



Opto Plus LED Corp.
2.3" Case Mold Type LED Display
OPD-S23012W | OPD-S23013W

● **EDIT HISTORY**

Version A : Mar. 14, 2024

Preliminary Spec.



Opto Plus LED Corp.

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● FEATURES

- 2.3 inch (56.8 mm) Digit Height.
- Low current operation.
- Case mold type.
- RoHS compliant, Pb Free.

● DESCRIPTION

The device are 2.3 inch (56.8 mm) height single digit 7-segment displays.

The device is Opto Plus LED Corp standard LED Display.

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

The device has face and segment option, please refer to **PRODUCT APPEARANCE**.

● DEVICE

PART NO.		DESCRIPTION
	OPD-S23012W-GW	Common Anode Gray face White segment
	OPD-S23013W-GW	Common Cathode Gray face White segment
	OPD-S23012W-BW	Common Anode Black face White segment
	OPD-S23013W-BW	Common Cathode Black face White segment

RoHS Compliance



Pb Free.







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

ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Maximum Rating	Unit
Power dissipation per SMD	P _{AD}	33	mW
Continuous forward current per SMD	I _{AF}	10	mA
Peak current per dice (duty cycle 1/10, 1kHz)	I _{PF}	60	mA
Reverse voltage per SMD	V _R	5	V
Operating temperature	T _{OPR}	-25 to +85	°C
Storage temperature	T _{STG}	-25 to +85	°C

ELECTRICAL - OPTICAL CHARACTERISTICS AT Ta=25°C

Characteristic	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward voltage per Segment (DP)	V _F	I _F =5mA	-	11.6 (5.8)	12.8 (6.4)	V
Reverse Current	I _R	V _R =5V	-	-	10	μA
Peak Wavelength per SMD	λ _P	I _F =5mA	X	0.285	-	nm
			Y	0.275	-	
Average Luminous Intensity per SMD	I _v	I _F =5mA	-	180	-	mcd
Spectrum Radiation Bandwidth	Δλ	I _F =5mA	-	30	-	nm



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● WHITE: BIN GRADE (Unit : mcd / I_v=5mA)(SMD)

1	2	3	4	5	6	7	8
112.5-126.0	126.0-140.0	140.0-160.0	160.0-180.0	180.0-202.0	202.0-226.0	226.0-255.5	255.5-285.0
R11	R12	R21	R22	S11	S12	S21	S22

● COLOR BIN

AA2		BB1		BB2		CC2		DD1		DD2	
X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
0.27	0.24	0.28	0.25	0.29	0.26	0.27	0.25	0.28	0.26	0.29	0.27
0.27	0.25	0.28	0.26	0.29	0.27	0.27	0.26	0.28	0.27	0.29	0.28
0.28	0.26	0.29	0.27	0.3	0.28	0.28	0.27	0.29	0.28	0.3	0.29
0.28	0.25	0.29	0.26	0.3	0.27	0.28	0.26	0.29	0.27	0.3	0.28
EE2		FF1		FF2		GG2		HH1		HH2	
X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
0.27	0.26	0.28	0.27	0.29	0.28	0.27	0.27	0.28	0.28	0.29	0.29
0.27	0.27	0.28	0.28	0.29	0.29	0.27	0.28	0.28	0.29	0.29	0.3
0.28	0.28	0.29	0.29	0.3	0.3	0.28	0.29	0.29	0.3	0.3	0.31
0.28	0.27	0.29	0.28	0.3	0.29	0.28	0.28	0.29	0.29	0.3	0.3

● AVAILABLE BIN / HUE TABLE

1A2	1B1	1B2	1C2	1D1	1D2	1E2	1F1	1F2	1G2	1H1	1H2
2A2	2B1	2B2	2C2	2D1	2D2	2E2	2F1	2F2	2G2	2H1	2H2
3A2	3B1	3B2	3C2	3D1	3D2	3E2	3F1	3F2	3G2	3H1	3H2
4A2	4B1	4B2	4C2	4D1	4D2	4E2	4F1	4F2	4G2	4H1	4H2
5A2	5B1	5B2	5C2	5D1	5D2	5E2	5F1	5F2	5G2	5H1	5H2
6A2	6B1	6B2	6C2	6D1	6D2	6E2	6F1	6F2	6G2	6H1	6H2
7A2	7B1	7B2	7C2	7D1	7D2	7E2	7F1	7F2	7G2	7H1	7H2
8A2	8B1	8B2	8C2	8D1	8D2	8E2	8F1	8F2	8G2	8H1	8H2

