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American Opto Plus LED Corp.
0.39” Super Thin SMD Type LED Display
SMA391LE-STGW
SMC391LE-STGW

● **EDIT HISTORY**

Version A: Nov. 11, 2010

New color data sheet.

Version B: Jan. 03, 2012

1. Modify Iv data.
2. Add package dimensions.
3. Modify P/N location.

Version C: Apr. 14, 2017

Modify recommended reverse mount soldering pattern dimensions.



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SMA391LE-STGW

SMC391LE-STGW

● FEATURES

- 0.39 inch (10.0 mm) Digit Height.
- Low current operation.
- Super Thin SMD type.
- Gray face, White segment.
- RoHS compliant, Pb Free.

● DESCRIPTION

The SMA391LE-STGW & SMC391LE-STGW are 0.39 inch (10.0 mm) height Single 7-segment displays.

This device utilizes Super Bright Red LED chip which are made from AlGaInP On a transparent GaAs substrate.

The display has Gray face, White segment.

● DEVICE

PART NO	DESCRIPTION
SMA391LE-STGW	Common Anode
SMC391LE-STGW	Common Cathode

RoHS Compliance



Pb free.





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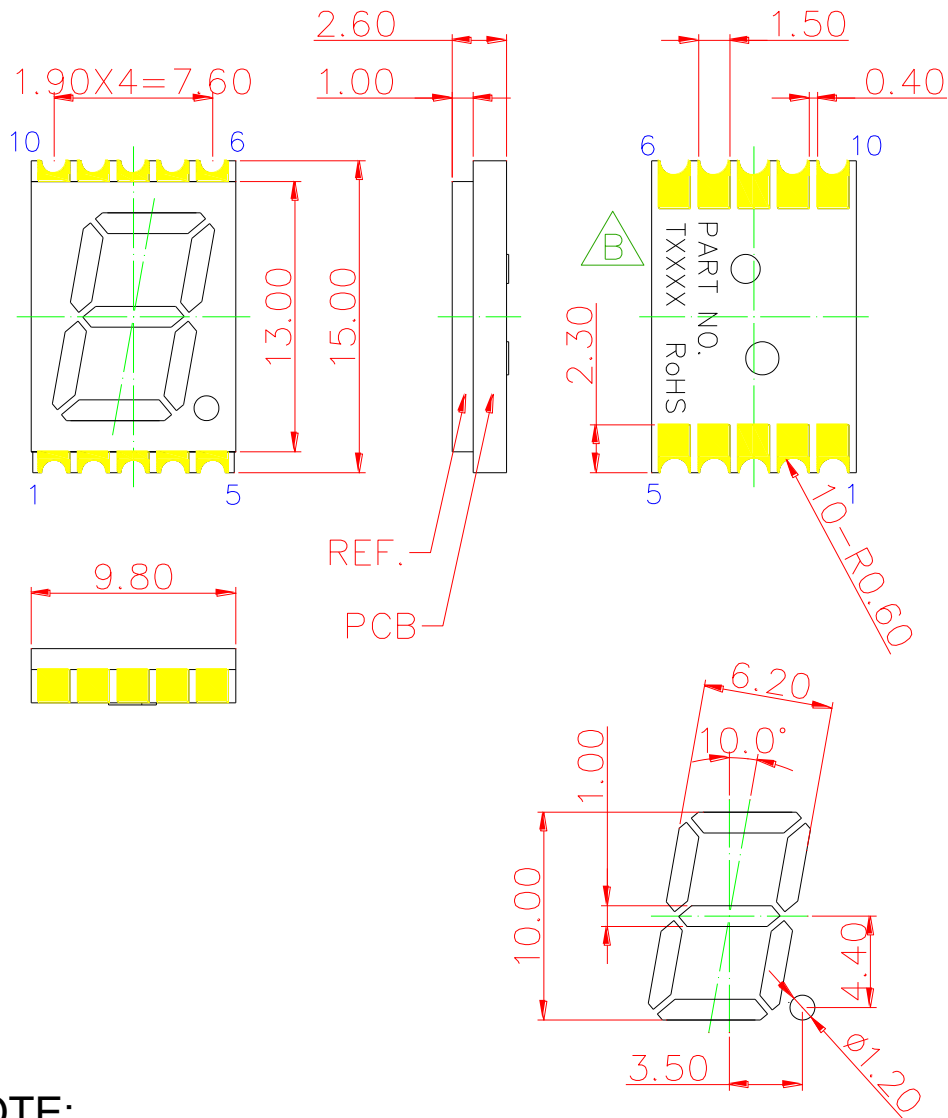
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● MECHANICAL DIMENSIONS



