



**American Opto Plus LED Corp.**  
**0.40" SMD Type LED Display**  
**SMC/A-402LA 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-402LA 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-402LA G/W is a 0.40 inch (10.16 mm) height dual digits display. This device utilizes Super Bright Amber LED chip which are made from AlGaInP on a transparent GaAs substrate. The display has Gray face, White segment.

#### ● DEVICE

PART NO	DESCRIPTION
Super Bright Amber	Common Anode / Cathode
SMC/A-402LA G/W	

#### RoHS Compliance



#### Pb free.



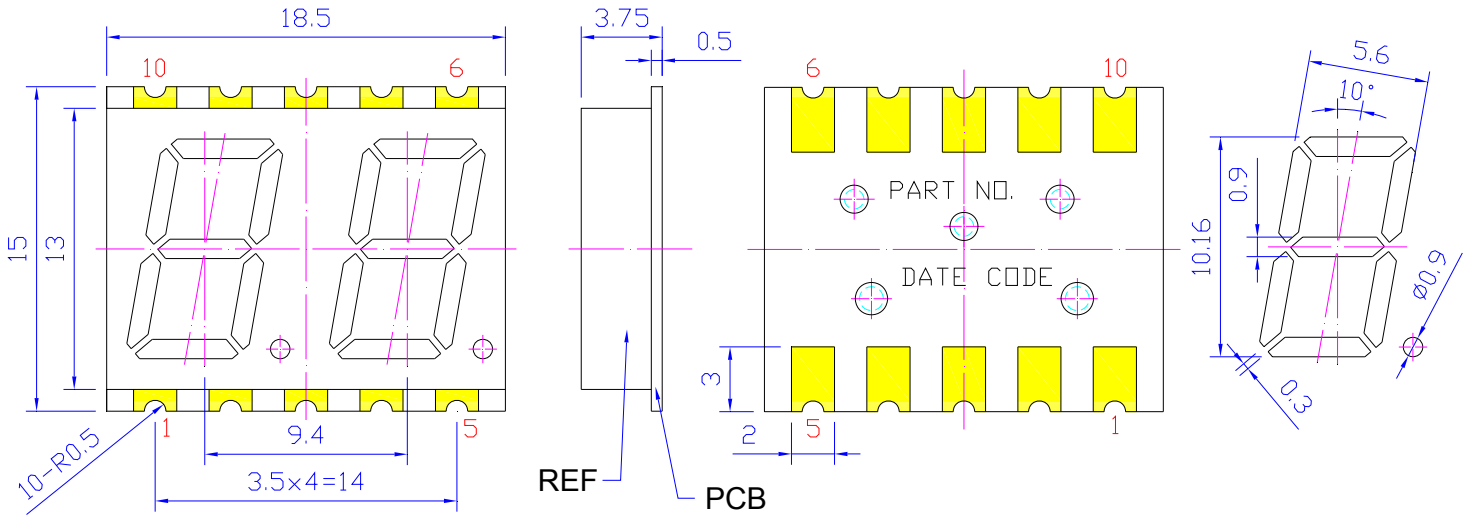


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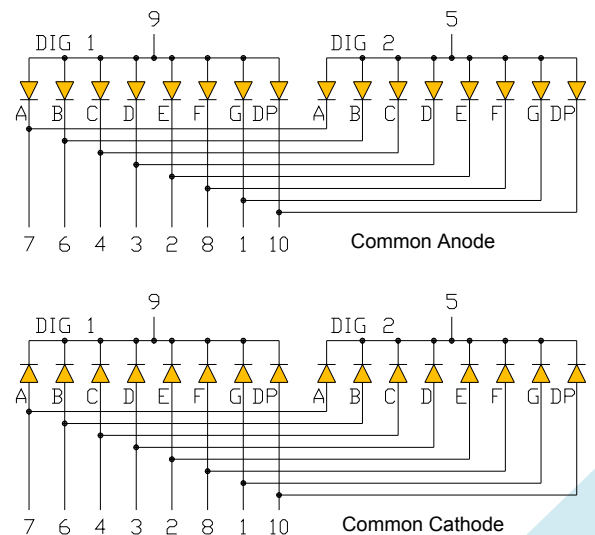
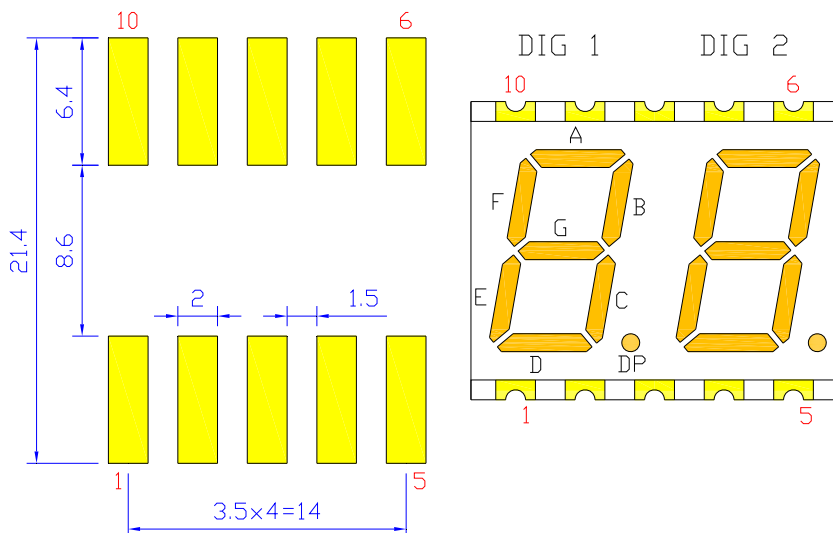
#### MECHANICAL DIMENSIONS



**NOTE:**  
Dimension in millimeter (inch),  
and tolerance is  $\pm 0.25$  (.01) specified.

#### TYPICAL INTERNAL EQUIVALENT CIRCUIT

Recommended  
Soldering Pattern





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● **LA: SUPER BRIGHT AMBER (AlGaInP/GaAs)**

ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Super Bright Amber	Unit
Power dissipation per dice	$P_{AD}$	70	mW
Derating Liner from 25°C per dice	-	0.33	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	$V_F$	$I_F = 20\text{mA}$	-	2.05	2.4	V
Reverse Current	$I_R$	$V_R = 5\text{V}$	-	-	10	$\mu\text{A}$
Peak Wavelength	$\lambda_P$	$I_F = 20\text{mA}$	-	612	-	nm
Dominant Wavelength	$\lambda_d$	$I_F = 20\text{mA}$	601	606	611	nm
Average Luminous Intensity	$I_V$	$I_F = 20\text{mA}$	-	45	-	mcd
Spectrum Radiation Bandwidth	$\Delta\lambda$	$I_F = 20\text{mA}$	-	20	-	nm



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#### ● LA: SUPER BRIGHT AMBER (AlGaInP/GaAs) CURVE

