



American Opto Plus LED Corp.
0.56" SMD Type LED Display
SMA561W-ST-1.5 G/W
SMC561W-ST-1.5 G/W

● **EDIT HISTORY**

Version A: Jul. 15, 2015

Preliminary spec.



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● **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 SMA561W-ST-1.5 G/W & SMC561W-ST-1.5 G/W

Are 0.56 inch (14.22mm) height single digit 7-segment display.

This device utilizes Super Bright White SMD LED chip which are made from InGaN on a transparent GaN substrate.

The display has Gray face, White segment.

● **DEVICE**

PART NO	DESCRIPTION
SMA561W-ST-1.5 G/W	Common Anode
SMC561W-ST-1.5 G/W	Common Cathode

RoHS Compliance



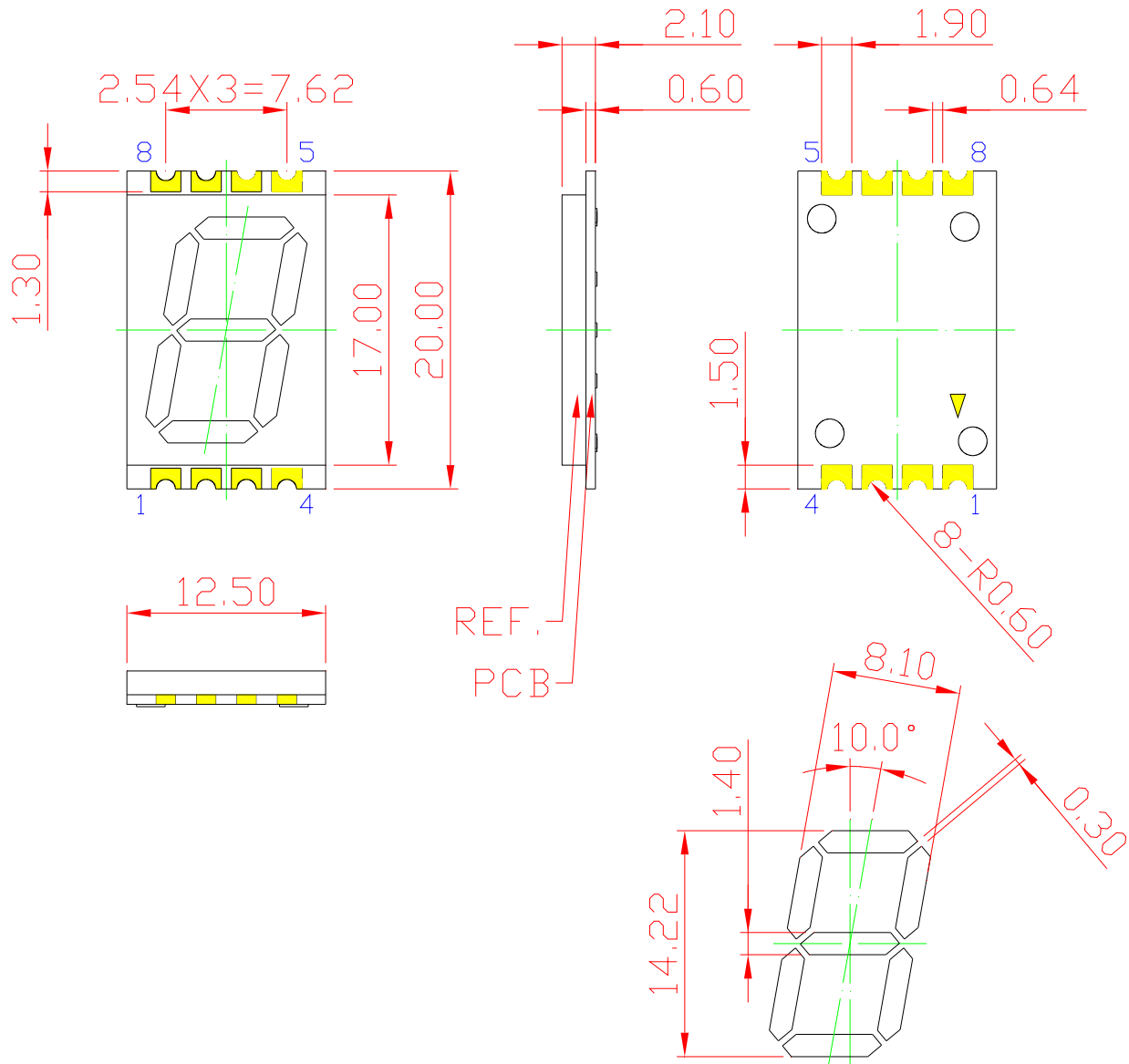
Pb free.





