



American Opto Plus LED Corp.
0.40" SMD Type LED Display
SMC/A-402LB G/W

● **EDIT HISTORY**

Version A: Apr. 23, 2009

New color data sheet.



American Opto Plus LED Corp.

0.40" SMD Type LED Display

SMC/A-402LB G/W

● FEATURES

- 0.40 inch (10.16 mm) Digit Height.
- Low current operation.
- SMD type.
- Gray face, White segment.
- RoHS compliant, Pb Free.

● DESCRIPTION

The SMC/A-402LB G/W is a 0.40 inch (10.16 mm) height dual digits display.

This device utilizes Super Bright Blue LED chip which are made from InGaN on a transparent GaN substrate. The display has Gray face, White segment.

● DEVICE

PART NO	DESCRIPTION
Super Bright Blue	Common Anode / Cathode
SMC/A-402LB G/W	

RoHS Compliance



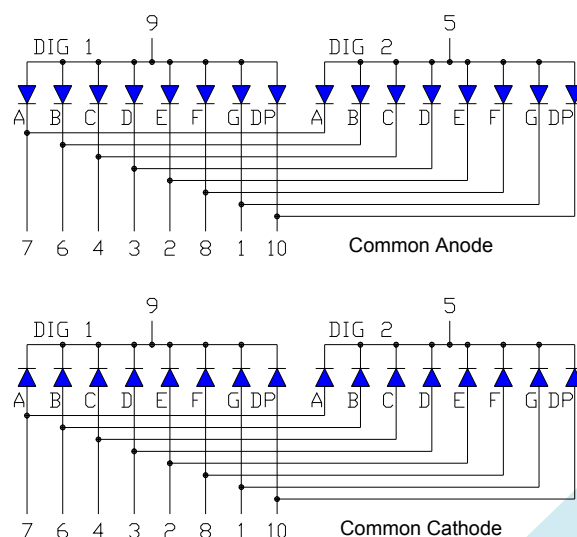
Pb free.





● TYPICAL INTERNAL EQUIVALENT CIRCUIT

Figure 1 illustrates the dimensions of the LED display. The left diagram shows the physical layout with dimensions: total height 21.4, top segment height 6.4, bottom segment height 8.6, segment width 1.0, segment spacing 0.6, and total width 3.5 x 4 = 14. The right diagram shows the logical layout with segments labeled A through G and DP, and digits 1 and 5.





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● LB: SUPER BRIGHT BLUE (InGaN/GaN)

ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Super Bright Blue	Unit
Power dissipation per dice	P _{AD}	120	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 =5mA	2.7	2.85	3.0	V
Reverse Current	I _R	V _R =8V	-	-	10	μA
Dominant Wavelength	λ _d	I _F =5mA	450	470	480	nm
Average Luminous Intensity	I _V	I _F =5mA	10	30	40	mcd
Spectrum Radiation Bandwidth	Δλ	I _F =5mA	-	30	-	nm



