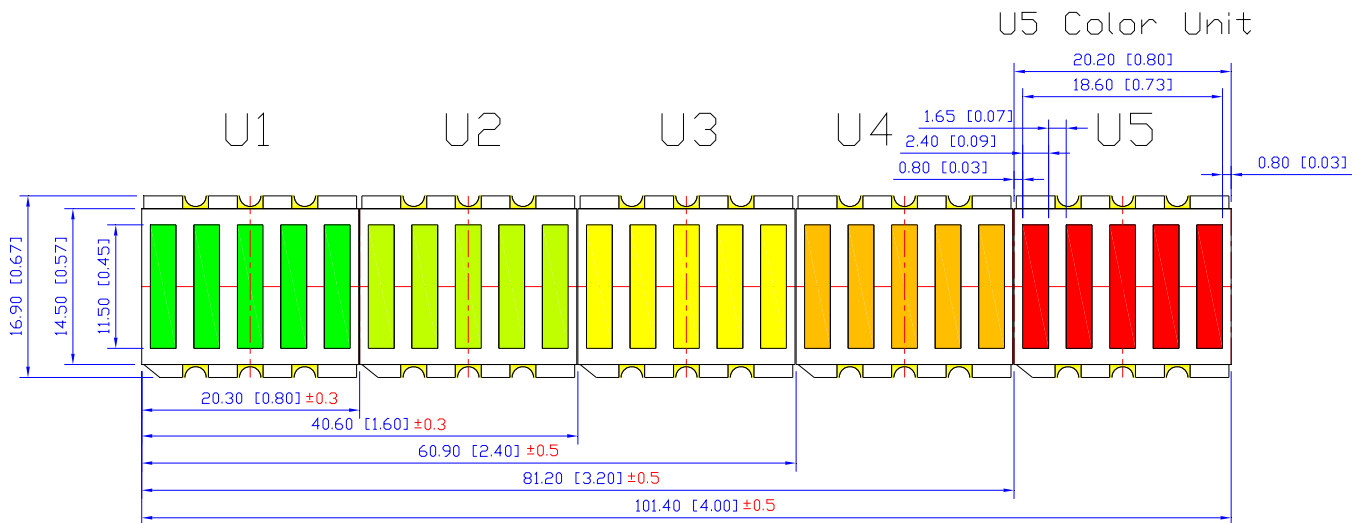
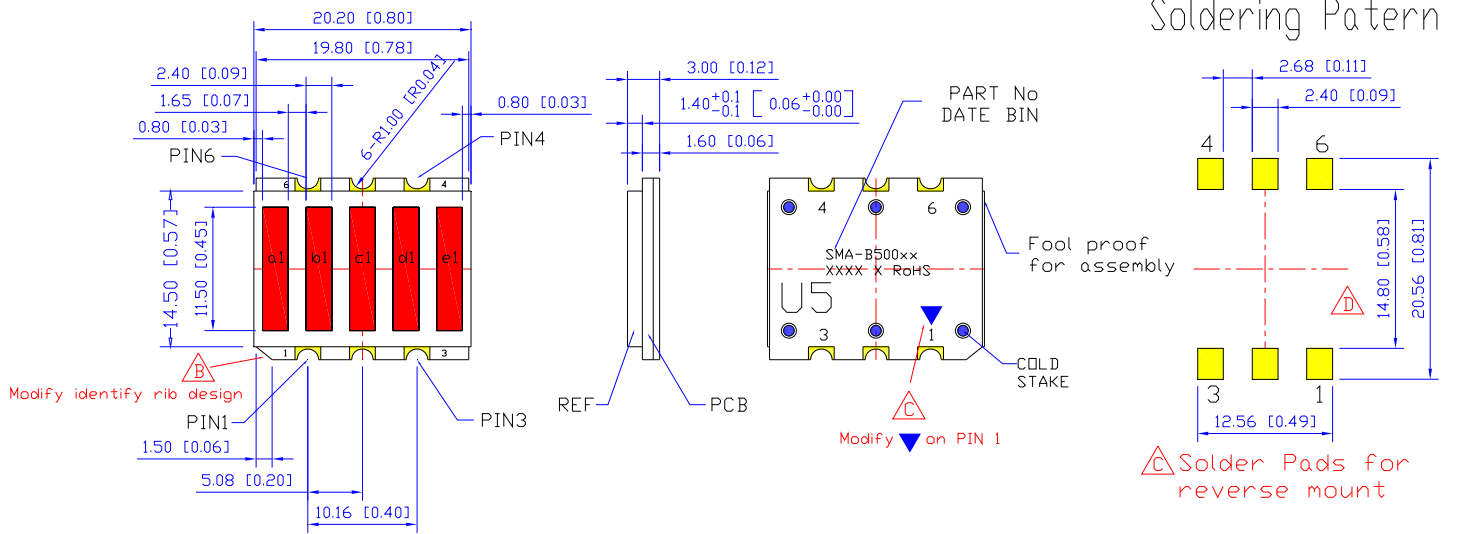