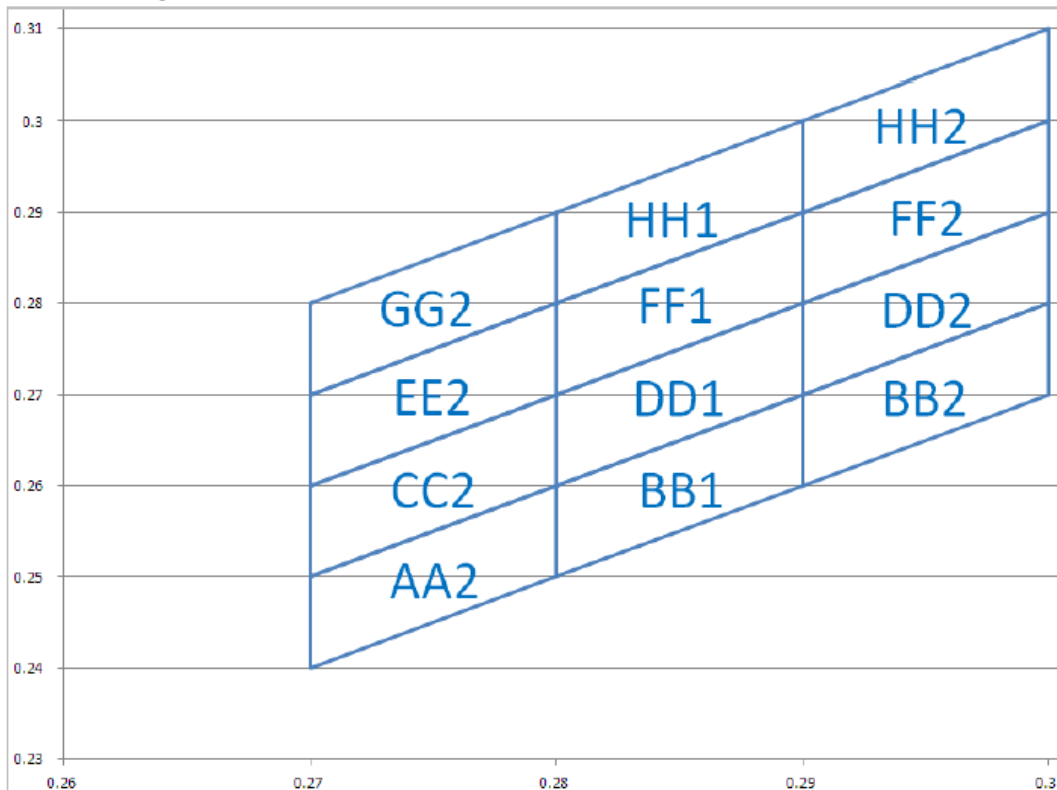
Note: It maintains a tolerance of x,y ±0.007

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■ Chromaticity Coordinate



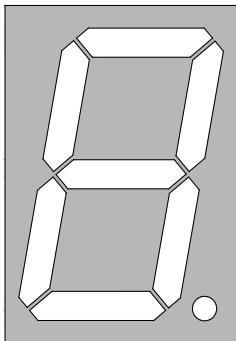
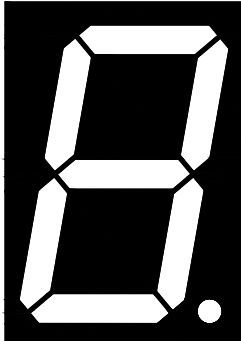
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● PRODUCT APPEARANCE

The most common reflector color and segment color are show in below diagram.

