American Opto Plus LED Corp.
0.70” SMD Type LED Display
SMA701LE-ST-1.5 G/W
SMC701LE-ST-1.5 G/W

EDIT HISTORY

Version A: Jul. 24, 2015

Preliminary spec.

Version B: Aug. 17, 2015

1. Modify mechanical dimensions.
2. Modify typical internal equivalent circuit.

Version C: Aug. 31, 2015

Add bin & hue data.

American Opto Plus LED Corp.

0.70” SMD Type LED Display

SMA701LE-ST-1.5 G/W

SMC701LE-ST-1.5 G/W

FEATURES

- 0.70 inch (17.78 mm) Digit Height.
- Low current operation.
- Super thin SMD type.
- Gray face, White segment.
- RoHS compliant, Pb Free.

DESCRIPTION

The SMA701LE-ST-1.5 G/W & SMC701LE-ST-1.5 G/W

Are 0.70 inch (17.78 mm) height single digit 7-segment display.

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
SMA701LE-ST-1.5 G/W	Common Anode
SMC701LE-ST-1.5 G/W	Common Cathode

RoHS Compliance

Pb free.

Version: C Date: 08/31/2015

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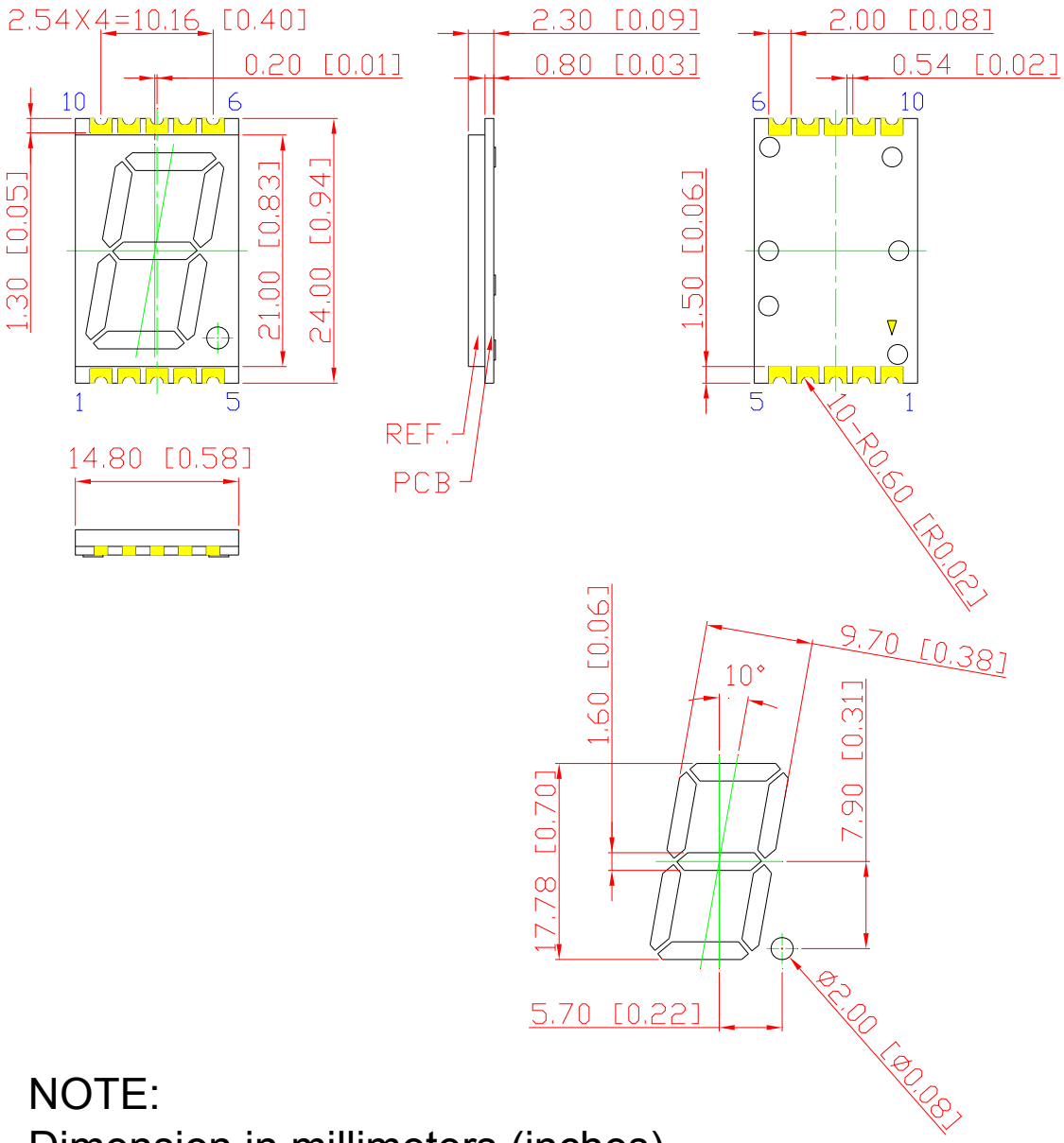
- **MECHANICAL DIMENSIONS**