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

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

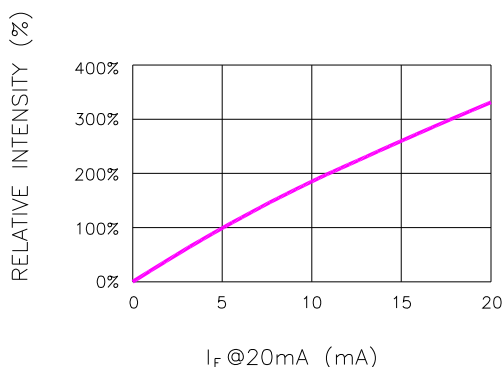


Fig.1 RELATIVE INTENSITY VS. FORWARD CURRENT

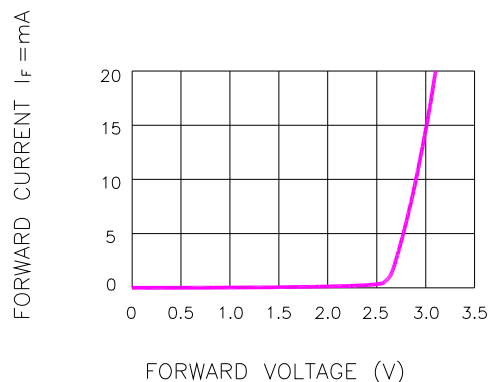


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

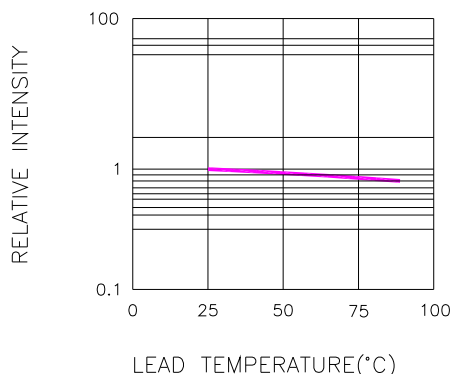


Fig.3 RELATIVE INTENSITY VS. LEAD TEMPERATURE
(PULSED 20 mA; 300us
PULSE, 10ms PERIOD)

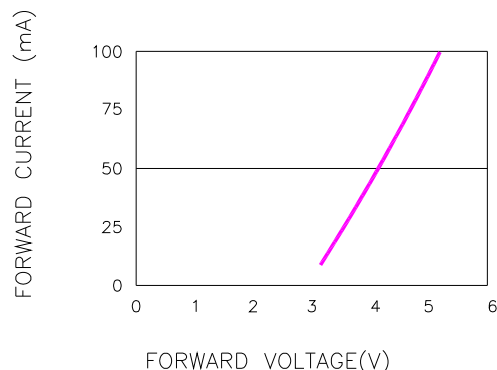


Fig.4 PEAK FORWARD VOLTAGE
VS. FORWARD(100us TEST PULSE,
1% DUTY CYCLE)

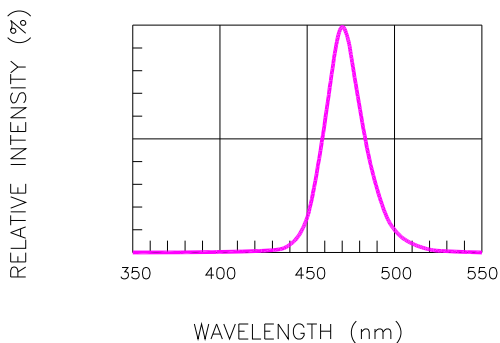


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

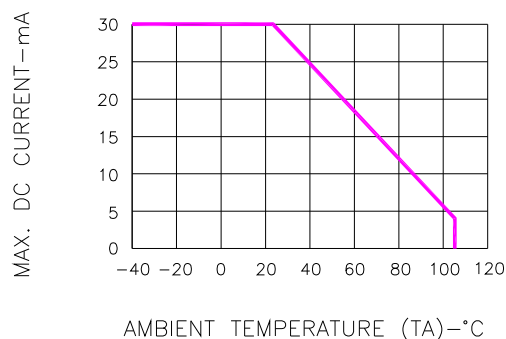


Fig.6 MAX. ALLOWABLE DC CURRENT
VS. AMBIENT TEMPERATURE



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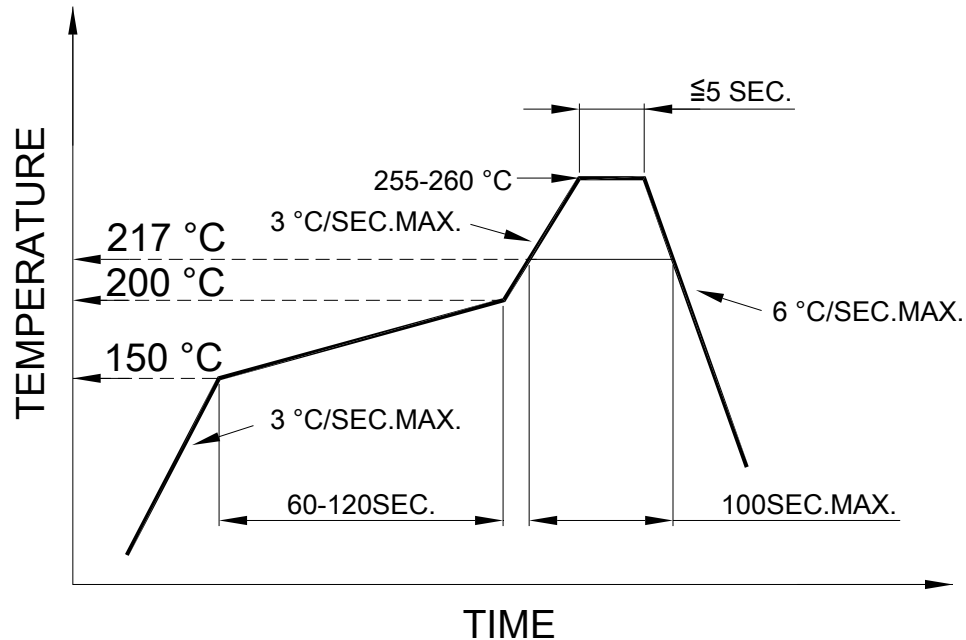
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● SMT REFLOW SOLDERING INSTRUCTIONS