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

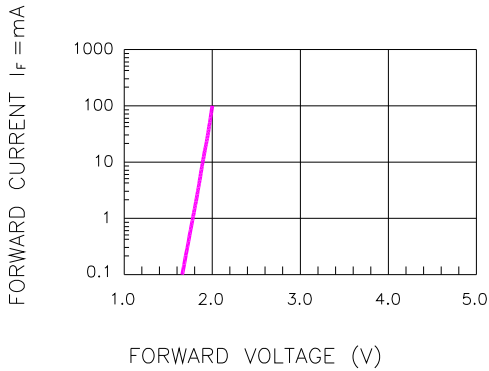


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

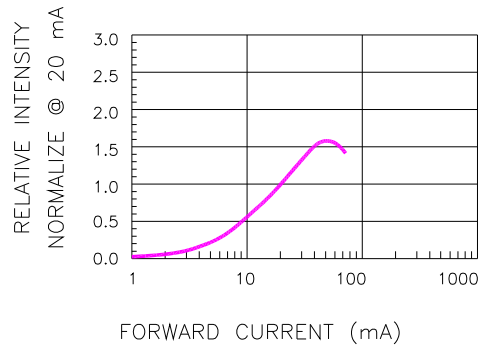


Fig.2 RELATIVE INTENSITY VS. FORWARD CURRENT

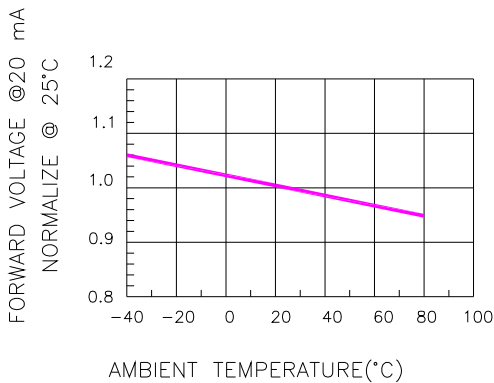


Fig.3 FORWARD VOLTAGE VS. TEMPERATURE

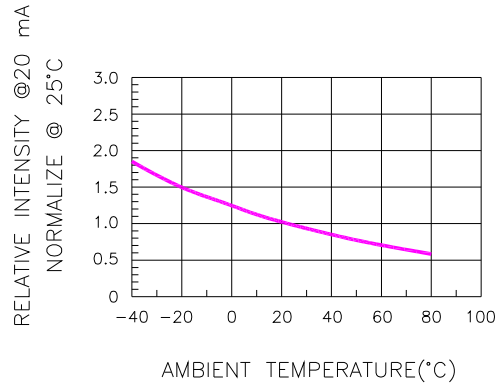


Fig.4 RELATIVE INTENSITY VS. TEMPERATURE

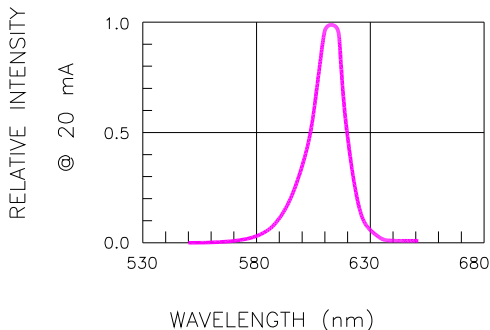


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