NOTE:
Dimension in millimeters (inches),
and tolerances are $\pm 0.25\text{mm}$ (.01") specified.



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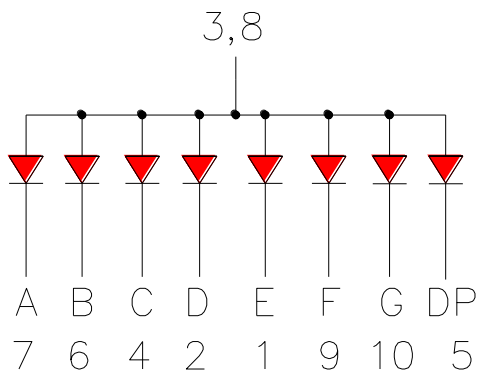
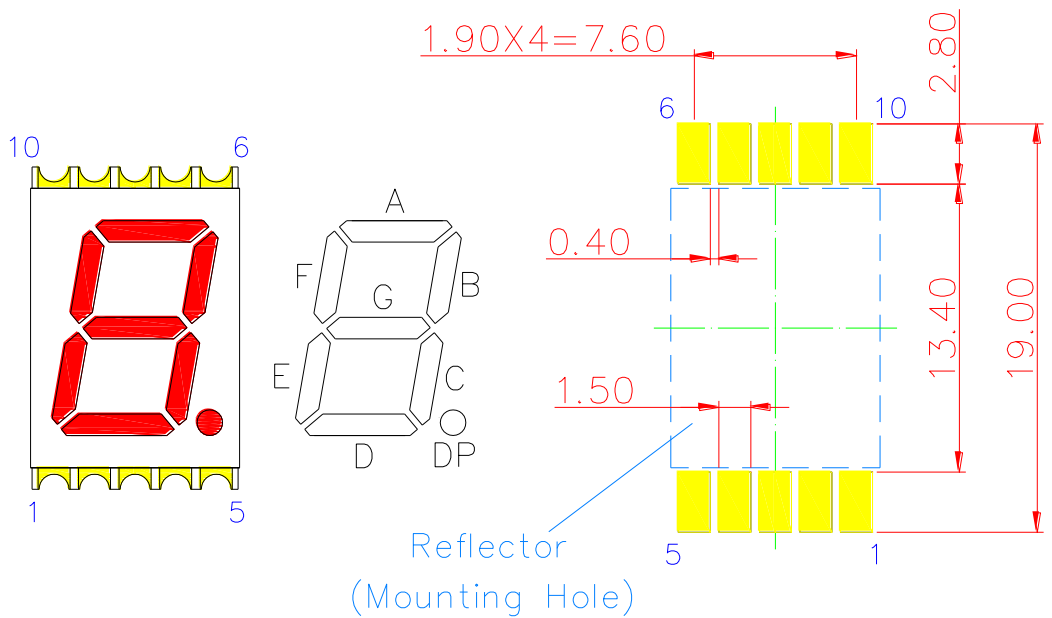
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SMA391LE-STGW