-GW	-BW
	
※ REFLECTOR COLOR: Gray ※ SEGMENT COLOR: White	※ REFLECTOR COLOR: Black ※ SEGMENT COLOR: White

Opto Plus can customize reflector and segment colors by customer's request. If you have these request please visit www.opledtw.com or contact sales@opledtw.com for more **Standard Product Customization** information.

Part NO. related to reflector and segment colors show as table below.

PART NO.	DESCRIPTION
OPD-S23012W-GW	Common Anode Gray face White segment
OPD-S23013W-GW	Common Cathode Gray face White segment
OPD-S23012W-BW	Common Anode Black face White segment
OPD-S23013W-BW	Common Cathode Black face White segment

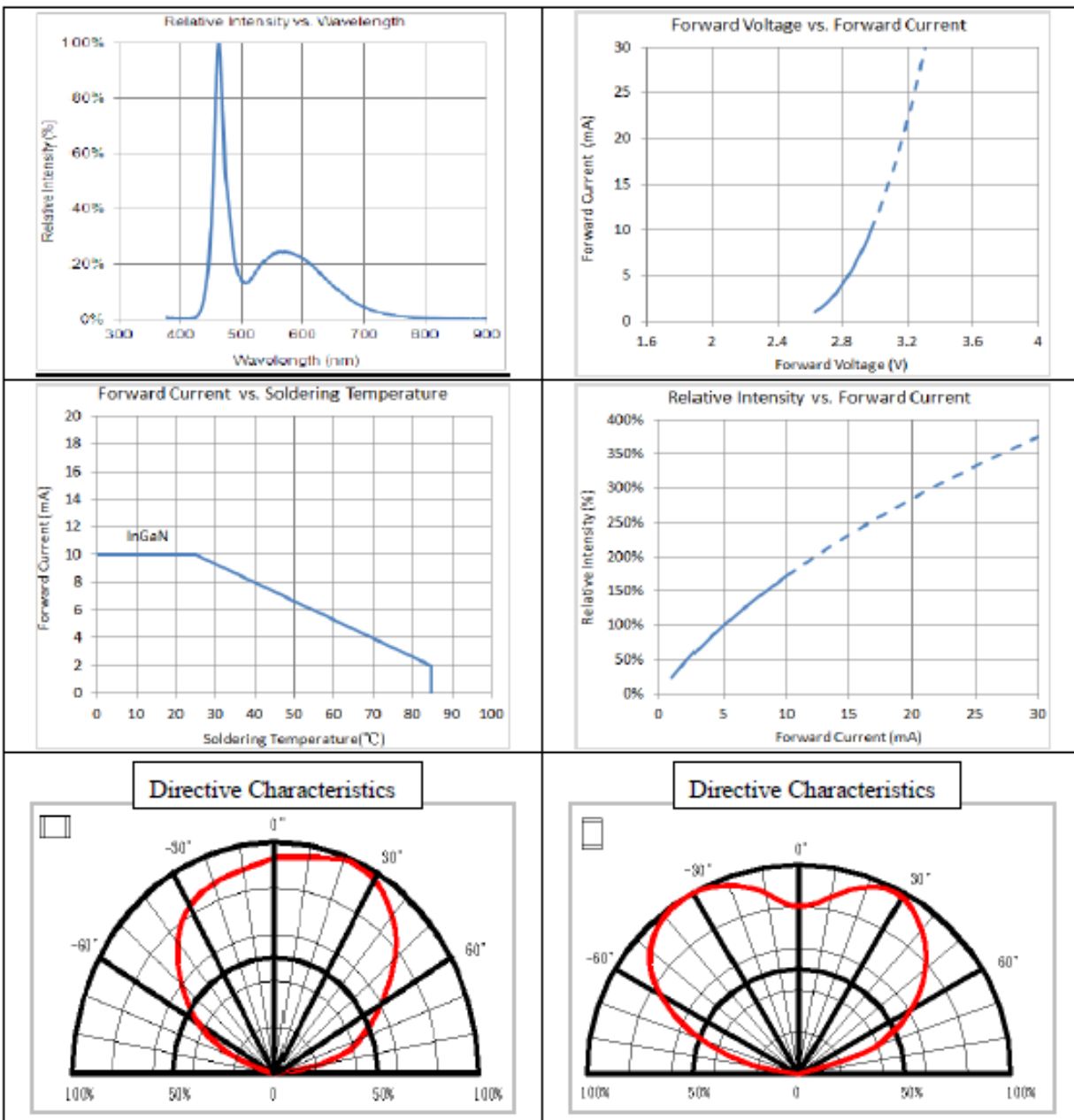
