



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.



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● 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.



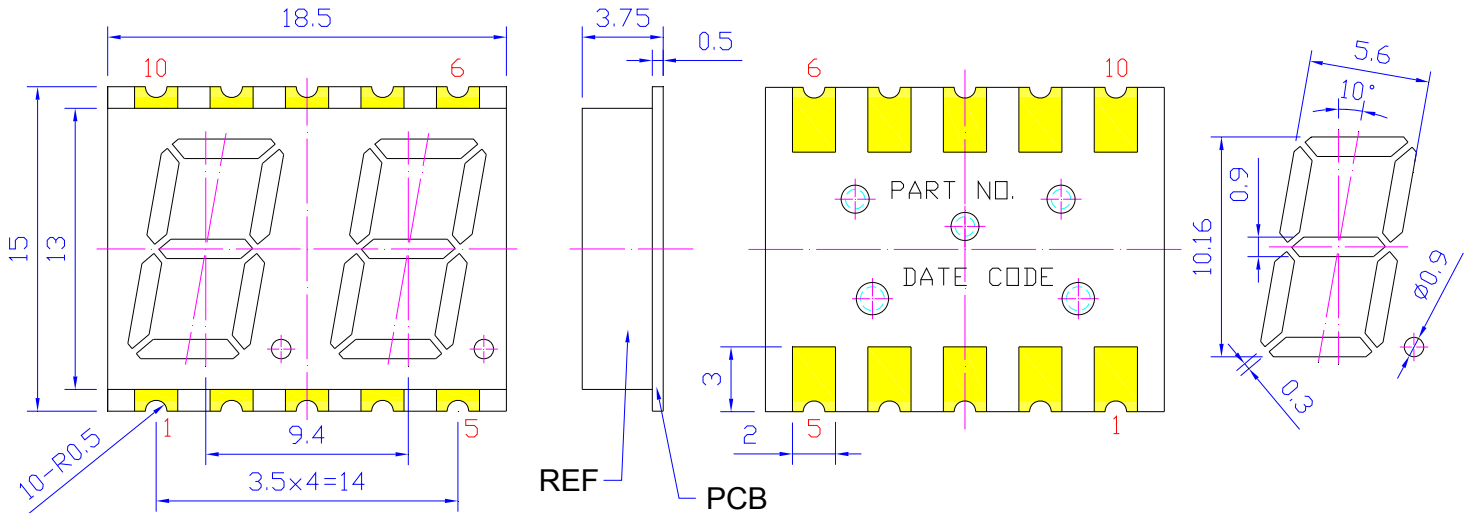


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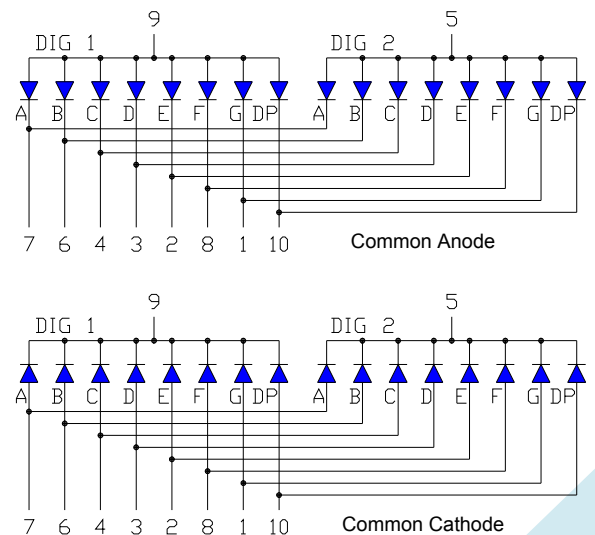
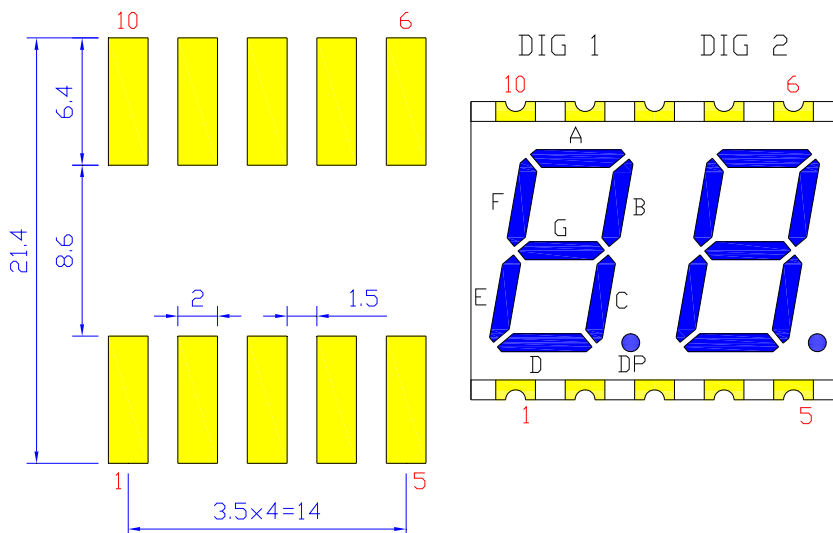
MECHANICAL DIMENSIONS



