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Opto Plus LED Corp.
Semi-Epoxy Type LED Display
OPD-V10018W-AR-BW

● **EDIT HISTORY**

Version A: Jan. 14, 2015

Preliminary spec.

Version B: Jan. 16, 2015

Correct mechanical dimensions.

Version C: Mar. 24, 2015

Add package spec.

Version D: Aug. 01, 2017

1. Modify mechanical dimensions.

2. Modify IV data & bin grade.

Manufacture	Examination	Approving



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● FEATURES

- 0.457 inch (11.60 mm) Digit Height.
- Excellent character appearance.
- Semi-Epoxy type.
- Black face, White segment.
- RoHS compliant, Pb Free.

● DESCRIPTION

The OPD-V10018W-AR-BW is a 0.457 inch (11.60 mm) height digit with icon display. This device utilizes Super Bright White SMD LED chip which are made from InGaN On a transparent GaN substrate, The display has Black face and White segment. This mold of display is attached with overlay.

● DEVICE

PART NO	DESCRIPTION
Super Bright White	Anode Column
OPD-V10018W- AR-BW	Cathode Row

RoHS Compliance



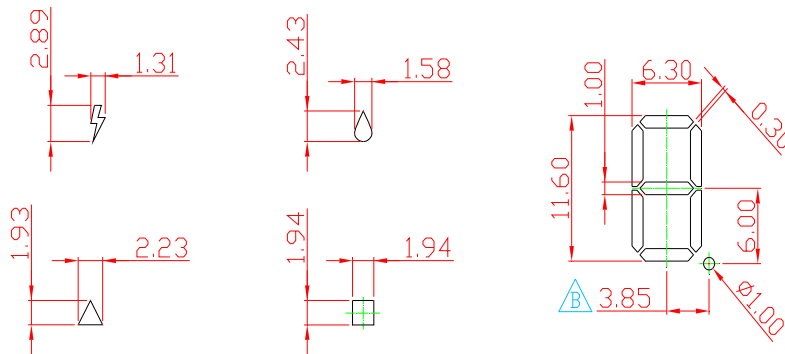
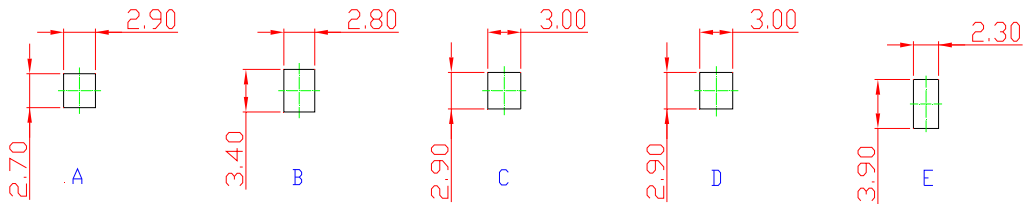
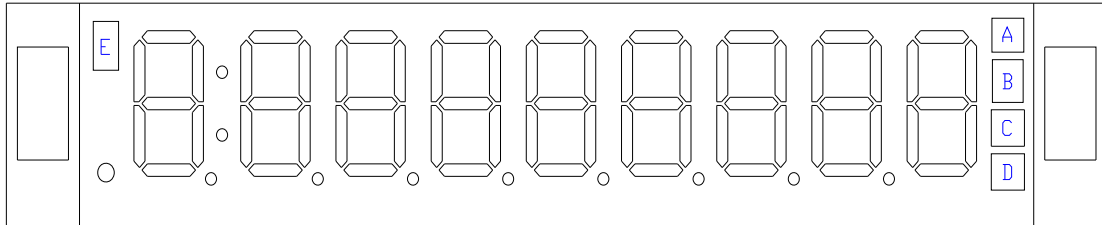
Pb free.





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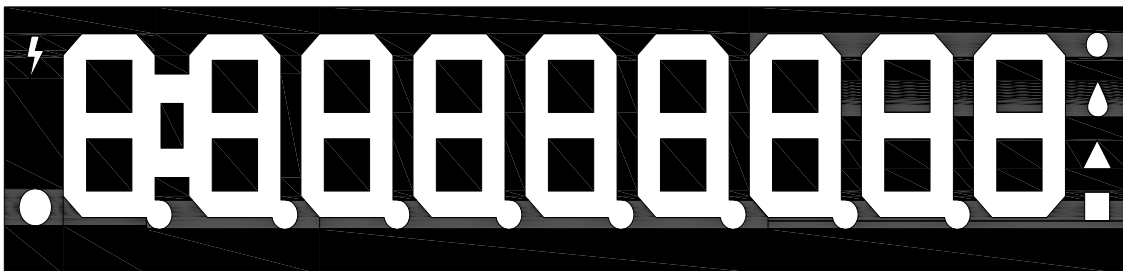
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NOTE:

