



**American Opto Plus LED Corp.**  
**0.3" Blue 7-Segment Triple Digit Display G/W**  
**SMA-T3050SB-ST-1.5-GW**

**FEATURES**

- 0.3 inch (7.62 mm) Digit Height
- SMD TYPE
- Low current operation
- Gray face, White segment
- RoHS compliant, Pb Free

**DESCRIPTION**

This device is a 0.3 inch (7.62 mm) height triple digits 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**

<b>COLOR</b>	<b>DESCRIPTION</b>
Super Bright Blue	Common Anode

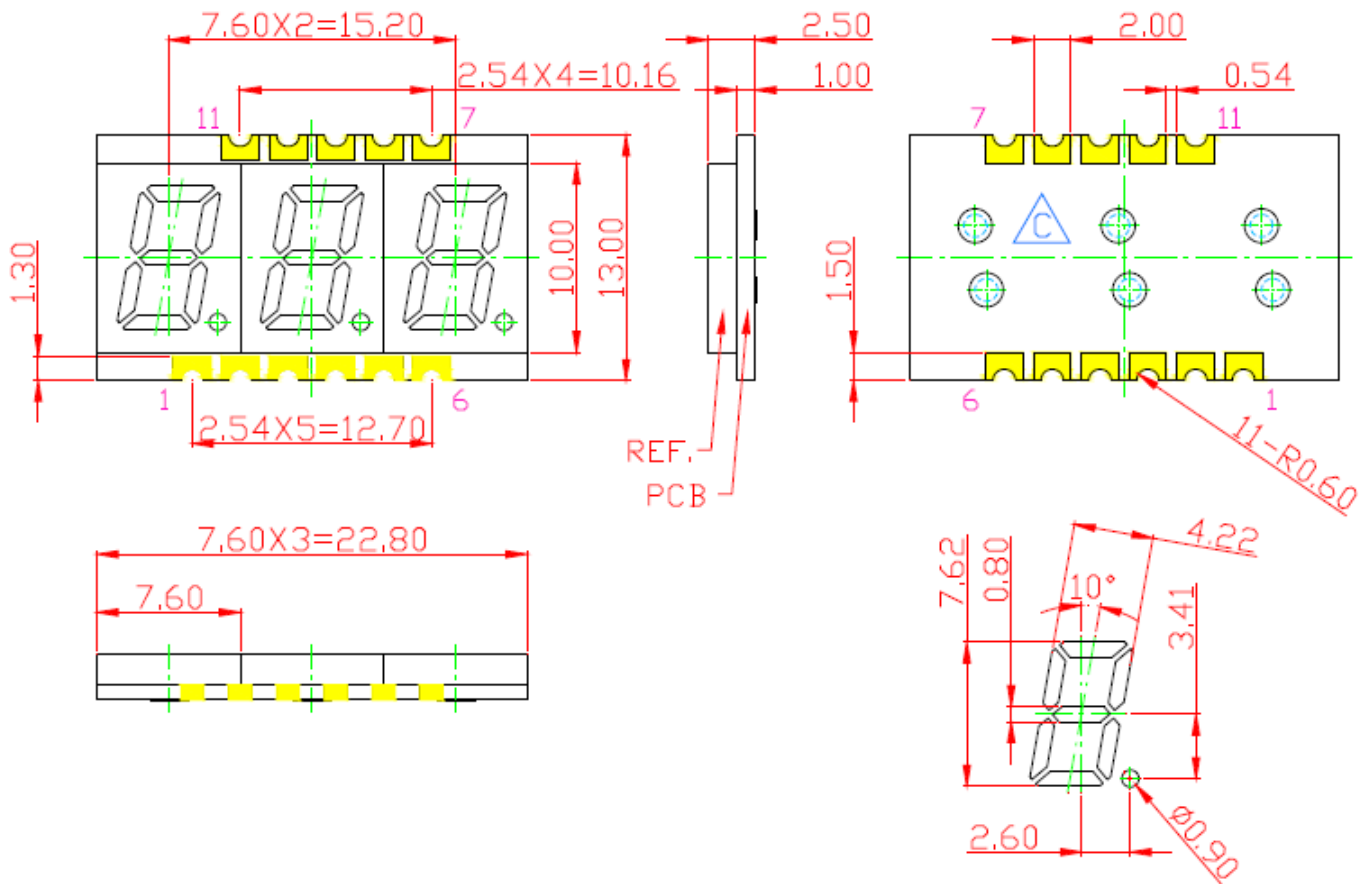


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#### MECHANICAL DIMENSIONS



#### Notes:

1. All dimensions are in millimeters (inches); tolerances are  $\pm 0.25$ mm (0.01") specified

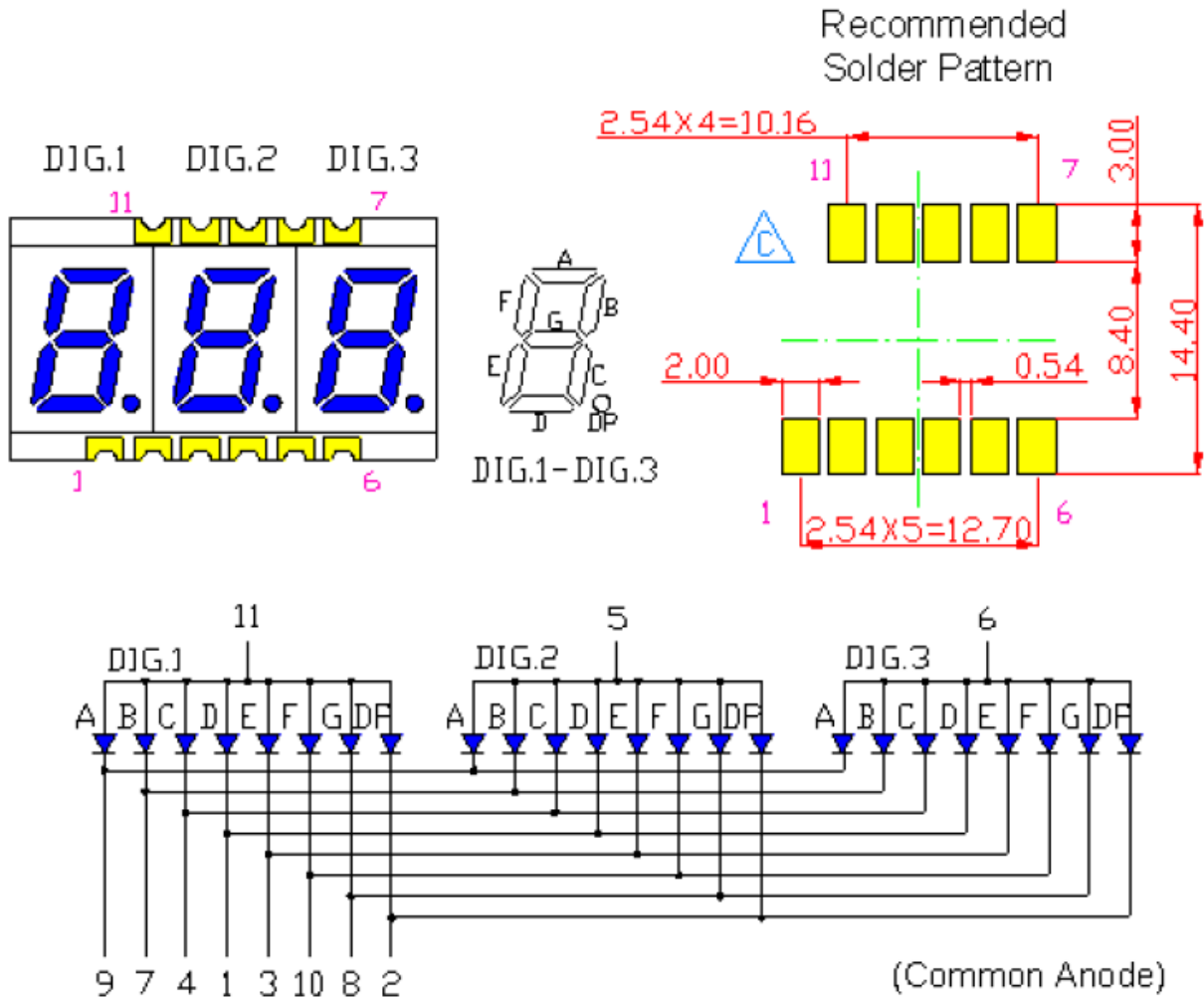


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#### TYPICAL INTERNAL EQUIVALENT CIRCUIT





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**SB: SUPER BRIGHT BLUE (InGaN/GaN)**

**ABOSOLUTE MAXIMUM RATING AT Ta=25°C**

	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**

	Symbol	Condition	Min.	Type.	Max.	Unit
Forward Voltage (Per Dice)	V <sub>F</sub>	I <sub>F</sub> = 20mA	-	3.0	4.0	V
Dominant Wavelength	λ <sub>D</sub>		464	-	474	nm
Luminous Intensity	I <sub>v</sub>		45	-	90	mcd
Spectral Radiation Bandwidth	Δλ		-	20	-	nm
Reverse Current (Per Dice)	I <sub>R</sub>	V <sub>R</sub> = 5V	-	-	10	μA



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**SB: BIN GRADE (Unit: mcd) @ 20mA**