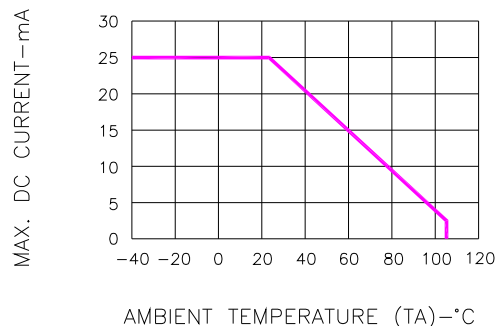


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE

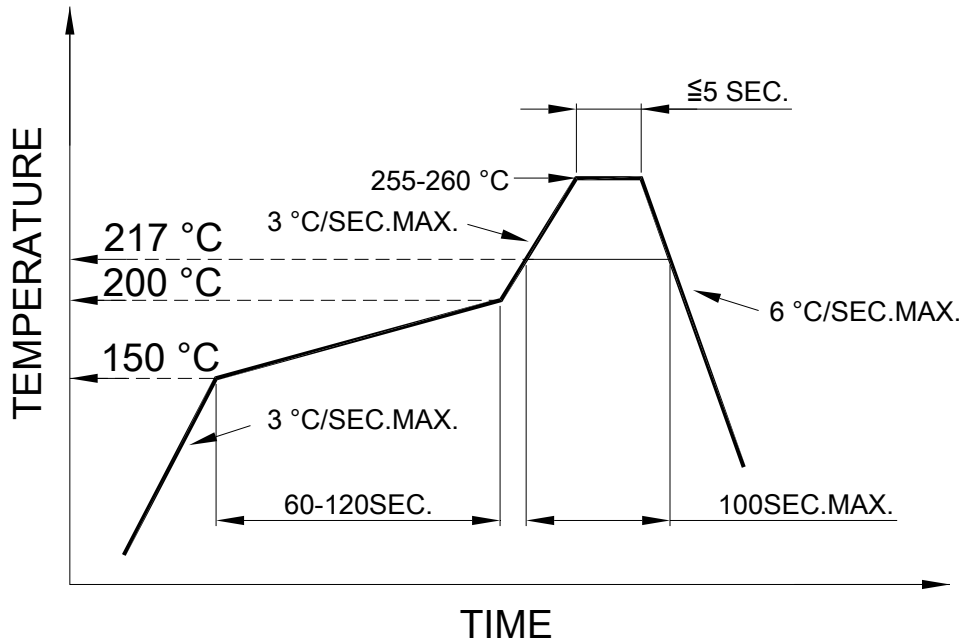


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● **SMT REFLOW SOLDERING INSTRUCTIONS**

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 5 sec. under 260°C.
- The head of soldering iron cannot touch copper foil.

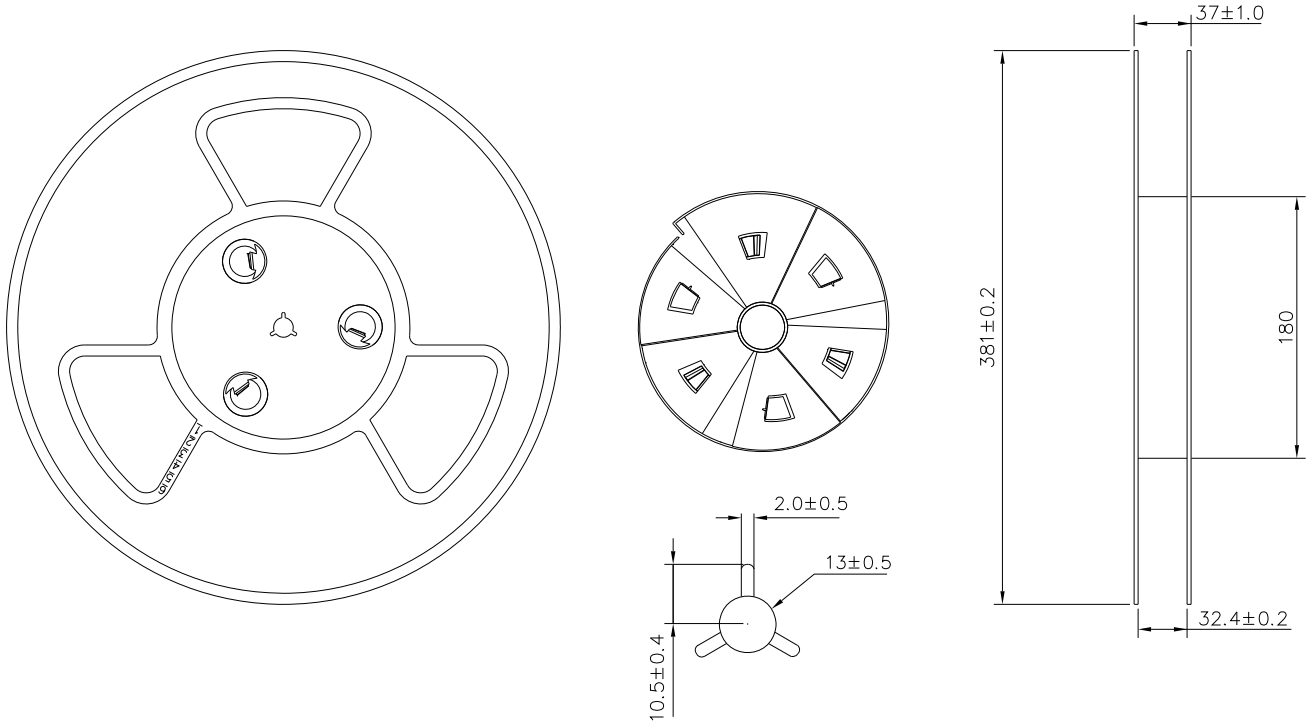


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#### ● REEL DIMENSIONS



#### ● PACKING & LABEL SPECIFICATIONS