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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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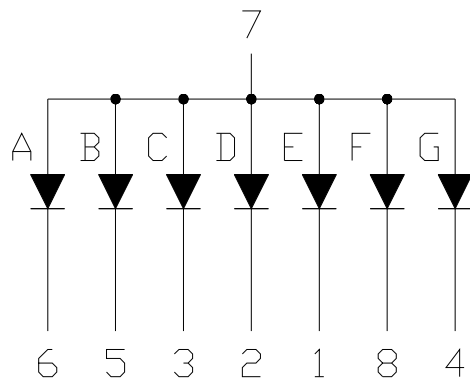
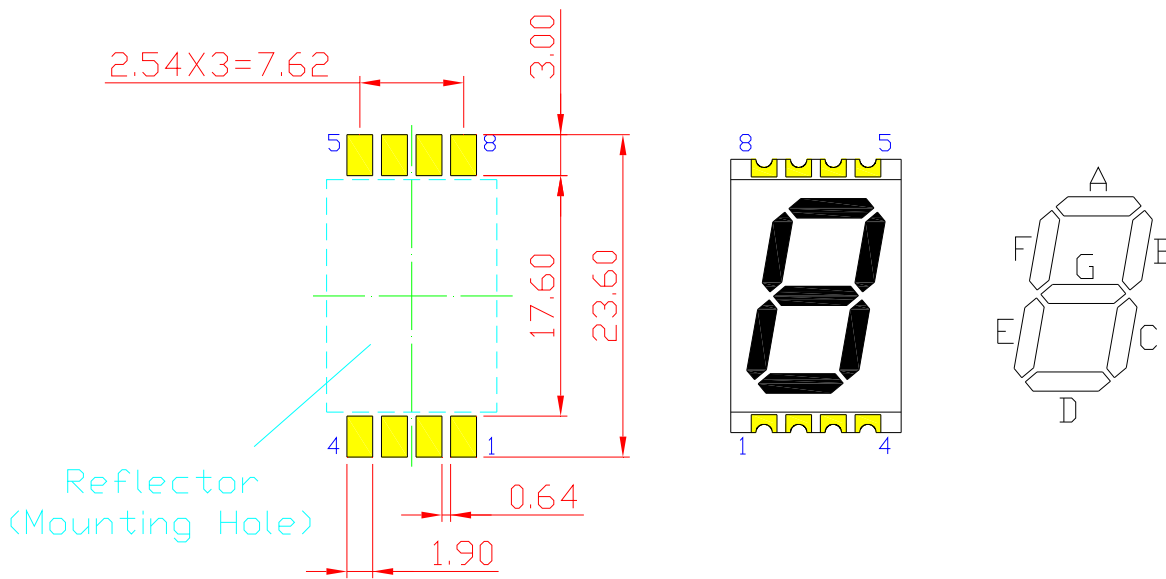
0.56" SMD Type LED Display

SMA561W-ST-1.5 G/W

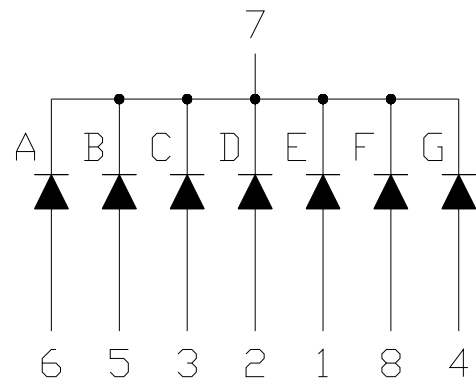
SMC561W-ST-1.5 G/W

● TYPICAL INTERNAL EQUIVALENT CIRCUIT

Reverse Mount
Recommended
Soldering Pattern



SMA561W-ST-1.5 G/W



SMC561W-ST-1.5 G/W



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● **W: SUPER BRIGHT WHITE (InGaN/GaN)**

ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Maximum Rating	Unit
Power dissipation	P _{AD}	64	mW
Continuous forward current	I _{AF}	20	mA
Peak current (duty cycle 1/10, 1kHz)	I _{PF}	80	mA
Reverse voltage	V _R	5	V
Operating temperature	T _{OPR}	-30 to + 85	°C
Storage temperature	T _{STG}	-40 to + 90	°C

ELECTRICAL - OPTICAL CHARACTERISTICS AT Ta=25°C

Characteristic	Symbol	Condition	Min.	Type	Max.	Unit	
Forward Voltage (Per Dice)	V _F	I _F =5mA	-	2.85	-	V	
Reverse Current (Per Dice)	I _R	V _R =5V	-	-	10	μA	
Peak Wavelength	λ _D	I _F =5mA	X	-	0.30	-	nm
			Y	-	0.30	-	
Average Luminous Intensity	I _V	I _F =5mA	30	-	120	mcd	
Spectrum Radiation Bandwidth	Δλ	I _F =5mA	-	30	-	nm	



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● **WHITE: BIN GRADE (Unit : mcd) Test Condition: 5V / 5mA**

	4	5	6
Super Bright White	30.0 – 60.0	60.1 – 90.0	90.1 – 120.0

● **WHITE: HUE GRADE (λD : nm)**

CIE	G2	H1	H2	E2	F1	F2
X	0.30	0.31	0.32	0.30	0.31	0.32
	0.29	0.30	0.31	0.29	0.30	0.31
Y	0.31	0.32	0.33	0.30	0.31	0.32
	0.29	0.30	0.31	0.28	0.29	0.30

CIE	C2	D1	D2	A2	B1	B2
X	0.30	0.31	0.32	0.30	0.31	0.32
	0.29	0.30	0.31	0.29	0.30	0.31
Y	0.29	0.30	0.31	0.28	0.29	0.30
	0.27	0.28	0.29	0.26	0.27	0.28



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● **AVAILABLE BIN / HUE TABLE**

4G2	4H1	4H2	4E2	4F1	4F2
5G2	5H1	5H2	5E2	5F1	5F2
6G2	6H1	6H2	6E2	6F1	6F2

4C2	4D1	4D2	4A2	4B1	4B2
5C2	5D1	5D2	5A2	5B1	5B2
6C2	6D1	6D2	6A2	6B1	6B2



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● W: SUPER BRIGHT WHITE (InGaN/GaN) CURVE

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

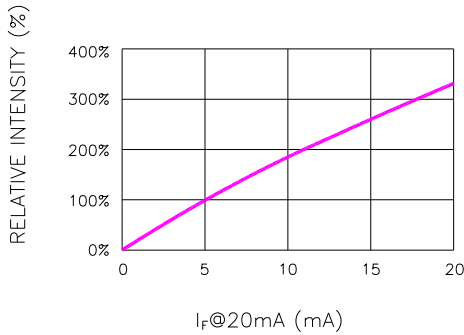


Fig.1 RELATIVE INTENSITY VS. FORWARD CURRENT

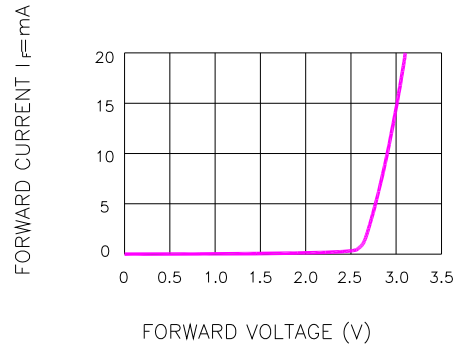


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

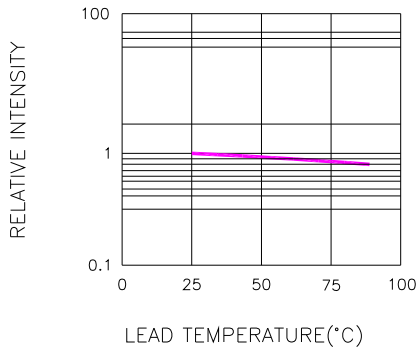


Fig.3 RELATIVE INTENSITY VS. LEAD TEMPERATURE
(PULSED 20 mA; 300us PULSE, 10ms PERIOD)