Super Bright Blue	L	M	N
	45.0-60.0	60.1-75.0	75.1-90.0

**SB: HUE GRADE ( $\lambda_d$ : nm)**

1	2	3
464.0 - 467.0	467.1 - 470.0	470.1 - 474.0

**AVAILABLE BIN / HUE TABLE**

L1	L2	L3
M1	M2	M3
N1	N2	N3



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**SB: SUPER BRIGHT BLUE (InGaN/GaN)**

**TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVE @ TA=25°C**

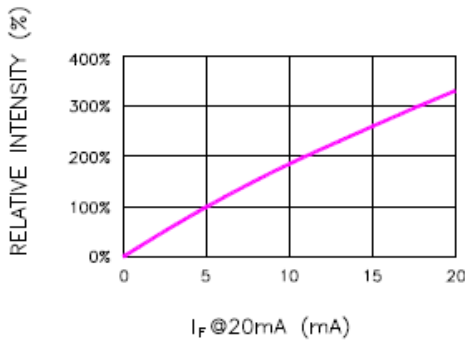


Fig.1 RELATIVE INTENSITY VS. FORWARD CURRENT

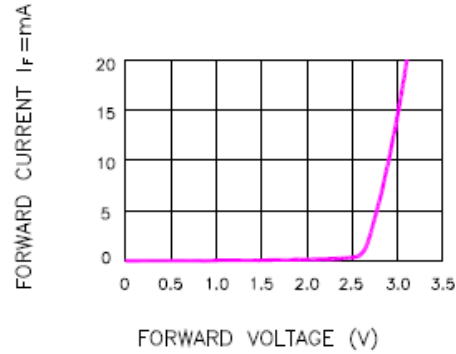


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

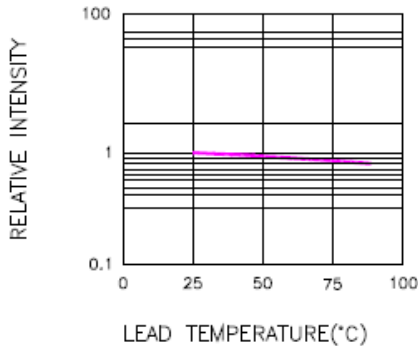


Fig.3 RELATIVE INTENSITY VS. LEAD TEMPERATURE  
(PULSED 20 mA; 300us PULSE, 10ms PERIOD)

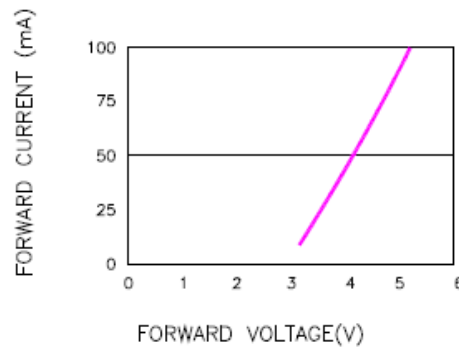


Fig.4 PEAK FORWARD VOLTAGE VS. FORWARD (100us TEST PULSE, 1% DUTY CYCLE)

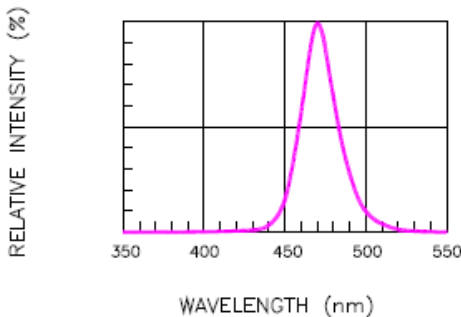


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

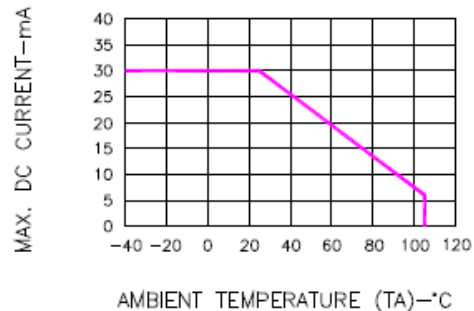


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE



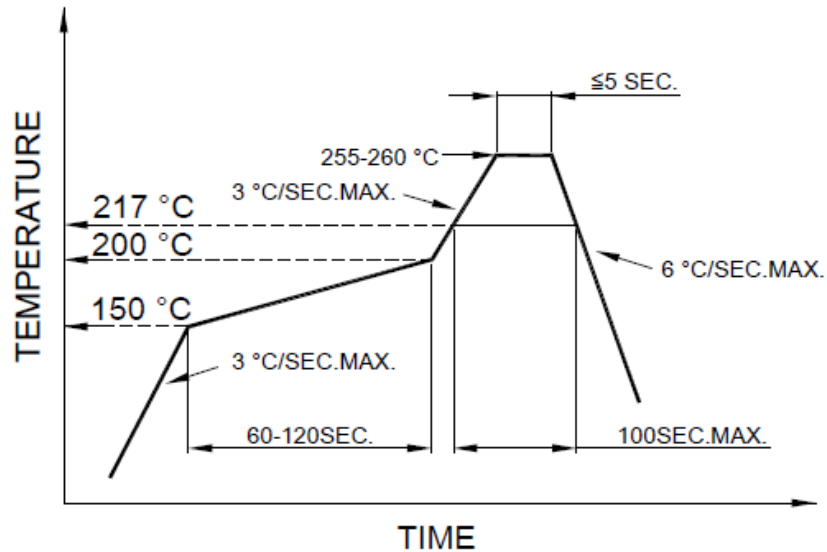
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#### RECOMMEND SOLDERING PROFILE

