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**American Opto Plus LED Corp.**  
**Case Mold Type LED Display**  
**A1501UE G/W**  
**C1501UE G/W**

● **EDIT HISTORY**

Version A: Nov. 01, 2013

Preliminary Spec.

Manufacture	Examination	Approving



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## American Opto Plus LED Corp.

### Case Mold Type LED Display

A1501UE G/W

C1501UE G/W

#### ● FEATURES

- 1.50 inch (38.10 mm) Digit Height..
- Low current operation..
- Case mold type.
- Gray face, White segment.
- RoHS compliant, Pb Free.

#### ● DESCRIPTION

The A1501UE G/W & C1501UE G/W is a 1.5 inch (38.1mm) height single 7-segment display..

This device utilizes Super Bright Red LED chip which are made from AlInGaP, substrate. The display has Gray face, White segment.

#### ● DEVICE

PART NO Super Bright Red	DESCRIPTION
A1501UE G/W	Common Anode
C1501UE G/W	Common Cathode

**RoHS Compliance**



**Pb free.**





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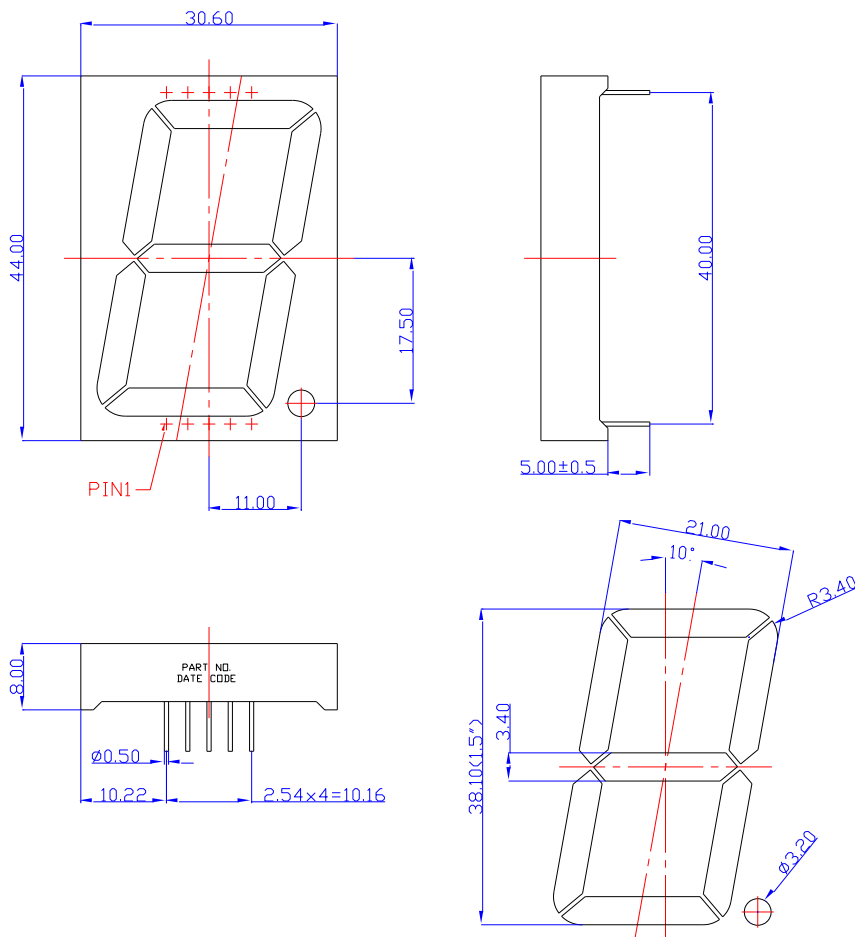
# American Opto Plus LED Corp.