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

● OVERLAY

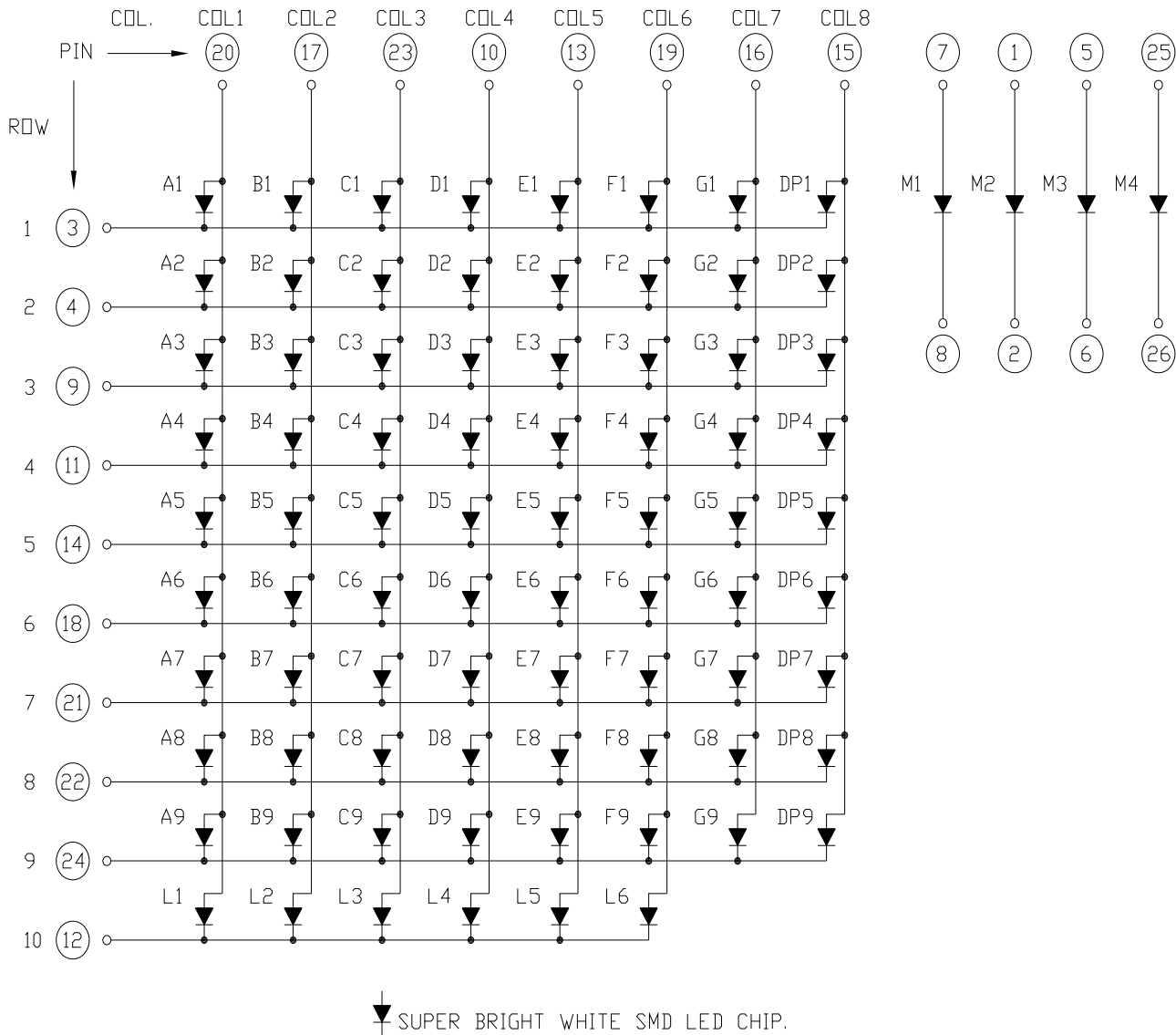
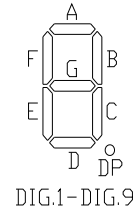
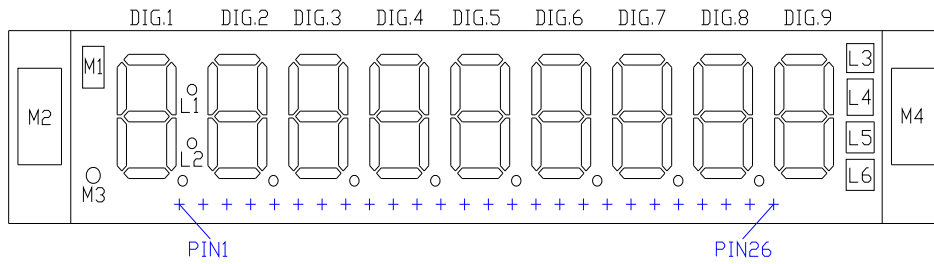




