



American Opto Plus LED Corp.
SMD Type LED Display
SMA-B500PG

● **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 thickness 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-B500PG is a rectangular bar graph display. This device utilizes Super Bright Pure Green LED chip which are made from InGaN on a transparent GaN substrate. The display has gray face and white segments.

● DEVICE

PART NO	DESCRIPTION
Super Bright Pure Green	Common Anode
SMA-B500PG	

RoHS Compliance



Pb free.



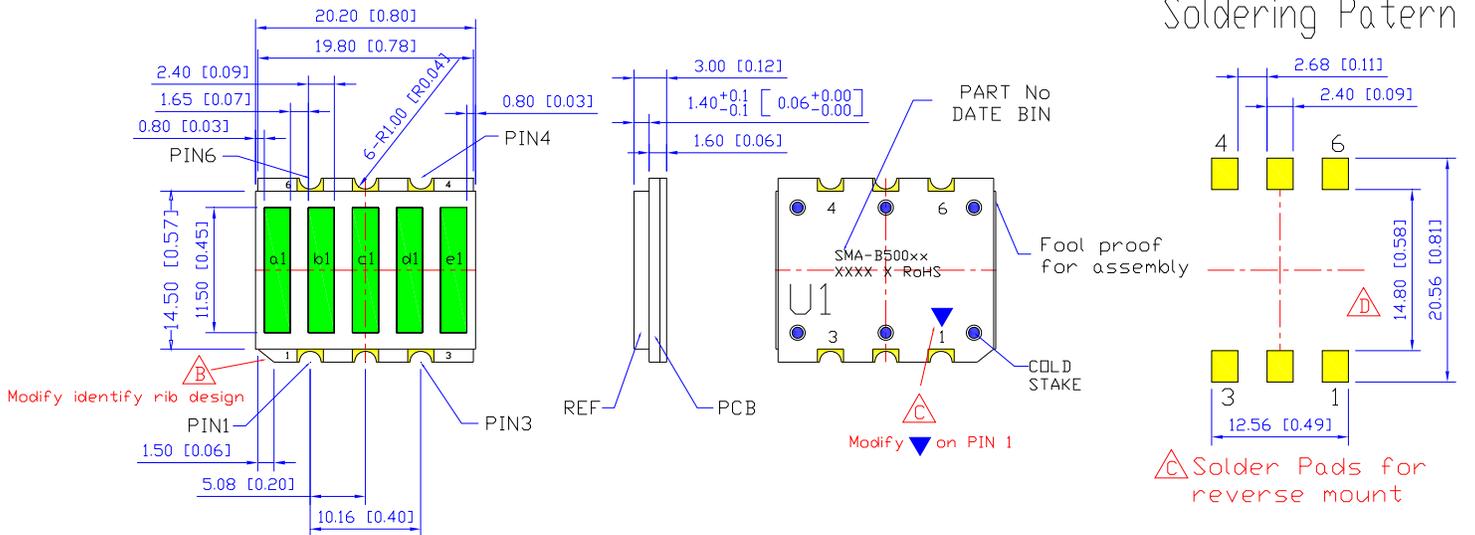


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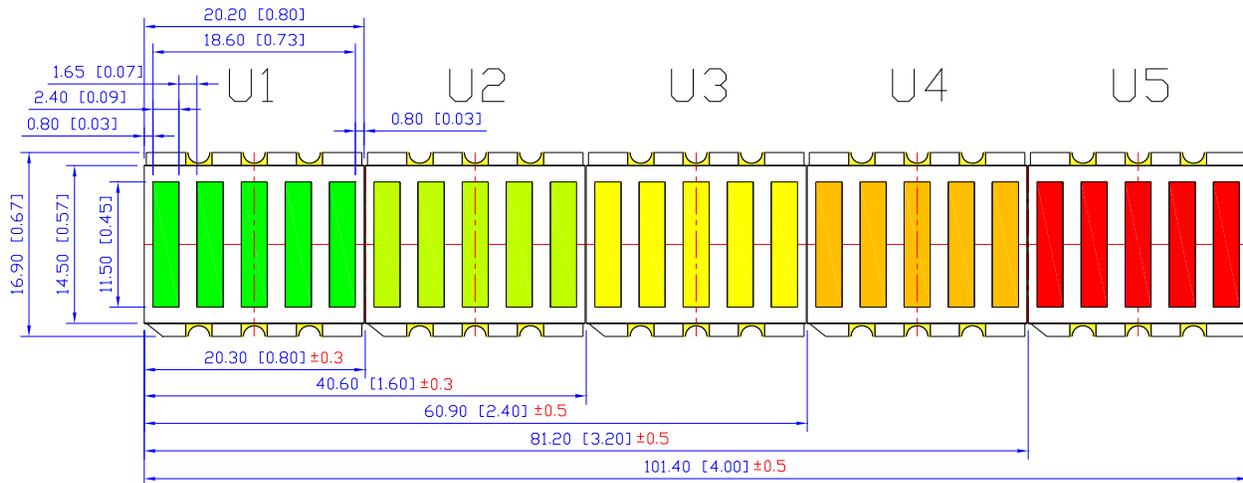
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MECHANICAL DIMENSIONS