NOTE:
Dimension in millimeters (inches),
and tolerances are ± 0.25mm (.01") specified.

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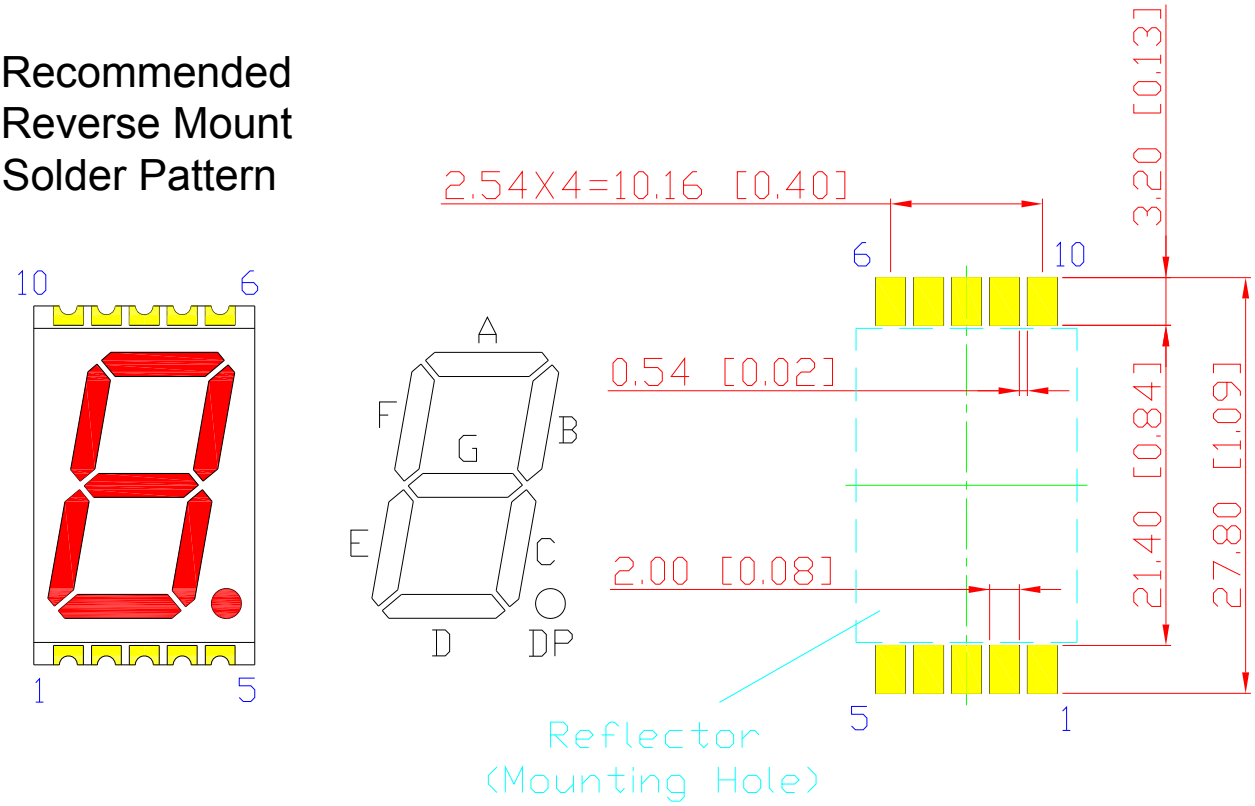
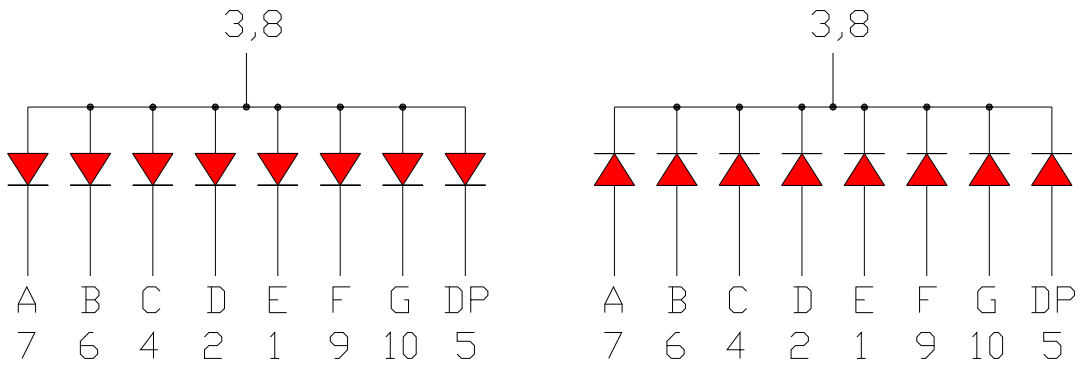
TYPICAL INTERNAL EQUIVALENT CIRCUIT