NOTE:
Dimension in millimeter (inch),
and tolerance is ± 0.25 (.01) specified.

TYPICAL INTERNAL EQUIVALENT CIRCUIT

Recommended Soldering Pattern





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

ABSOLUTE MAXIMUM RATING AT $T_a=25^{\circ}\text{C}$

Parameter	Symbol	Super Bright Blue	Unit
Power dissipation per dice	P_{AD}	120	mW
Derating Liner from 25°C per dice	-	0.3	$\text{mA}/^{\circ}\text{C}$
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	$^{\circ}\text{C}$
Storage temperature	T_{STG}	-40 to +105	$^{\circ}\text{C}$

ELECTRICAL - OPTICAL CHARACTERISTICS AT $T_a=25^{\circ}\text{C}$

Characteristic	Symbol	Condition	Min.	Type	Max.	Unit
Forward Voltage	V_F	$I_F = 5\text{mA}$	2.7	2.85	3.0	V
Reverse Current	I_R	$V_R = 8\text{V}$	-	-	10	μA
Dominant Wavelength	λ_d	$I_F = 5\text{mA}$	450	470	480	nm
Average Luminous Intensity	I_v	$I_F = 5\text{mA}$	10	30	40	mcd
Spectrum Radiation Bandwidth	$\Delta\lambda$	$I_F = 5\text{mA}$	-	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)

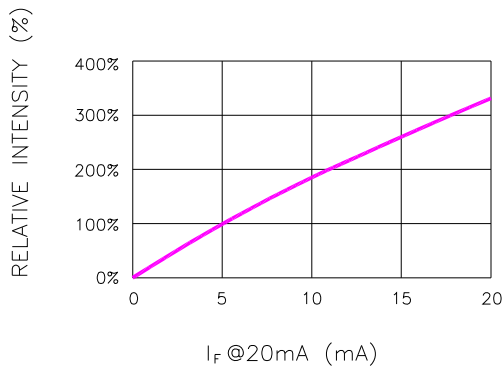


Fig.1 RELATIVE INTENSITY VS. FORWARD CURRENT

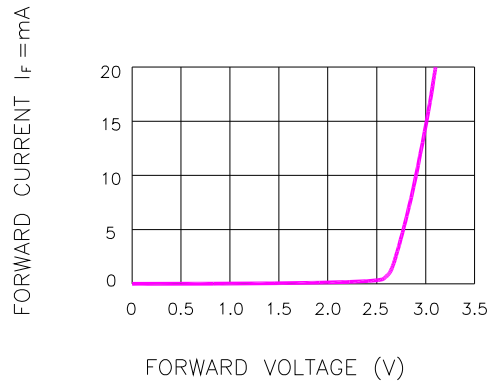


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

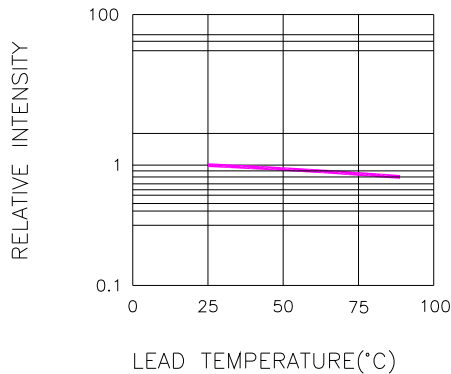


Fig.3 RELATIVE INTENSITY VS. LEAD TEMPERATURE
(PULSED 20 mA; 300us PULSE, 10ms PERIOD)

