



**American Opto Plus LED Corp.**  
**0.56" SMD Type LED Display**  
**SMA561B-ST-1.5 G/W**  
**SMC561B-ST-1.5 G/W**

● **EDIT HISTORY**

Version A: Jul. 15, 2015

Preliminary spec.



**American Opto Plus LED Corp.**  
**0.56" SMD Type LED Display**  
**SMA561B-ST-1.5 G/W**  
**SMC561B-ST-1.5 G/W**

● **FEATURES**

- 0.56 inch (14.22 mm) Digit Height.
- Low current operation.
- Super thin SMD type.
- Gray face, White segment.
- RoHS compliant, Pb Free.

● **DESCRIPTION**

The SMA561B-ST-1.5 G/W & SMC561B-ST-1.5 G/W

Are 0.56 inch (14.22mm) height single digit 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	DESCRIPTION
SMA561B-ST-1.5 G/W	Common Anode
SMC561B-ST-1.5 G/W	Common Cathode

**RoHS Compliance**



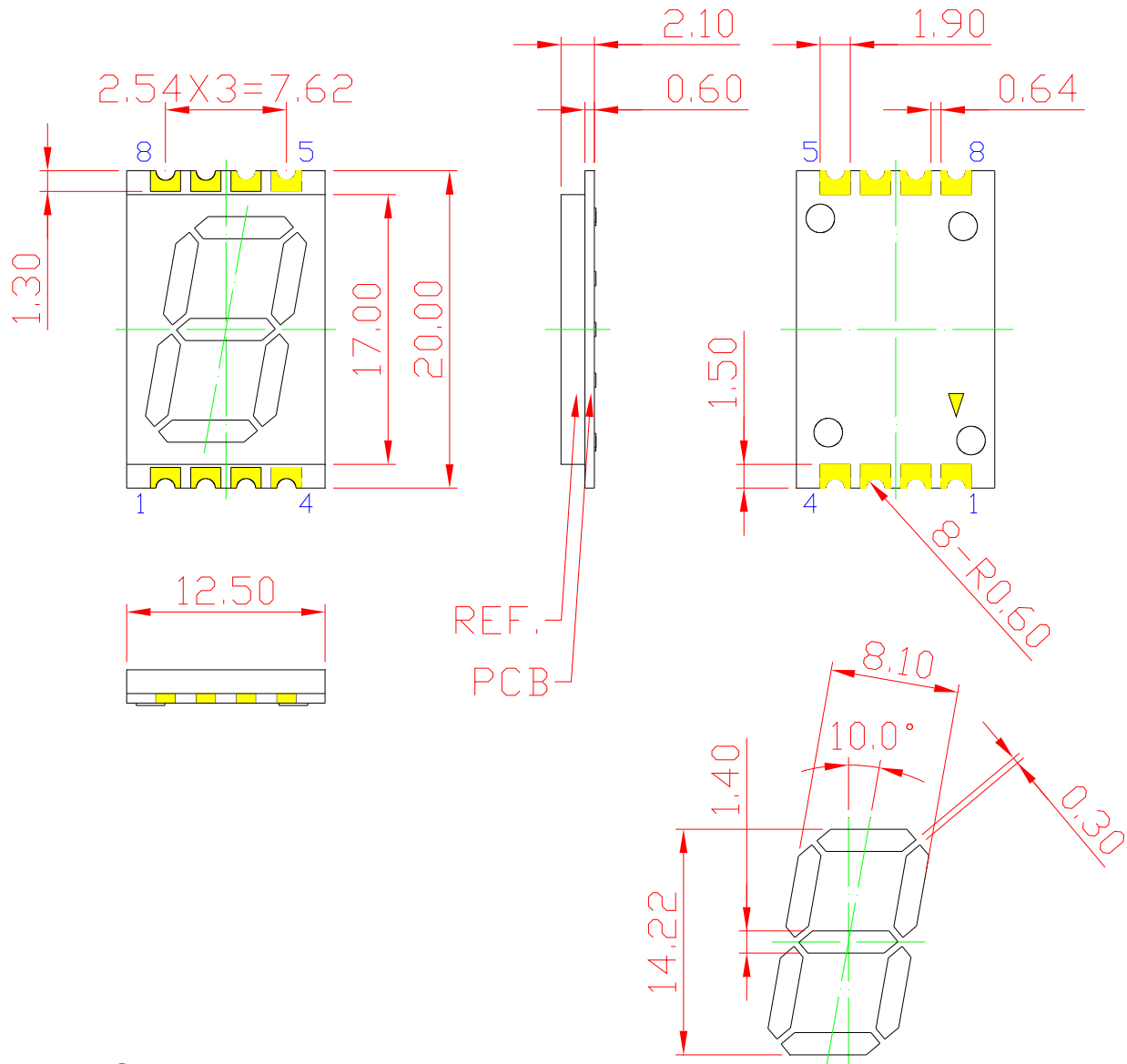
**Pb free.**





**American Opto Plus LED Corp.**  
**0.56" SMD Type LED Display**  
**SMA561B-ST-1.5 G/W**  
**SMC561B-ST-1.5 G/W**

● **MECHANICAL DIMENSIONS**



**NOTE:**

Dimension in millimeters (inches),

And tolerances are  $\pm 0.25\text{mm}$  (.01") specified.



# American Opto Plus LED Corp.

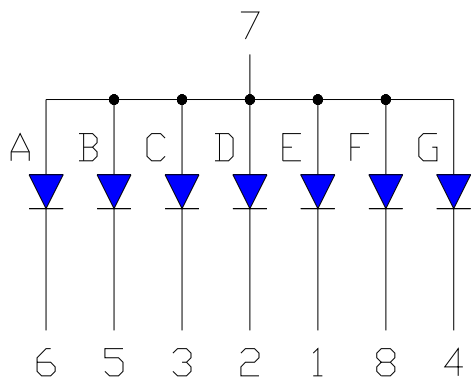
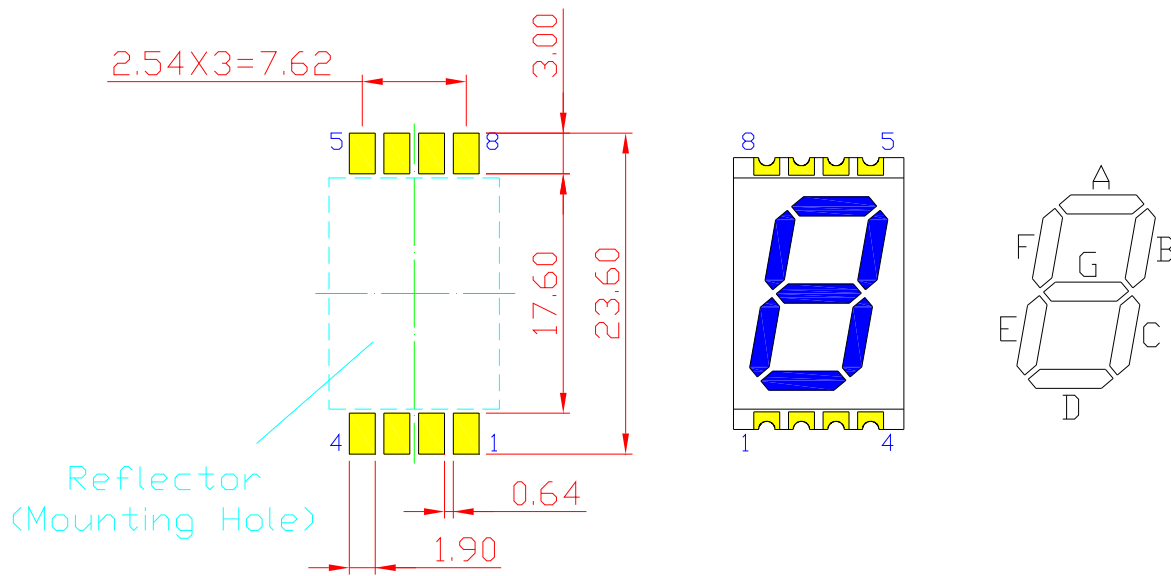
## 0.56" SMD Type LED Display