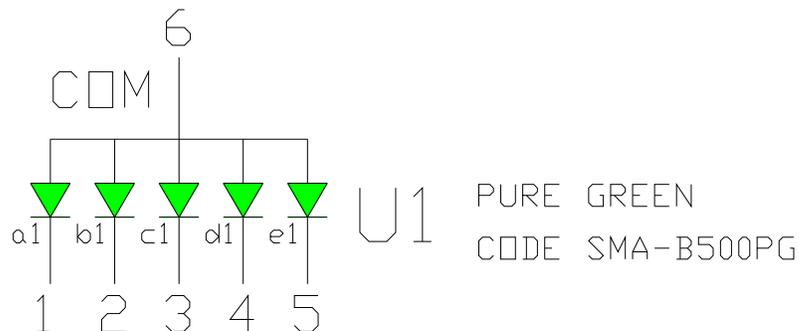


U1 Color Unit



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 Pure Green	Unit
Power dissipation per dice	P_{AD}	70	mW
Derating Liner from 25°C per dice	-	0.3	mA / °C
Continuous forward current per dice	I_{AF}	30	mA
Peak current per dice (duty cycle 1/10, 1kHz)	I_{PF}	100	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	$I_F = 20\text{mA}$	2.8	3.2	3.6	V
Reverse Current	I_R	$V_R = 5\text{V}$	-	-	30	μA
Peak Wavelength	λ_P	$I_F = 20\text{mA}$	-	525	-	nm
Average Luminous Intensity	I_V	$I_F = 20\text{mA}$	-	160	-	mcd
Spectrum Radiation Bandwidth	$\Delta\lambda$	$I_F = 20\text{mA}$	-	30	-	nm



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● Super Bright Pure Green (InGaN / GaN)