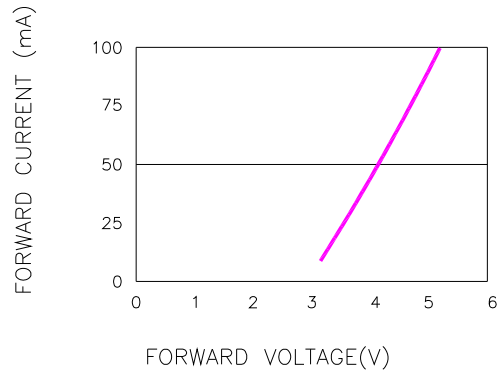


Fig.4 PEAK FORWARD VOLTAGE
VS. FORWARD (100us TEST PULSE,
1% DUTY CYCLE)

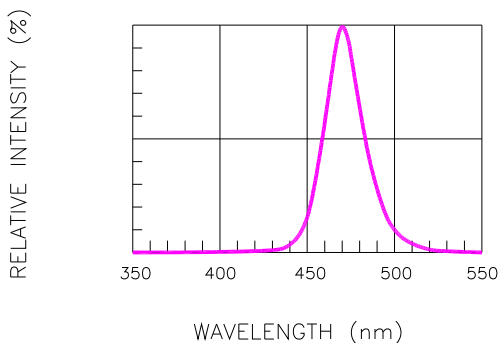


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

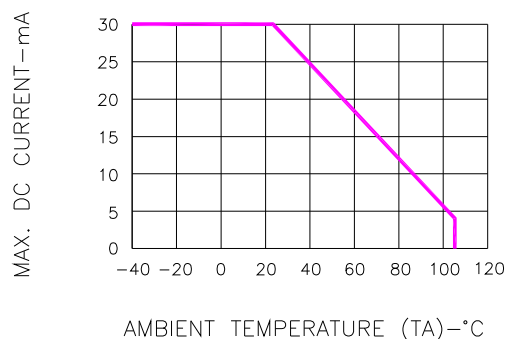


Fig.6 MAX. ALLOWABLE DC CURRENT
VS. AMBIENT TEMPERATURE



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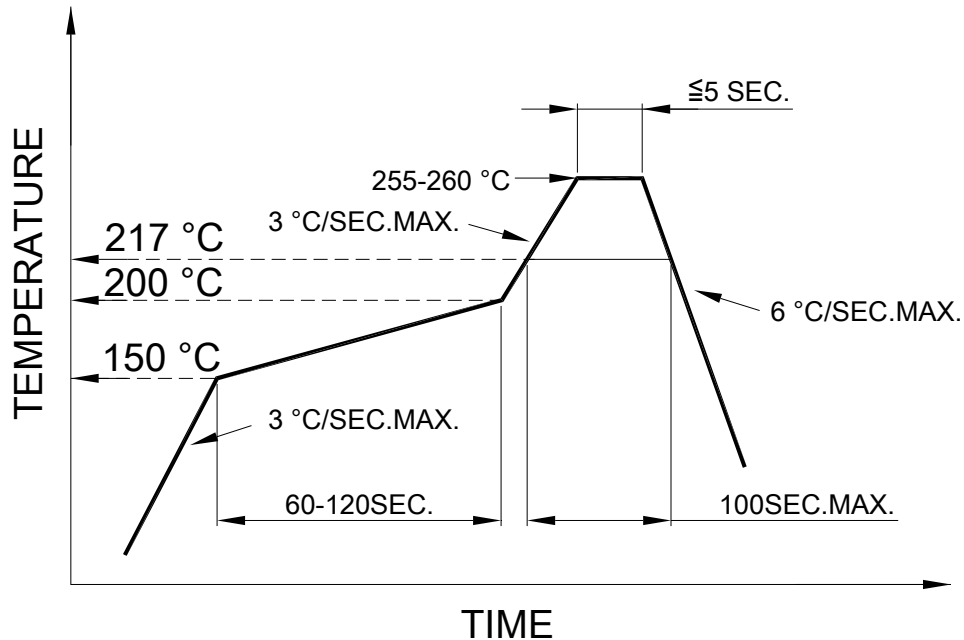
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● SMT REFLOW SOLDERING INSTRUCTIONS