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● TYPICAL INTERNAL EQUIVALENT CIRCUIT





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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	V_F	$I_F = 5mA$	-	2.9	3.5	V	
Reverse Current	I_R	$V_R = 5V$	-	-	10	μA	
Dominant Wavelength	λ_D	$I_F = 5mA$	X	-	0.29	-	nm
			Y	-	0.28	-	
Average Luminous Intensity	I_V	$I_F = 5mA$	70	-	170	mcd	
Spectrum Radiation Bandwidth	$\Delta\lambda$	$I_F = 5mA$	-	30	-	nm	



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● **WHITE: BIN GRADE (Unit : mcd) 5mA**

Super Bright White	2	3	4
	70.0 – 100.0	100.1 – 135.0	135.1 – 170.0

● **WHITE: HUE GRADE (λ_D : 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**

2G2	2H1	2H2	2E2	2F1	2F2
3G2	3H1	3H2	3E2	3F1	3F2
4G2	4H1	4H2	4E2	4F1	4F2

2C2	2D1	2D2	2A2	2B1	2B2
3C2	3D1	3D2	3A2	3B1	3B2
4C2	4D1	4D2	4A2	4B1	4B2



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

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

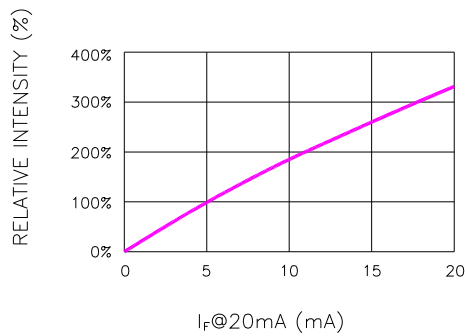


Fig.1 RELATIVE INTENSITY VS. FORWARD CURRENT

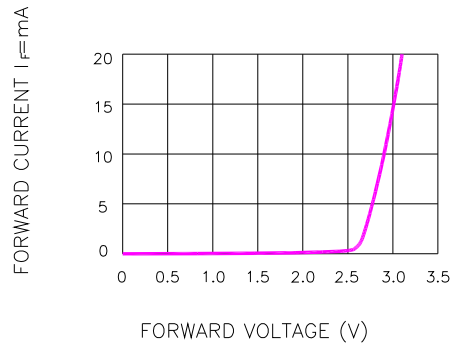


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

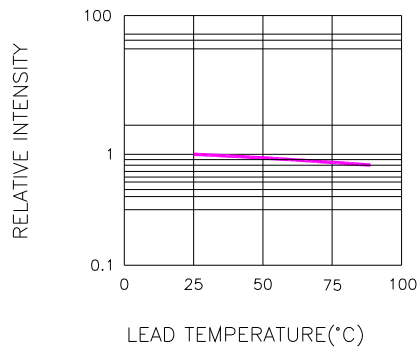


Fig.3 RELATIVE INTENSITY VS. LEAD TEMPERATURE
(PULSED 20 mA; 300us PULSE, 10ms PERIOD)

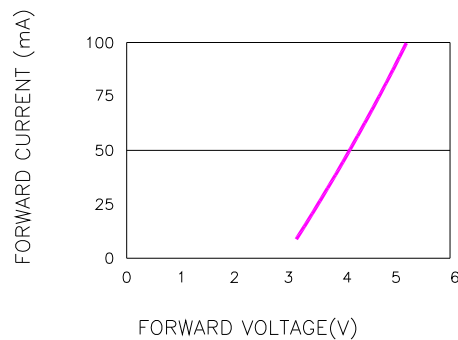


Fig.4 PEAK FORWARD VOLTAGE VS. FORWARD (100us TEST PULSE, 1% DUTY CYCLE)

