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**American Opto Plus LED Corp.**  
**0.52" Case mold Type LED Display**  
**A521LB G/W**  
**C521LB G/W**

● **EDIT HISTORY**

Version A : Jun. 13, 2016  
Preliminary Spec.

Manufacture	Examination	Approving



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# American Opto Plus LED Corp.

## 0.52" Case mold Type LED Display

### A521LB G/W

### C521LB G/W

### ● FEATURES

- 0.52 inch (13.2 mm) Digit Height.
- Low current operation..
- Case mold type.
- Gray face, White segment.
- RoHS compliant, Pb Free.

### ● DESCRIPTION

The A521LB G/W & C521LB G/W is a 0.52 inch (13.1 mm) height single 7-segment 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 Super Bright Blue	DESCRIPTION
A521LB G/W	Common Anode
C521LB G/W	Common Cathode

**RoHS Compliance**



**Pb free.**





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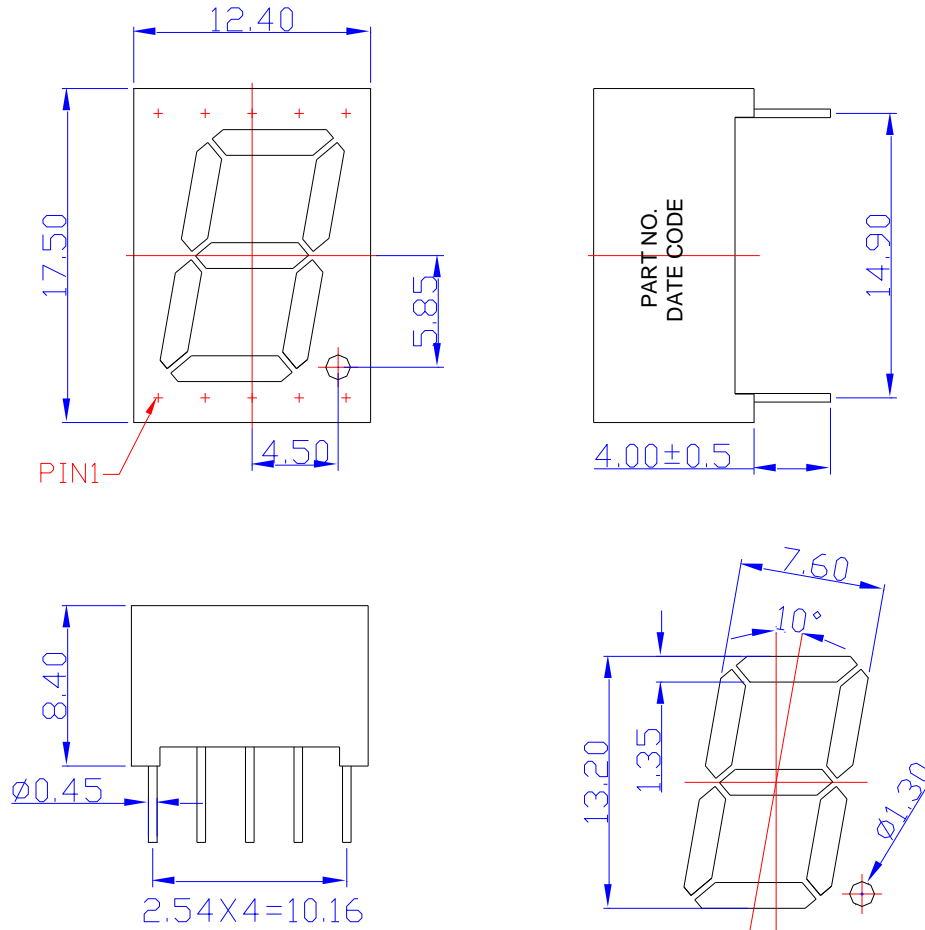
# American Opto Plus LED Corp.