SMT Soldering Profile

Pb free reflow soldering Profile



● SOLDERING IRON

Basic spec is ≤ 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.

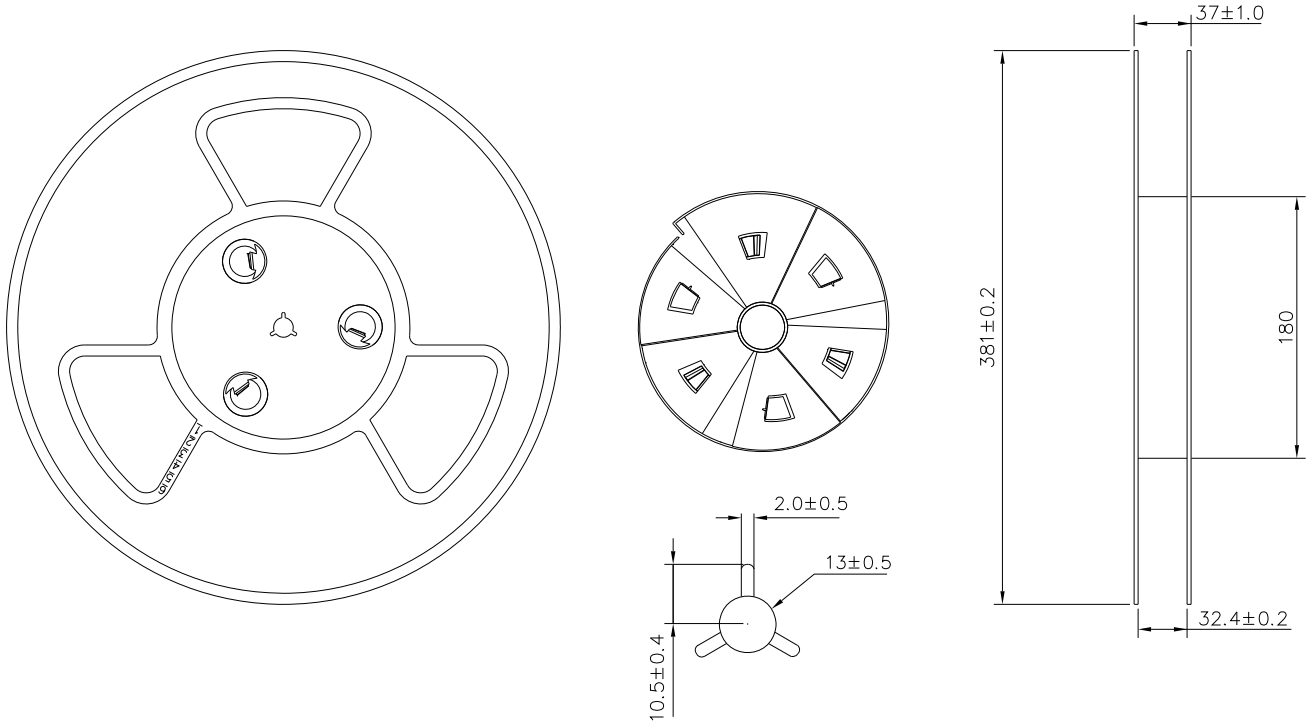


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● REEL DIMENSIONS



● PACKING & LABEL SPECIFICATIONS