SMT Soldering Profile  
Pb free reflow soldering Profile



#### Notes:

1. We recommend the reflow temperature 245°C (+/-5°C). The maximum soldering temperature should be limited to 260°C
2. Number of reflow process shall be 2 times or less

#### 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

1. Customer must finish rework within 3 sec under 350°C
2. The head of soldering iron cannot touch copper foil

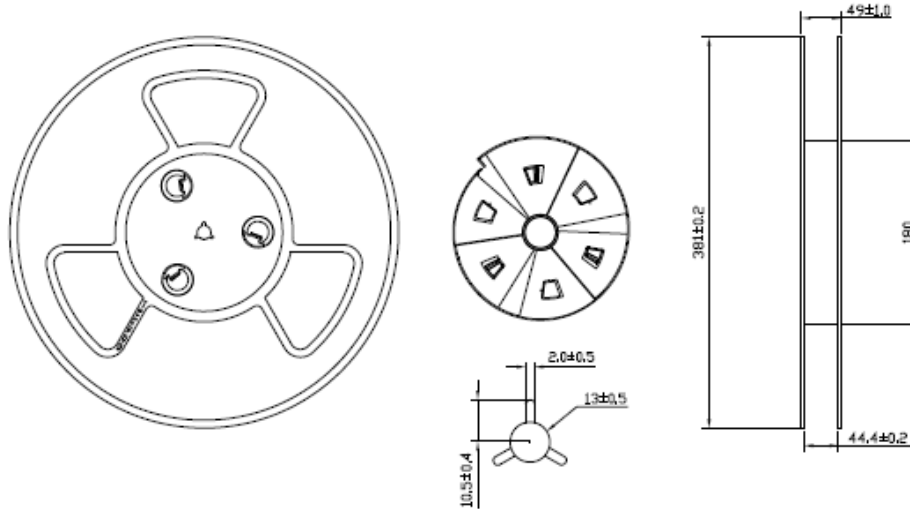


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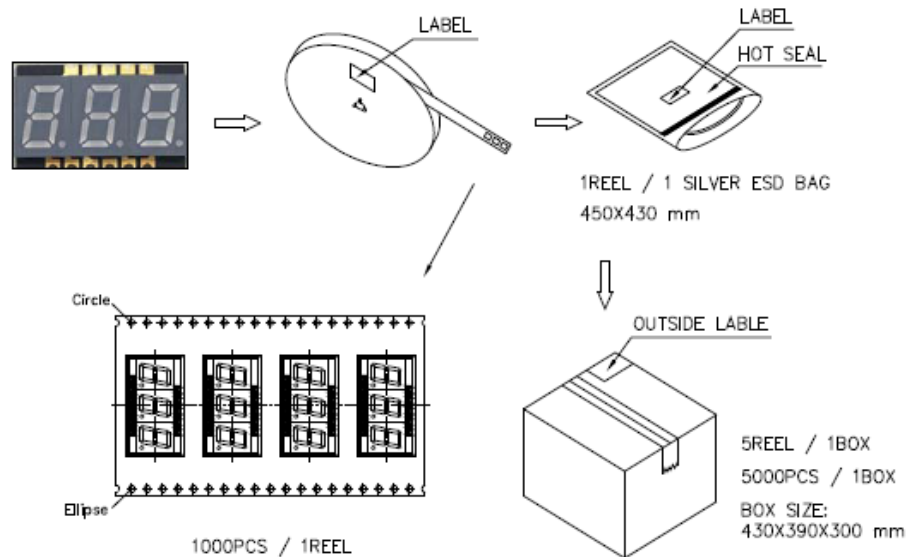
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### REEL DIMENSIONS



### PACKING & LABEL SPECIFICATIONS



### STORAGED CONDITION

In factory original sealed bag package

TEMPERATURE CONDITION	HUMIDITY CONDITION
5°C ~ 30°C	Below 60%RH

After opened and not in factory original sealed bag package

TEMPERATURE CONDITION	HUMIDITY CONDITION	STORAGE TIME
5°C ~ 30°C	Below 60%RH	Within 4 weeks (MSL as level 2a)