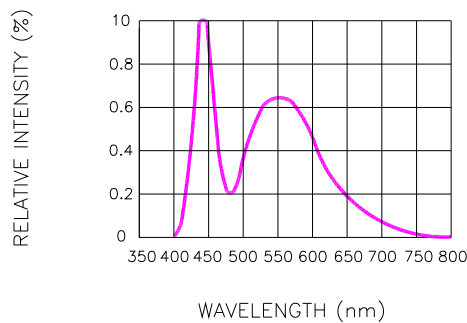


Fig.4 RELATIVE INTENSITY VS. WAVELENGTH

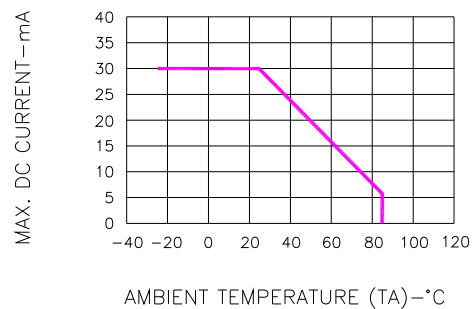


Fig.7 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE



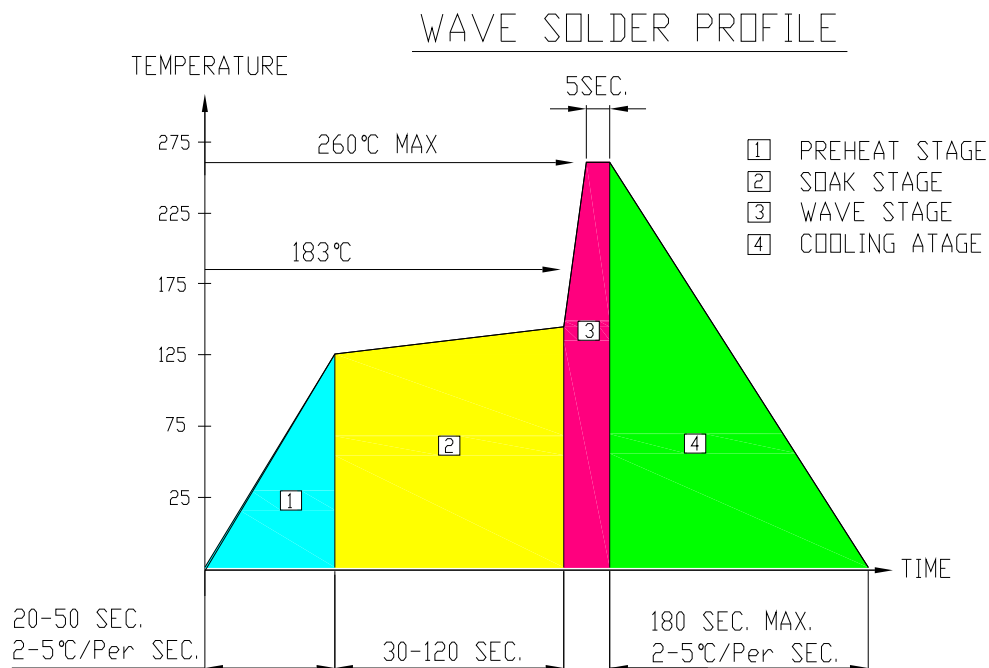
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● RECOMMEND SOLDERING PROFILE



● 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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● PACKAGE DIMENSIONS

36 PCS / 1 PACKING BLACK ESD TRAY

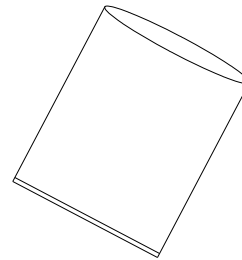
1 PACKING BLACK ESD TRAY / 1 ANTISTATIC E.PE. FOAM SHEET

8 PACKING BLACK ESD TRAY / 8 ANTISTATIC E.PE. FOAM SHEET / 2 CARDBOARD.



8 PACKING TRAY / 1 ESD BAG / 1 INNER CARTON

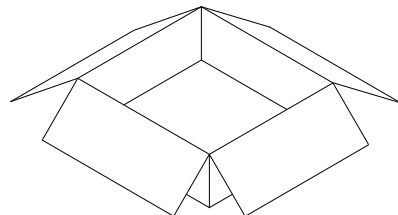
288 PCS / 1 INNER CARTON



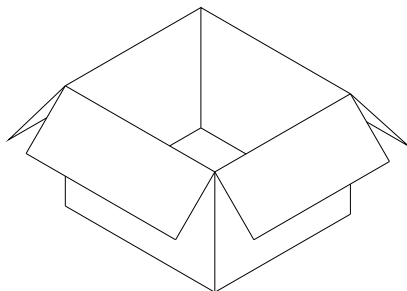
ESD BAG SIZE : 650 x 550 mm

2 INNER CARTON / 1 OUTER CARTON

576 PCS / 1 OUTER CARTON



INNER BOX SIZE : 394 x 370 x 138 mm



OUTER BOX SIZE : 430 x 390 x 300 mm

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