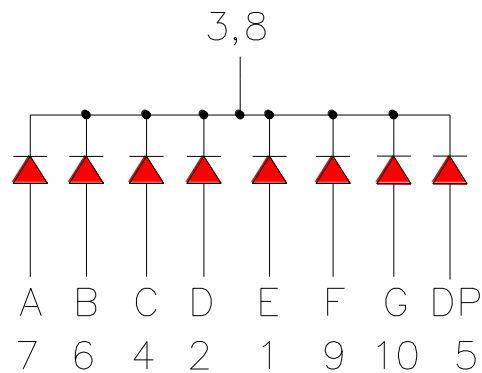
SMC391LE-STGW

● TYPICAL INTERNAL EQUIVALENT CIRCUIT

Recommended
Reverse Mount
Solder Pattern 



SMA391LE-STGW
(Common Anode)



SMC391LE-STGW
(Common Cathode)



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● **LE: SUPER BRIGHT RED (AlGaInP/GaAs)**

ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Maximum Rating	Unit
Power dissipation per dice	P _{AD}	70	mW
Derating liner from 25°C per dice	-	0.28	mA / °C
Continuous forward current per dice	I _{AF}	25	mA
Peak current per dice (duty cycle 1/10, 1kHz)	I _{PF}	90	mA
Reverse voltage per dice	V _R	5	V
Operating temperature	T _{OPR}	-40 to +105	°C
Storage temperature	T _{STG}	-40 to +105	°C

ELECTRICAL - OPTICAL CHARACTERISTICS AT Ta=25°C

Characteristic	Symbol	Condition	Min.	Type.	Max.	Unit
Forward voltage per dice	V _F	I _F =20mA	-	2.0	2.4	V
Reverse current per dice	I _R	V _R =5V	-	-	10	µA
Peak wavelength per dice	λ _P	I _F =20mA	-	632	-	nm
Dominant wavelength per dice	λ _D	I _F =20mA	619	-	629	nm
Luminous intensity per dice	I _v	I _F =20mA	15	-	75	mcd
Spectral radiation bandwidth per dice	Δλ	I _F =20mA	-	20	-	nm



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● **LE: BIN GRADE (Unit : mcd) 20mA**

Super Bright Red	O	P	Q
	15.0 – 35.0	35.1 – 55.0	55.0 – 75.0

● **LE: HUE GRADE (λ_D : nm)**

1	2
619.0 – 623.9	624.0 – 629.0

● **AVAILABLE BIN / HUE TABLE**

O1	P1	Q1
O2	P2	Q2



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● LE: SUPER BRIGHT RED (AlGaInP/GaAs) CURVE