## Case Mold Type LED Display

### A1501UE G/W

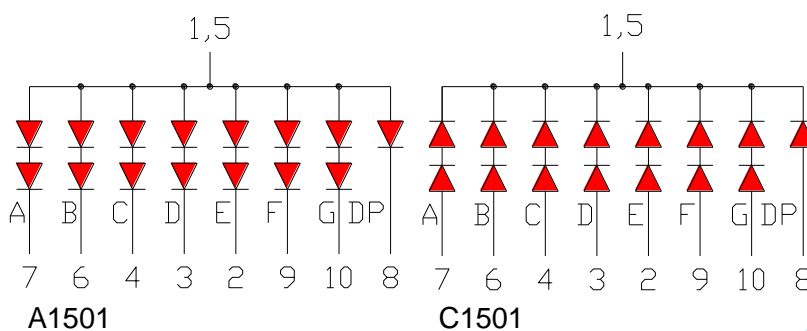
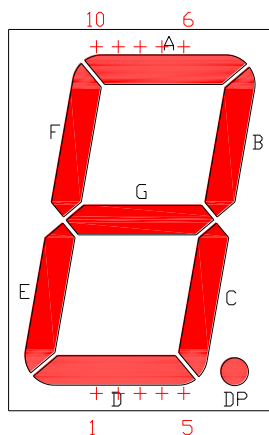
### C1501UE G/W

#### ● 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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● **UE: SUPER BRIGHT RED (AlInGaP)**

ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Super Bright Red	Unit
Power dissipation per dice	P <sub>AD</sub>	70	mW
Derating liner from 25°C per dice	-	0.28	mA / °C
Continuous forward current per dice	I <sub>AF</sub>	25	mA
Peak current per dice (duty cycle 1/10, 1kHz)	I <sub>PF</sub>	90	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 per Segment (DP)	V <sub>F</sub>	I <sub>F</sub> = 20mA		4.0 (2.0)		V
Reverse current per Segment (DP)	I <sub>R</sub>	V <sub>R</sub> = 5V	-	-	10	μA
Peak wavelength	λ <sub>P</sub>	I <sub>F</sub> = 20mA	-	632	-	nm
Dominant wavelength	λ <sub>D</sub>	I <sub>F</sub> = 20mA	616	-	630	nm
Luminous intensity per Segment	I <sub>V</sub>	I <sub>F</sub> = 10mA	-	300		mcd
Spectral radiation bandwidth	Δλ	I <sub>F</sub> = 20mA	-	20	-	nm



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## Case Mold Type LED Display