## 0.52" Case mold Type LED Display

### A521LB G/W

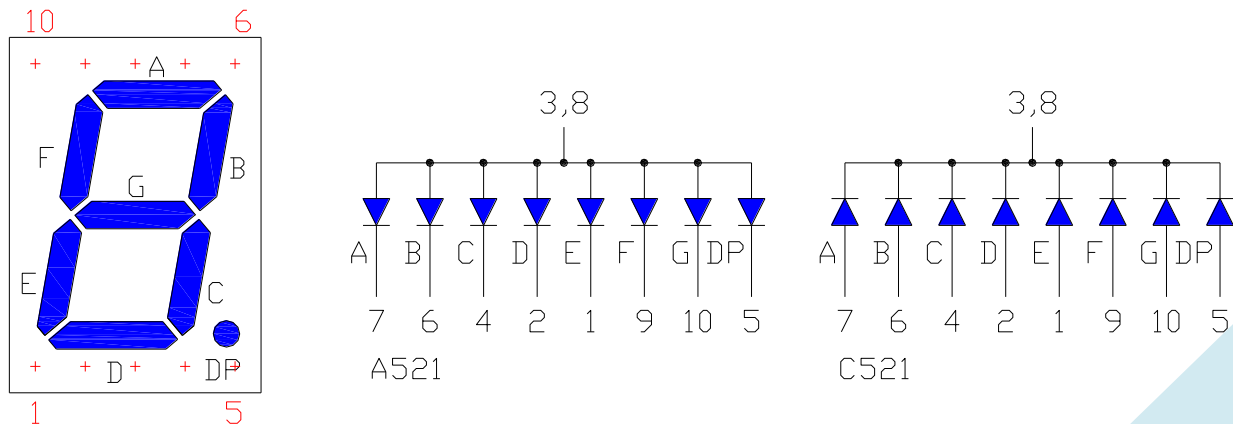
### C521LB G/W

### ● MECHANICAL DIMENSIONS



NOTES: All dimensions are in millimeters. Tolerances are  $\pm 0.25$  mm unless otherwise noted.

### ● TYPICAL INTERNAL EQUIVALENT CIRCUIT





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

ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Super Bright Blue	Unit
Power dissipation per dice	P <sub>AD</sub>	120	mW
Derating liner from 25°C per dice	-	0.4	mA / °C
Continuous forward current per dice	I <sub>AF</sub>	30	mA
Peak current per dice (duty cycle 1/10, 1kHz)	I <sub>PF</sub>	100	mA
Reverse voltage per dice	V <sub>R</sub>	5	V
Operating temperature	T <sub>OPR</sub>	-25 to +85	°C
Storage temperature	T <sub>STG</sub>	-25 to +85	°C

ELECTRICAL - OPTICAL CHARACTERISTICS AT Ta=25°C

Characteristic	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward voltage	V <sub>F</sub>	I <sub>F</sub> =20mA	-	3.0	4.0	V
Reverse current	I <sub>R</sub>	V <sub>R</sub> =8V	-	-	10	μA
Dominant wavelength	λ <sub>D</sub>	I <sub>F</sub> =20mA	460	465	470	nm
Luminous intensity	I <sub>v</sub>	I <sub>F</sub> =20mA	-	60	-	mcd
Spectral radiation bandwidth	Δλ	I <sub>F</sub> =20mA	-	30	-	nm



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# American Opto Plus LED Corp. 0.52" Case mold Type LED Display A521LB G/W C521LB G/W

## ● B: SUPER BRIGHT BLUE (InGaN/GaN) CURVE

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

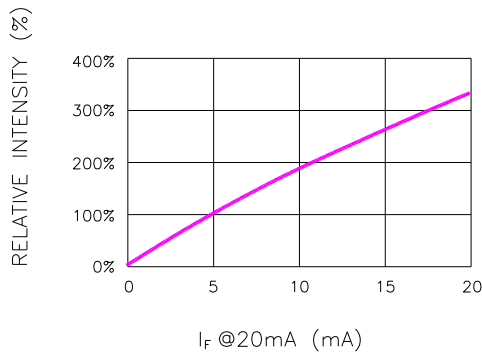


Fig.1 RELATIVE INTENSITY VS. FORWARD CURRENT

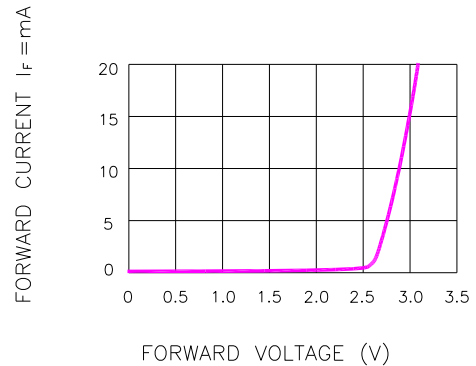


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

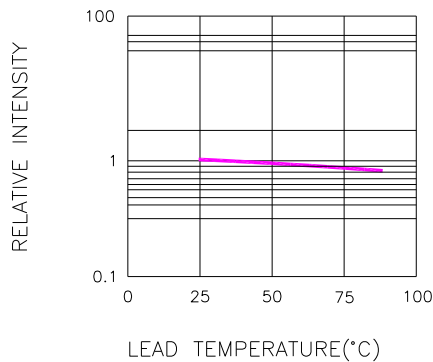


Fig.3 RELATIVE INTENSITY VS. LEAD TEMPERATURE  
(PULSED 20 mA; 300us PULSE, 10ms PERIOD)