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

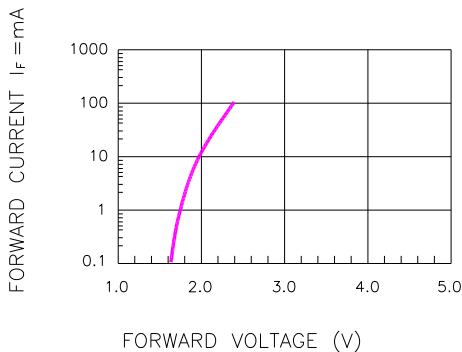


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

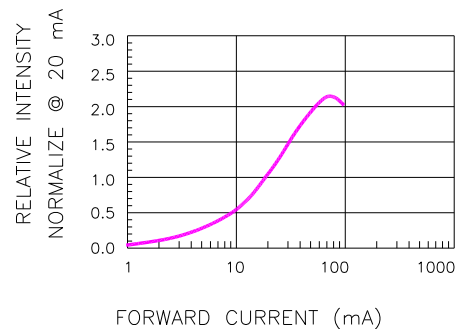


Fig.2 RELATIVE INTENSITY VS. FORWARD CURRENT

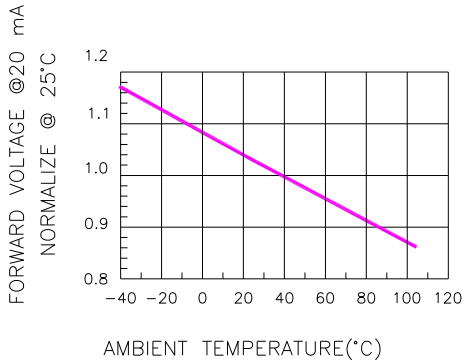


Fig.3 FORWARD VOLTAGE VS. TEMPERATURE

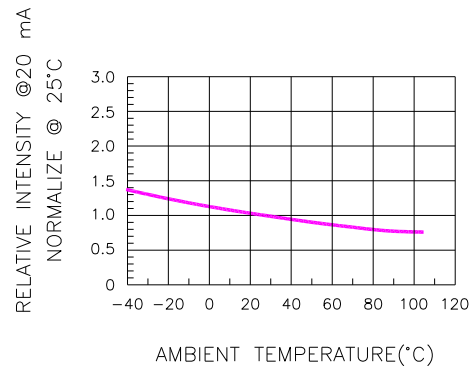


Fig.4 RELATIVE INTENSITY VS. TEMPERATURE

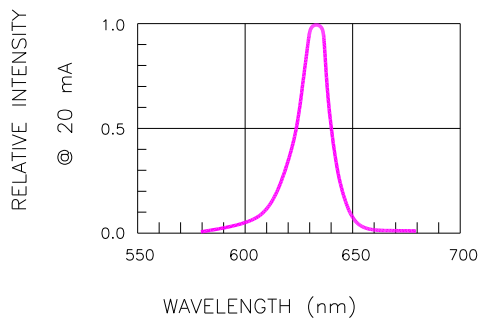


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

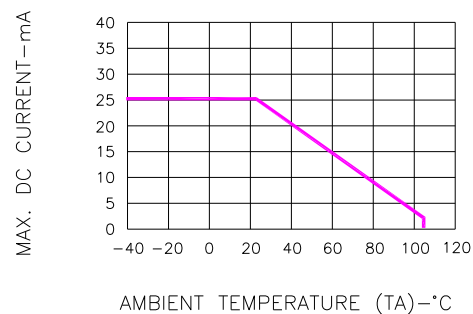


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE



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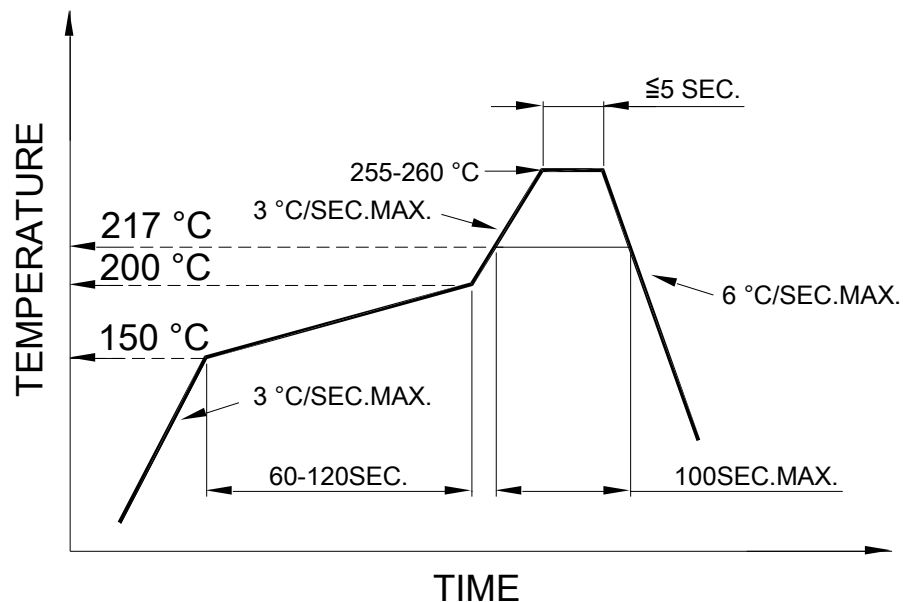
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● SMT REFLOW SOLDERING INSTRUCTIONS

SMT Soldering Profile

Pb free reflow soldering Profile



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

● 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 3 sec. under 350°C.
- The head of soldering iron cannot touch copper foil.