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

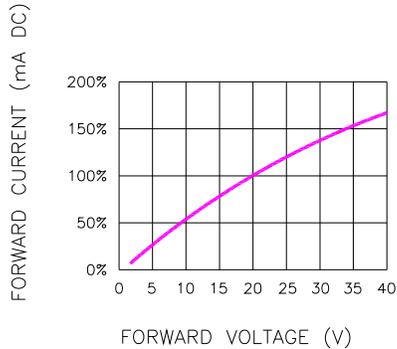


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

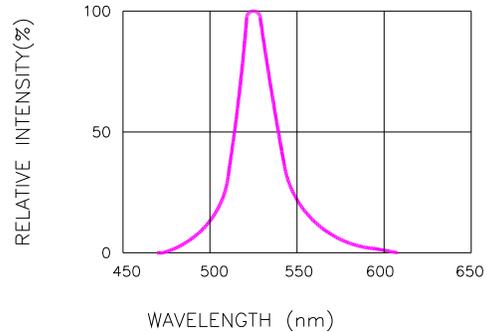


Fig.2 RELATIVE INTENSITY VS. WAVELENGTH

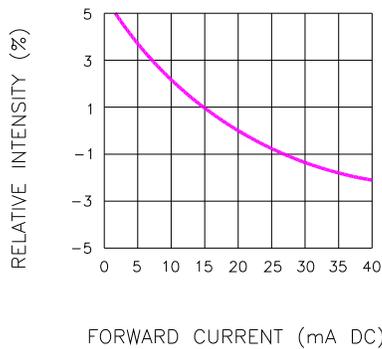


Fig.3 RELATIVE INTENSITY VS. FORWARD CURRENT

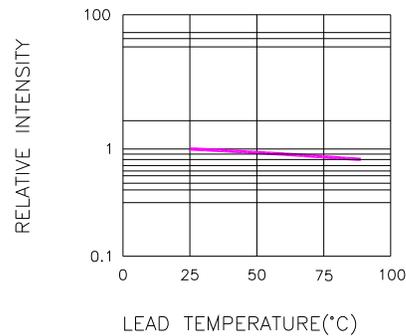


Fig.4 RELATIVE INTENSITY VS. LEAD TEMPERATURE
(PULSED 20 mA; 300us PULSE, 10ms PERIOD)

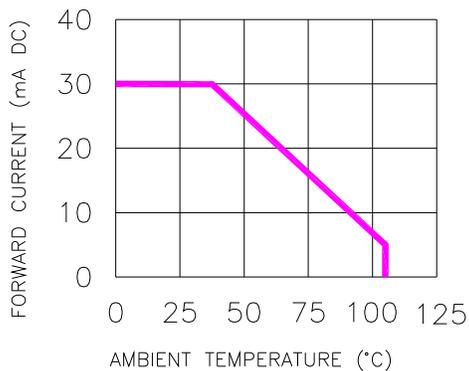


Fig.5 FORWARD CURRENT VS. AMBIENT TEMPERATURE

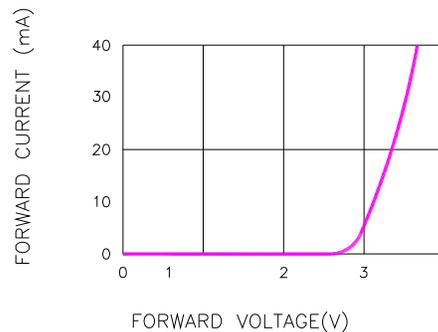


Fig.6 PEAK FORWARD VOLTAGE VS. FORWARD(100us TEST PULSE, 1% DUTY CYCLE)



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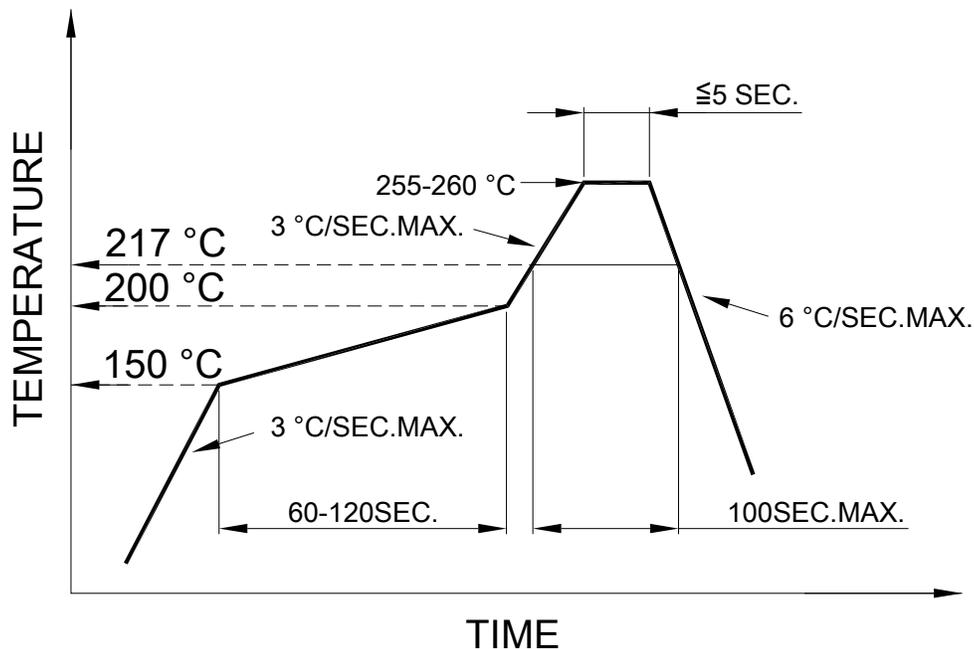
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● RECOMMEND SOLDERING PROFILE

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.