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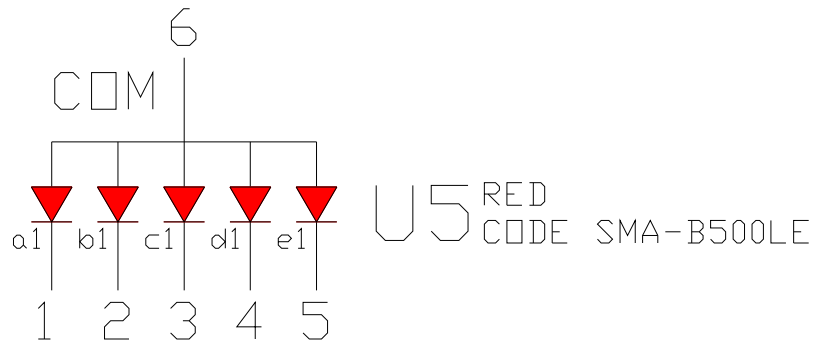
SMA-B500LE

MECHANICAL DIMENSIONS



NOTES : All dimensions are in millimeters. Tolerances are ± 0.25 mm (0.01") specified.

INTERNAL CIRCUIT DIAGRAM PIN CONNECTION





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● ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Super Bright Red Orange	Unit
Power dissipation per dice	P_{AD}	70	mW
Derating Liner from 25°Cper dice	-	0.28	mA / °C
Continuous forward current per dice	I_{AF}	25	mA
Peak current per dice (duty cycle 1/10, 1kHz)	I_{PF}	90	mA
Reverse voltage per dice	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=25°C

Characteristic	Symbol	Condition	Min.	Type	Max.	Unit
Forward Voltage	V_F	$I_F = 20\text{mA}$	-	2.0	2.8	V
Reverse Current	I_R	$V_R = 5\text{V}$	-	-	30	μA
Peak Wavelength	λ_P	$I_F = 20\text{mA}$	-	635	-	nm
Average Luminous Intensity	I_V	$I_F = 20\text{mA}$	-	45	-	mcd
Spectrum Radiation Bandwidth	$\Delta\lambda$	$I_F = 20\text{mA}$	-	45	-	nm



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● Super Bright Red Orange (AlGaInP / GaAs)