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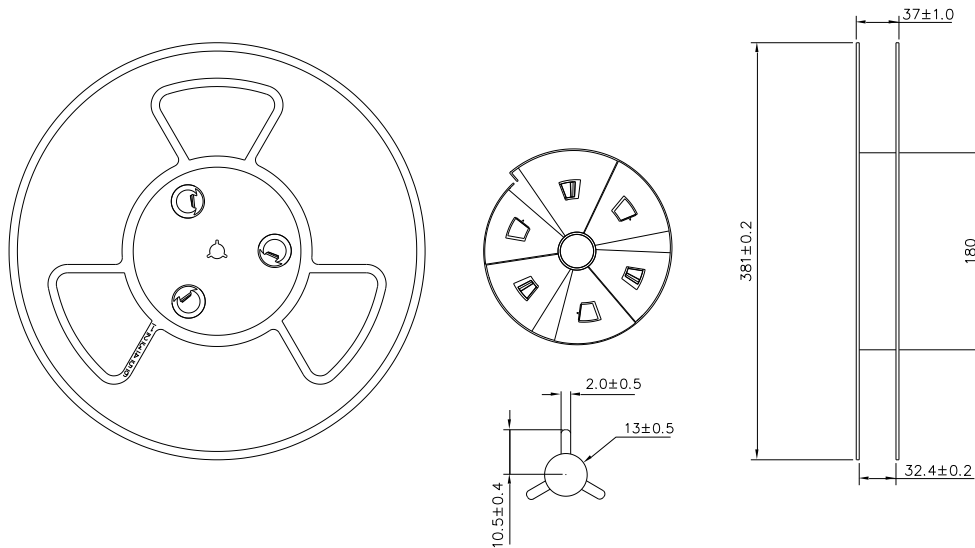
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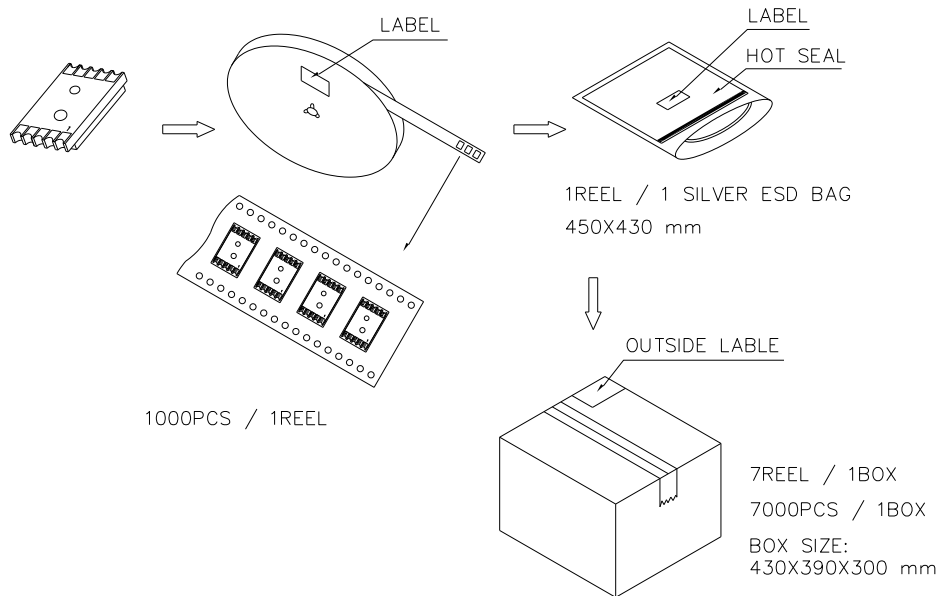
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● REEL DIMENSIONS



● PACKING & LABEL SPECIFICATIONS



● STORAGE 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)