SMT Soldering Profile

Pb free reflow soldering Profile



● SOLDERING IRON

Basic spec is $\leq 4 \text{ sec}$ when 260 °C. If temperature is higher, time should be shorter (+10 °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 °C.

● REWORK

- Customer must finish rework within 5 sec. under 260 °C.
- The head of soldering iron cannot touch copper foil.

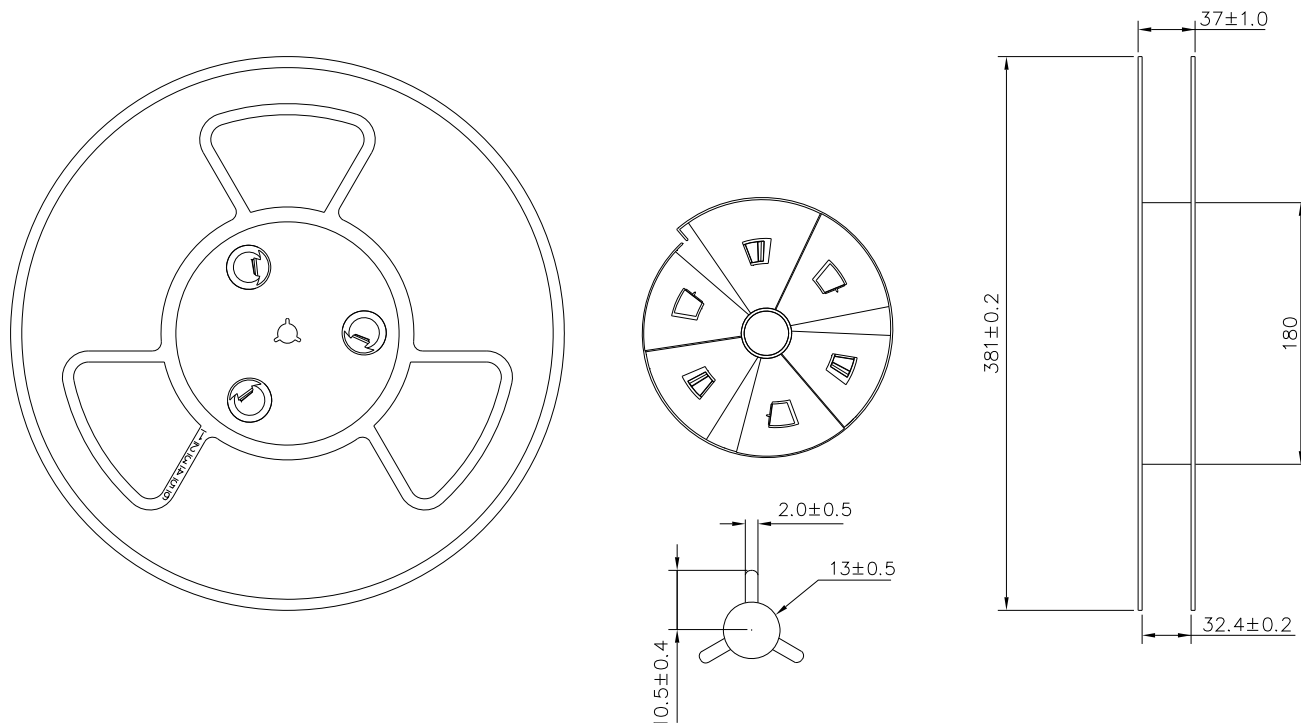


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● REEL DIMENSIONS



● PACKING & LABEL SPECIFICATIONS