### SMA561B-ST-1.5 G/W

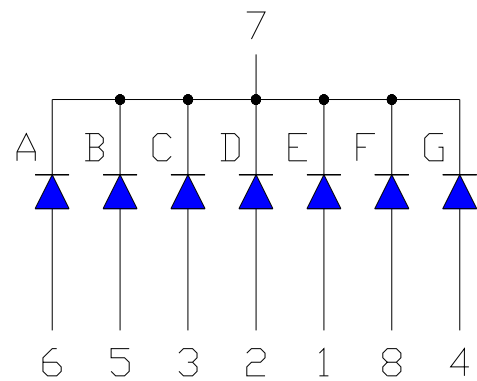
### SMC561B-ST-1.5 G/W

#### ● TYPICAL INTERNAL EQUIVALENT CIRCUIT

Reverse Mount  
Recommended  
Soldering Pattern



SMA561B-ST-1.5 G/W



SMC561B-ST-1.5 G/W



**American Opto Plus LED Corp.**  
**0.56" SMD Type LED Display**  
**SMA561B-ST-1.5 G/W**  
**SMC561B-ST-1.5 G/W**

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

ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Maximum Rating	Unit
Power dissipation	P <sub>AD</sub>	120	mW
Derating liner from 25°C	-	0.3	mA / °C
Continuous forward current	I <sub>AF</sub>	30	mA
Peak current (duty cycle 1/10, 1kHz)	I <sub>PF</sub>	100	mA
Reverse voltage	V <sub>R</sub>	5	V
Operating temperature	T <sub>OPR</sub>	-40 to +105	°C
Storage temperature	T <sub>STG</sub>	-40 to +105	°C

ELECTRICAL - OPTICAL CHARACTERISTICS AT Ta=25°C

Characteristic	Symbol	Condition	Min.	Type.	Max.	Unit
Forward Voltage, (Per Dice)	V <sub>F</sub>	I <sub>F</sub> =5mA	-	3.0	3.5	V
Reverse Current, (Per Dice)	I <sub>R</sub>	V <sub>R</sub> =8V	-	-	10	μA
Dominant Wavelength	λ <sub>D</sub>	I <sub>F</sub> =5mA	460	-	470	nm
Luminous Intensity	I <sub>V</sub>	I <sub>F</sub> =5mA	5	-	30	mcd
Spectral radiation bandwidth	Δλ	I <sub>F</sub> =5mA	-	30	-	nm



**American Opto Plus LED Corp.**  
**0.56" SMD Type LED Display**  
**SMA561B-ST-1.5 G/W**  
**SMC561B-ST-1.5 G/W**

● **B: BIN GRADE (Unit : mcd) IF = 5mA**

Super Bright Blue	G	H	I
	5.0 – 13.0	13.1 – 22.0	22.1 – 30.0

● **B: HUE GRADE ( $\lambda_D$  : nm)**

Super Bright Blue	1	2	3
	460.0 - 463.0	463.1 – 467.0	467.1 – 470.0

● **AVAILABLE BIN / HUE TABLE**

G1	G2	G3
H1	H2	H3
I1	I2	I3



# American Opto Plus LED Corp.

## 0.56" SMD Type LED Display

### SMA561B-ST-1.5 G/W

### SMC561B-ST-1.5 G/W

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

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

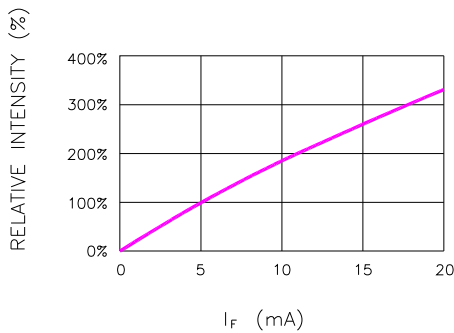


Fig.1 RELATIVE INTENSITY VS. FORWARD CURRENT

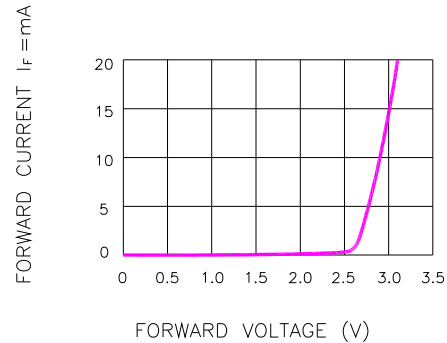


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

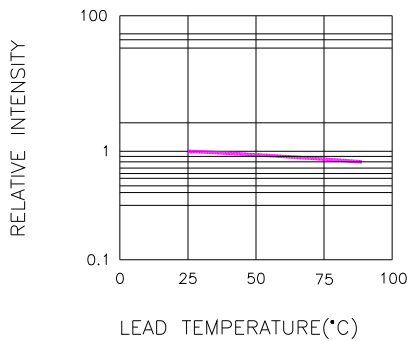


Fig.3 RELATIVE INTENSITY VS. LEAD TEMPERATURE  
(PULSED 20 mA; 300us PULSE, 10ms PERIOD)