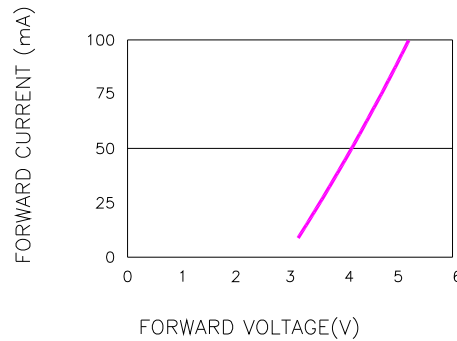


Fig.4 PEAK FORWARD VOLTAGE VS. FORWARD CURRENT
(100us TEST PULSE, 1% DUTY CYCLE)

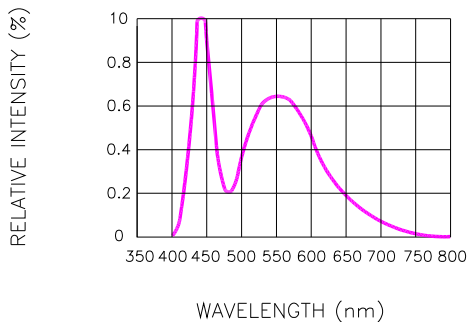


Fig.4 RELATIVE INTENSITY VS. WAVELENGTH

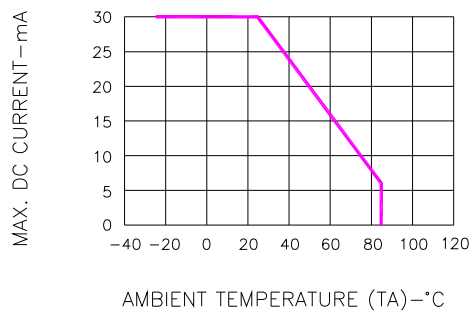


Fig.7 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE

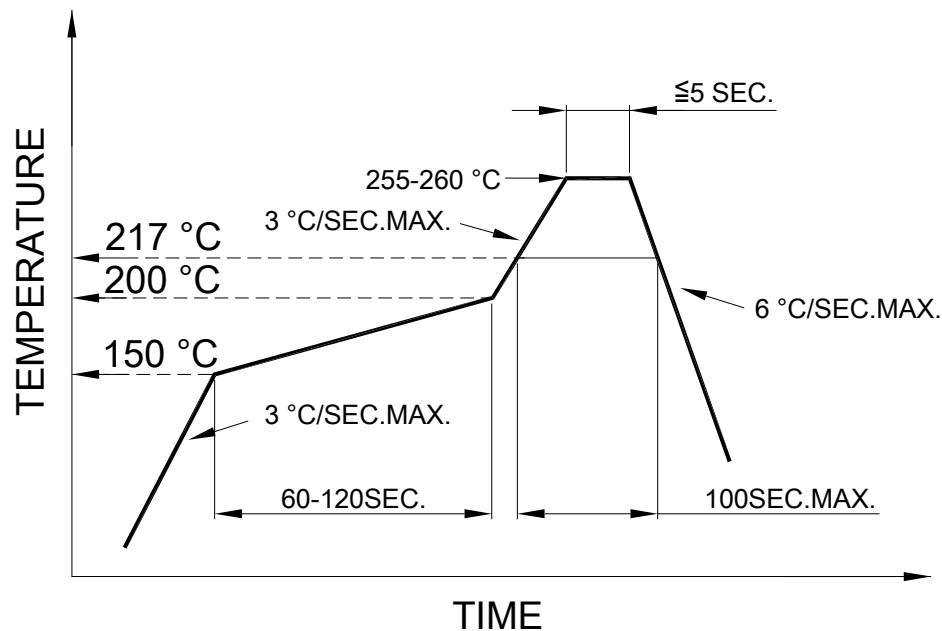


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● **RECOMMEND SOLDERING PROFILE**

SMT Soldering Profile

Pb free reflow soldering Profile



● **SOLDERING IRON**

Basic specification : ≤ 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.