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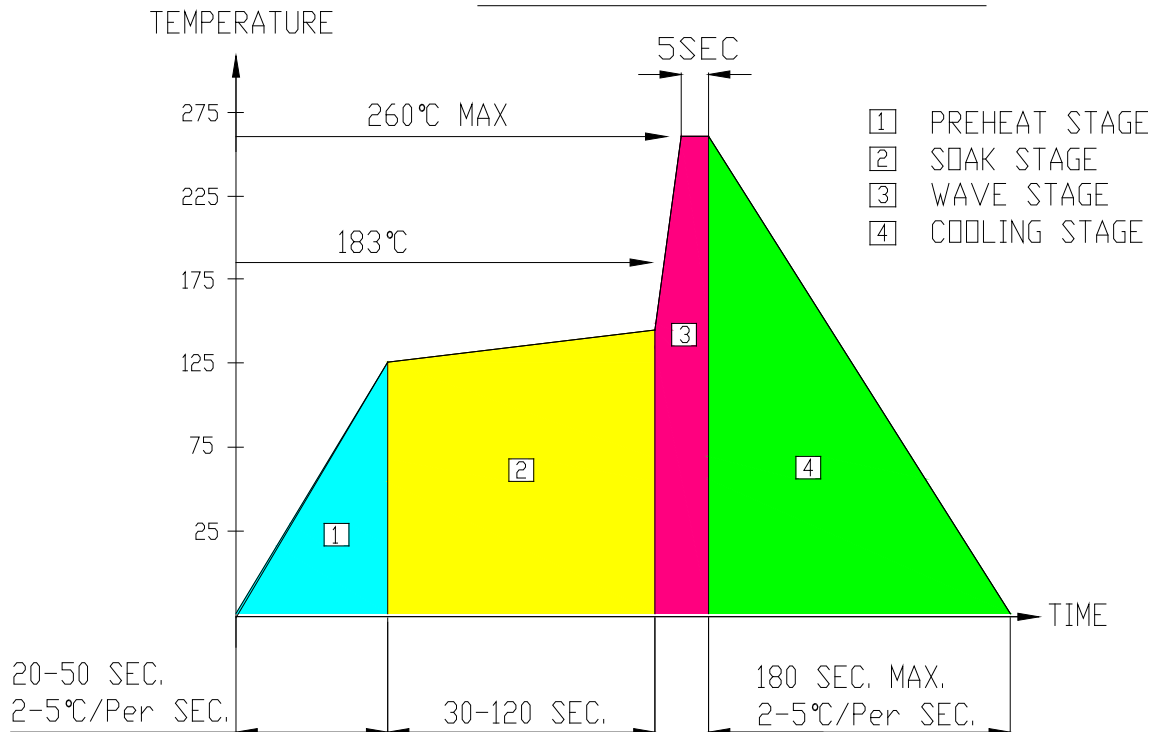
● W: SUPER BRIGHT WHITE (InGaN/GaN) CURVE

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



● RECOMMEND SOLDERING PROFILE

WAVE SOLDER PROFILE



● Note:

- Recommend pre-heat temperature of 105°C or less (as measured with a thermocouple attached to the LED pins) prior to immersion in the solder wave with a maximum solder bath temperature of 260°C
- Peak wave soldering temperature between 245°C ~ 225°C for 3 sec (5 sec max)
- No more than one wave soldering pass

● 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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LIFE TIME

25°C 5mA