### A1501UE G/W

### C1501UE G/W

#### ● UE: SUPER BRIGHT RED (AlInGaP) CURVE

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

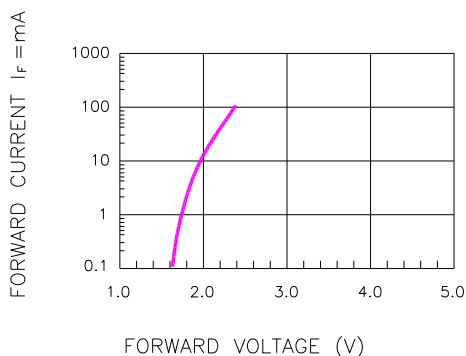


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

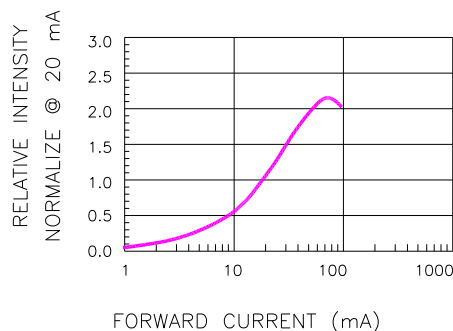


Fig.2 RELATIVE INTENSITY VS. FORWARD CURRENT

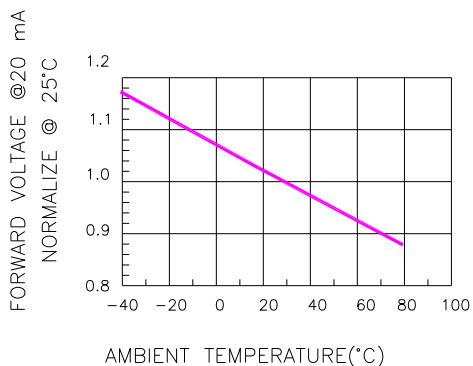


Fig.3 FORWARD VOLTAGE VS. TEMPERATURE

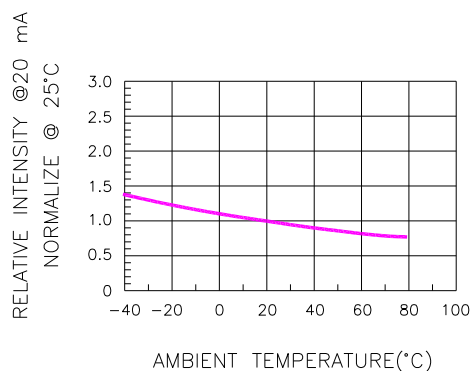


Fig.4 RELATIVE INTENSITY VS. TEMPERATURE

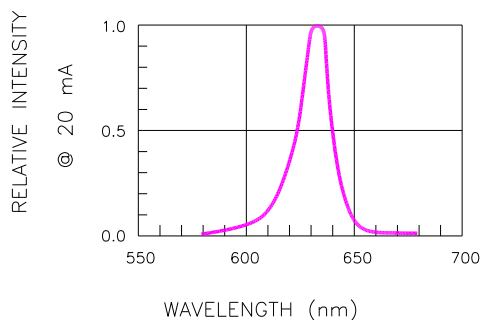


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

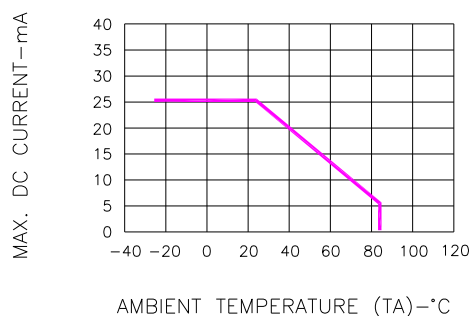


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE



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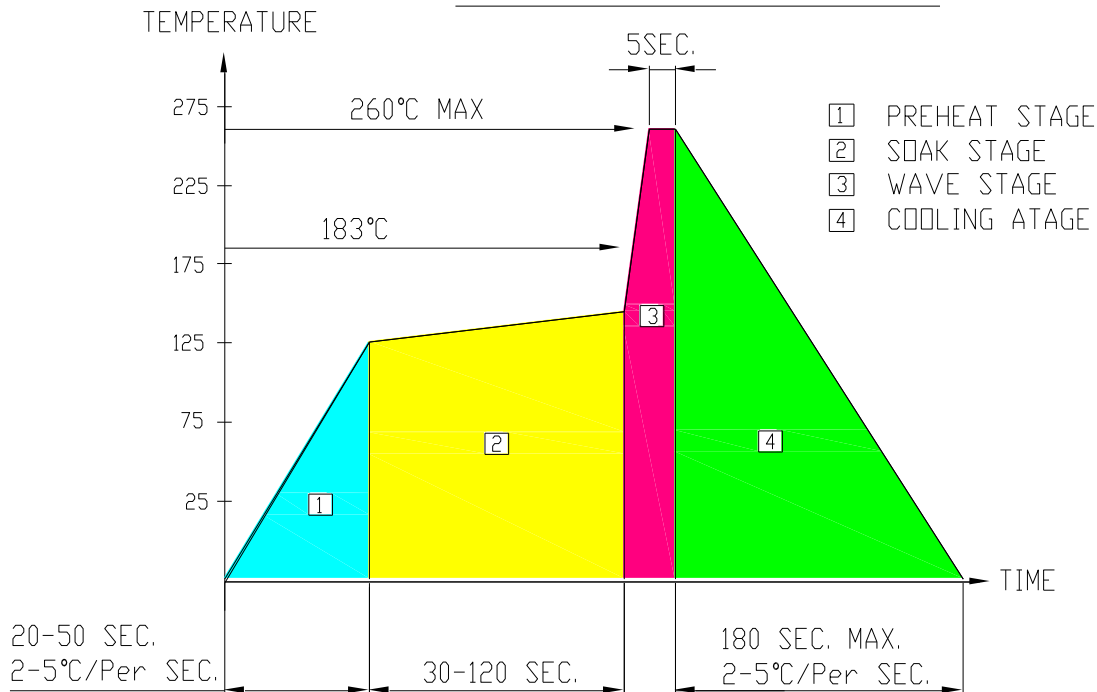
## Case Mold Type LED Display

### A1501UE G/W

### C1501UE G/W

## ● RECOMMEND SOLDERING PROFILE

### WAVE SOLDER 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.