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

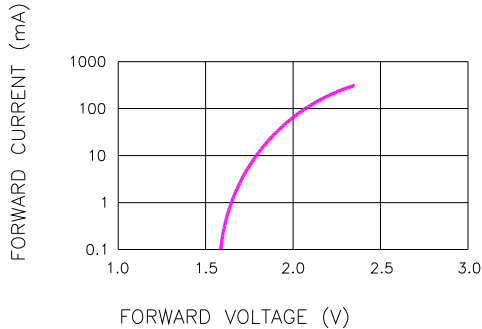


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

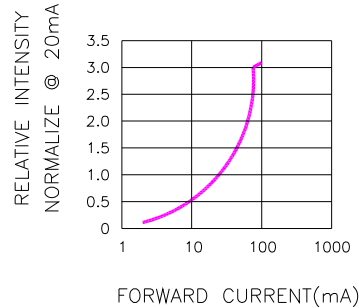


Fig.2 RELATIVE INTENSITY VS. FORWARD CURRENT

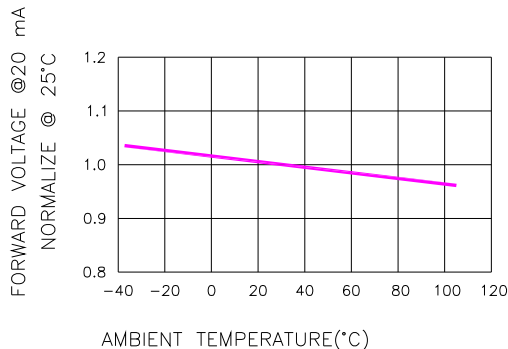


Fig.3 FORWARD VOLTAGE VS. TEMPERATURE

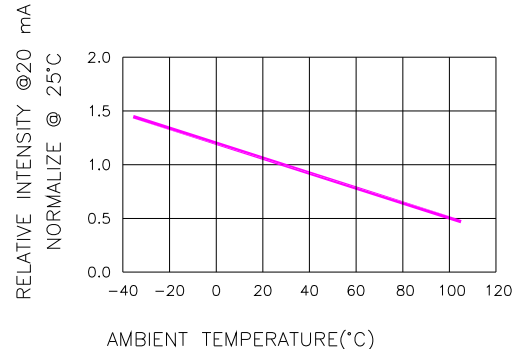


Fig.4 RELATIVE INTENSITY VS. TEMPERATURE

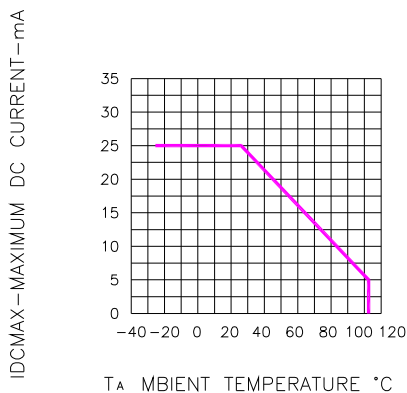


Fig.5 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE

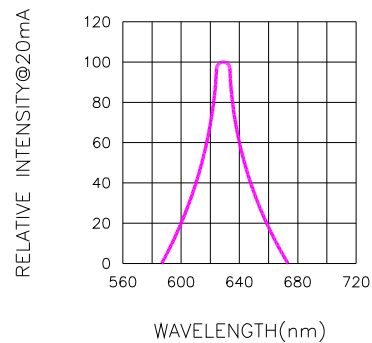


Fig.6 RELATIVE INTENSITY VS. WAVELENGTH



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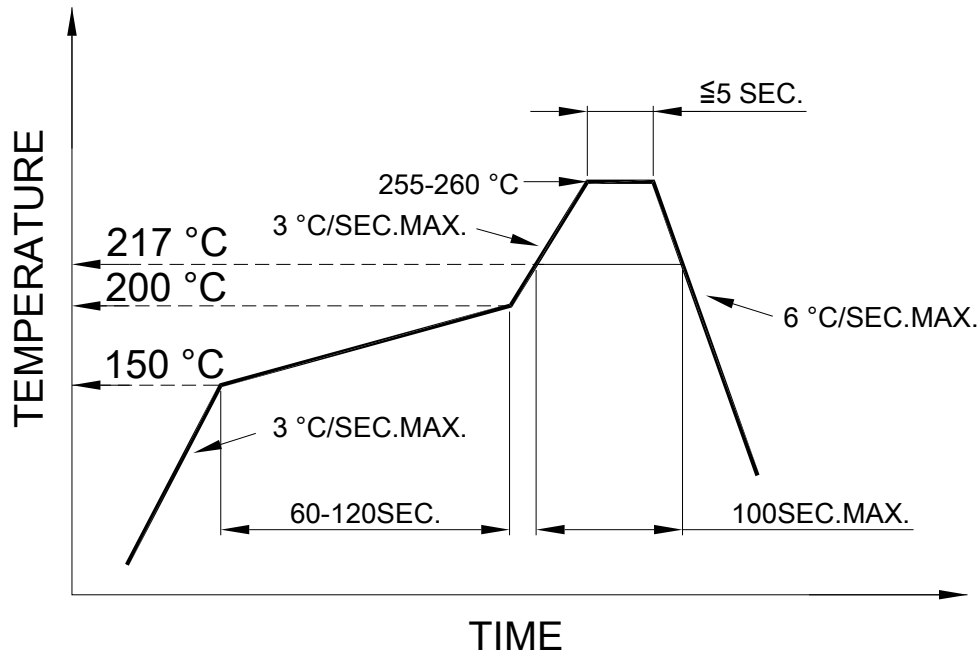
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● RECOMMEND SOLDERING PROFILE

SMT Soldering Profile

Pb free reflow soldering Profile



● SOLDERING IRON

Basic specification : ≤ 4 seconds 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 ≤ 4 sec under 245°C.