Recommended
Reverse Mount
Solder Pattern





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

ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Maximum Rating	Unit
Power dissipation	P_{AD}	70	mW
Derating liner from 25°C	-	0.28	mA / °C
Continuous forward current	I_{AF}	25	mA
Peak current (duty cycle 1/10, 1kHz)	I_{PF}	90	mA
Reverse voltage	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	2.6	V
Reverse Current, (Per Dice)	I_R	V_R =5V	-	-	10	μA
Peak Wavelength	λ_P	I_F =20mA	-	632	-	nm
Dominant Wavelength	λ_D	I_F =20mA	619	-	629	nm
Luminous Intensity	I_V	I_F =20mA	25	-	80	mcd
Spectral radiation bandwidth	$\Delta\lambda$	I_F =20mA	-	20	-	nm

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LE: BIN GRADE (Unit : mcd) Test Condition: 5V / 20mA

Super Bright Red	**I**	**J**	**K**
	25.0 – 43.0	43.1 – 60.0	60.1 – 80.0

LE: HUE GRADE (λ_D : nm)

1	**2**	**3**
619.0 – 623.0	623.1 – 626.0	626.1 – 629.0

AVAILABLE BIN / HUE TABLE

I1	J1	K1
I2	J2	K2
I3	J3	K3

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

Typical Electro-optical Characteristic Curves

(25 ℃ Free Air Temperature Unless Otherwise Specified)