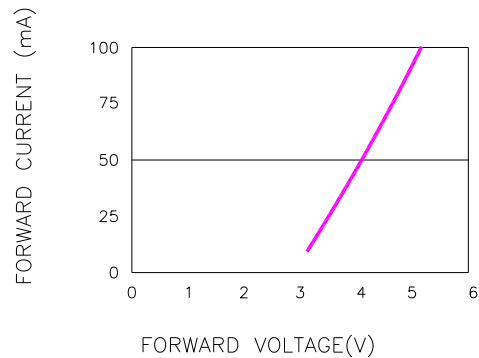


Fig.4 PEAK FORWARD VOLTAGE VS. FORWARD (100us TEST PULSE, 1% DUTY CYCLE)

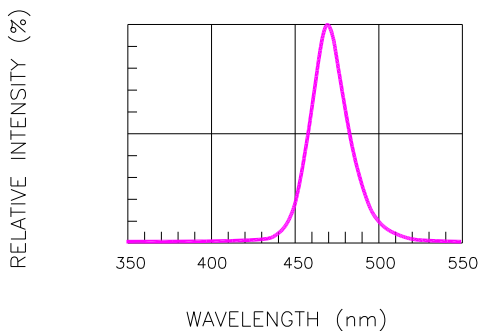


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

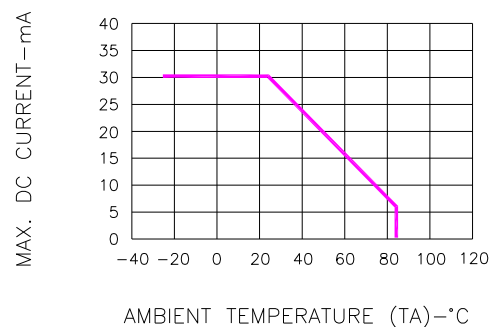


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE



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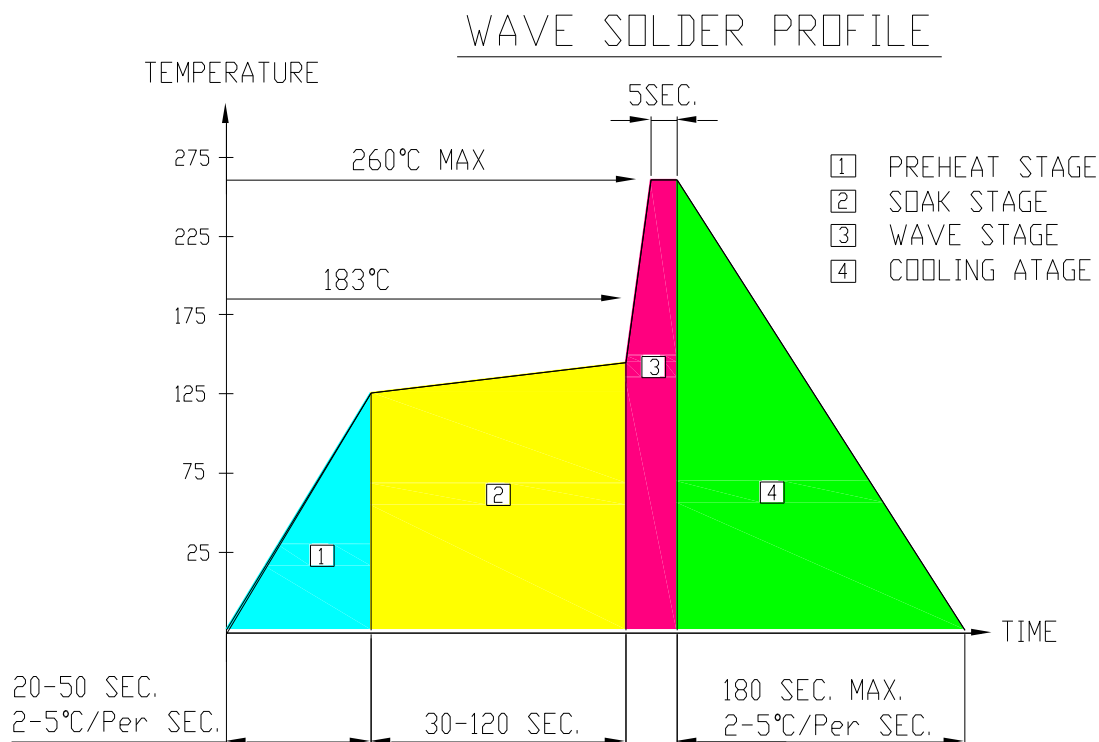
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## 0.52" Case mold Type LED Display

### A521LB G/W

### C521LB G/W

## ● RECOMMEND SOLDERING PROFILE



## ● Note:

- Recommend pre-heat temperature of 105°C or less (as measured with a thermocouple attached to the LED pins) prior to immersion in the solder wave with a maximum solder bath temperature of 260°C
- Peak wave soldering temperature between 245°C ~ 225°C for 3 sec (5 sec max)
- No more than one wave soldering pass

## ● 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  $\leq 3$  sec under 350°C.  
The head of soldering iron cannot touch copper foil.