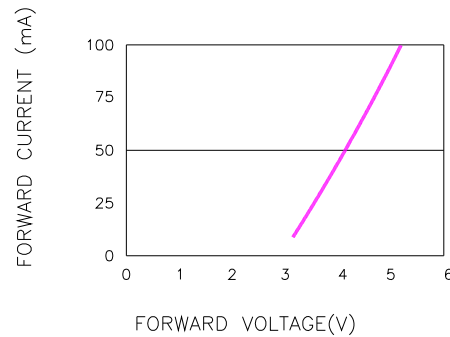


Fig.4 PEAK FORWARD VOLTAGE VS. FORWARD (100us TEST PULSE, 1% DUTY CYCLE)

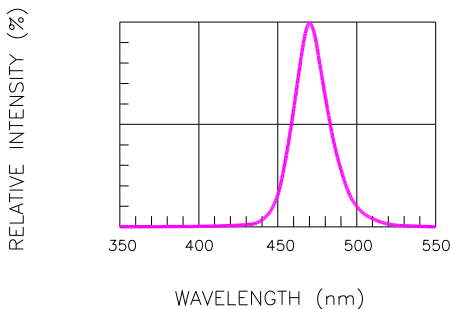


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

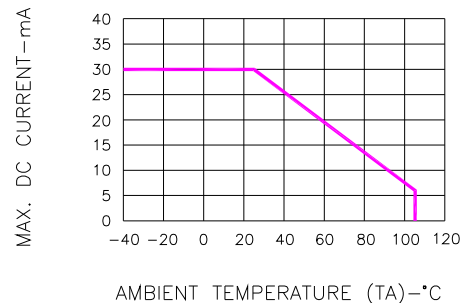


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE

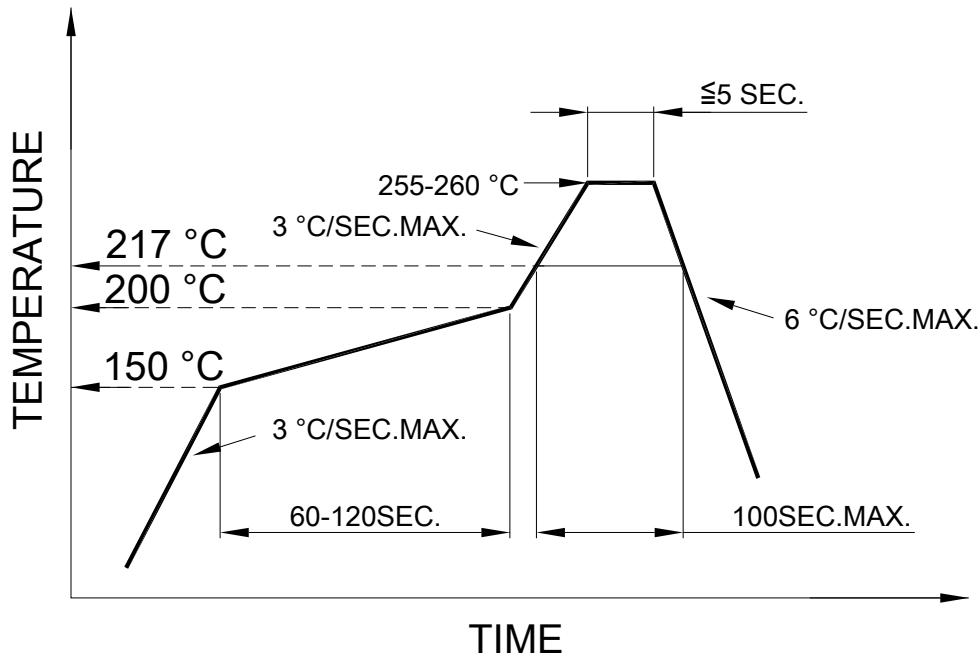


**American Opto Plus LED Corp.**  
**0.56" SMD Type LED Display**  
**SMA561B-ST-1.5 G/W**  
**SMC561B-ST-1.5 G/W**

● **RECOMMEND SOLDERING PROFILE**

SMT Soldering Profile

Pb free reflow soldering Profile



● **SOLDERING IRON**

Basic specification :  $\leq 4$  seconds 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 3 sec. under 350°C.

The head of soldering iron cannot touch copper foil.