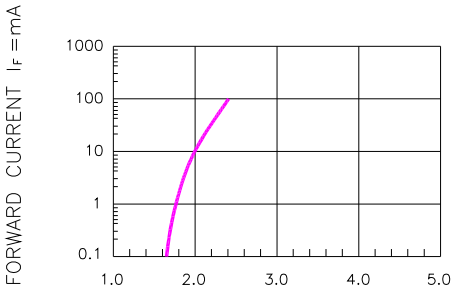


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

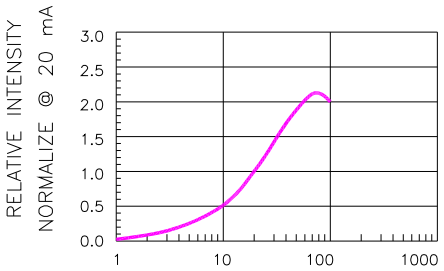


Fig.2 RELATIVE INTENSITY VS. FORWARD CURRENT

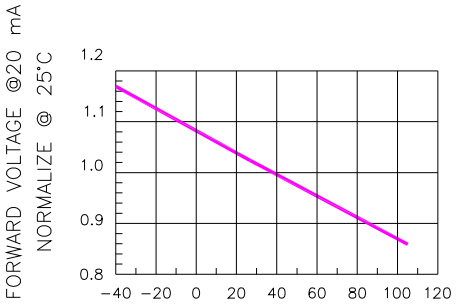


Fig.3 FORWARD VOLTAGE VS. TEMPERATURE

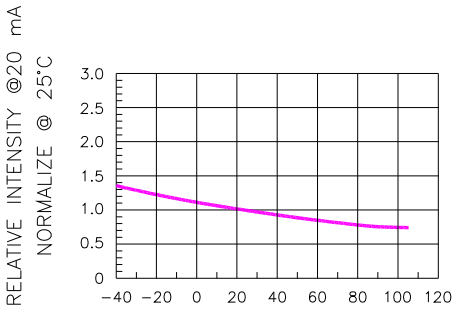


Fig.4 RELATIVE INTENSITY VS. TEMPERATURE

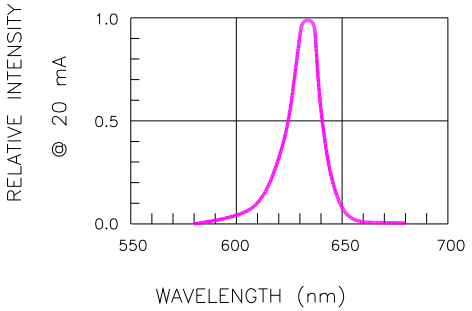


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

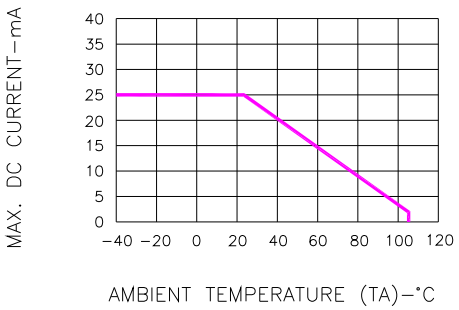
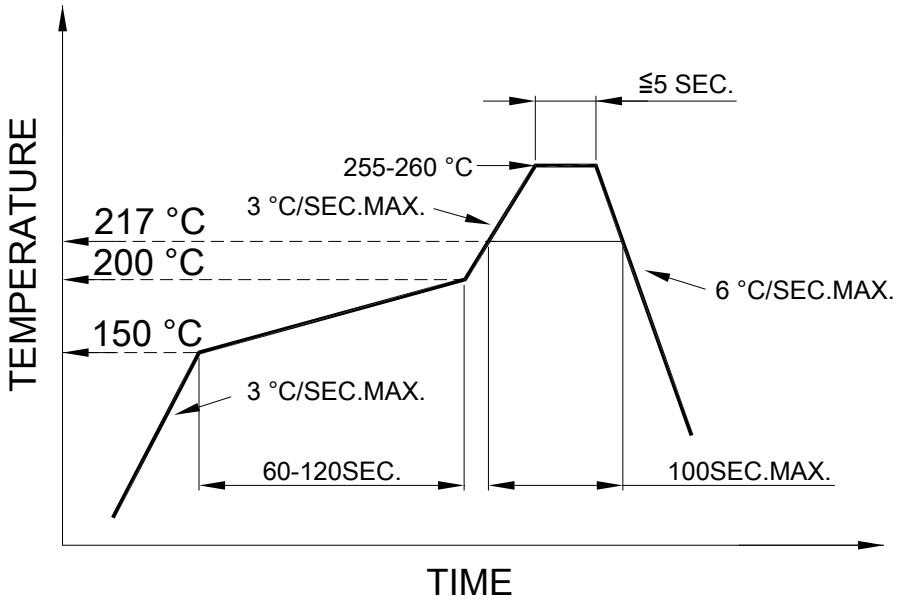


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE

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℃.
- The head of soldering iron cannot touch copper foil.

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