

Opto Plus LED Corp.
0.4" SMD Type LED Display
OPS-D4013LB-GW
OPS-D4014LB-GW

● **EDIT HISTORY**

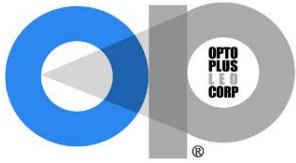
Version A: Mar. 26, 2015

Preliminary Spec.

Version B: Aug. 21, 2015

Modify mechanical dimensions.

Manufacture	Examination	Approving



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● **FEATURES**

- 0.40 inch (10.16 mm) Digit Height.
- Low current operation.
- SMD type.
- Gray face, White segment.
- RoHS compliant, Pb Free.

● **DESCRIPTION**

The OPS-D4013LB-GW and OPS-D4014LB-GW are 0.40 inch (10.16 mm) height Dual digit 7-segment displays.

This device utilizes Super Bright Blue LED chip which are made from InGaN

On a transparent GaN substrate.

The display has Gray face, White segment.

● **DEVICE**

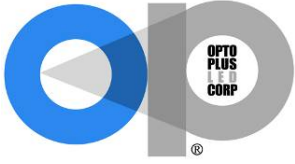
PART NO	DESCRIPTION
OPS-D4014LB-GW	Common Anode
OPS-D4013LB-GW	Common Cathode

RoHS Compliance



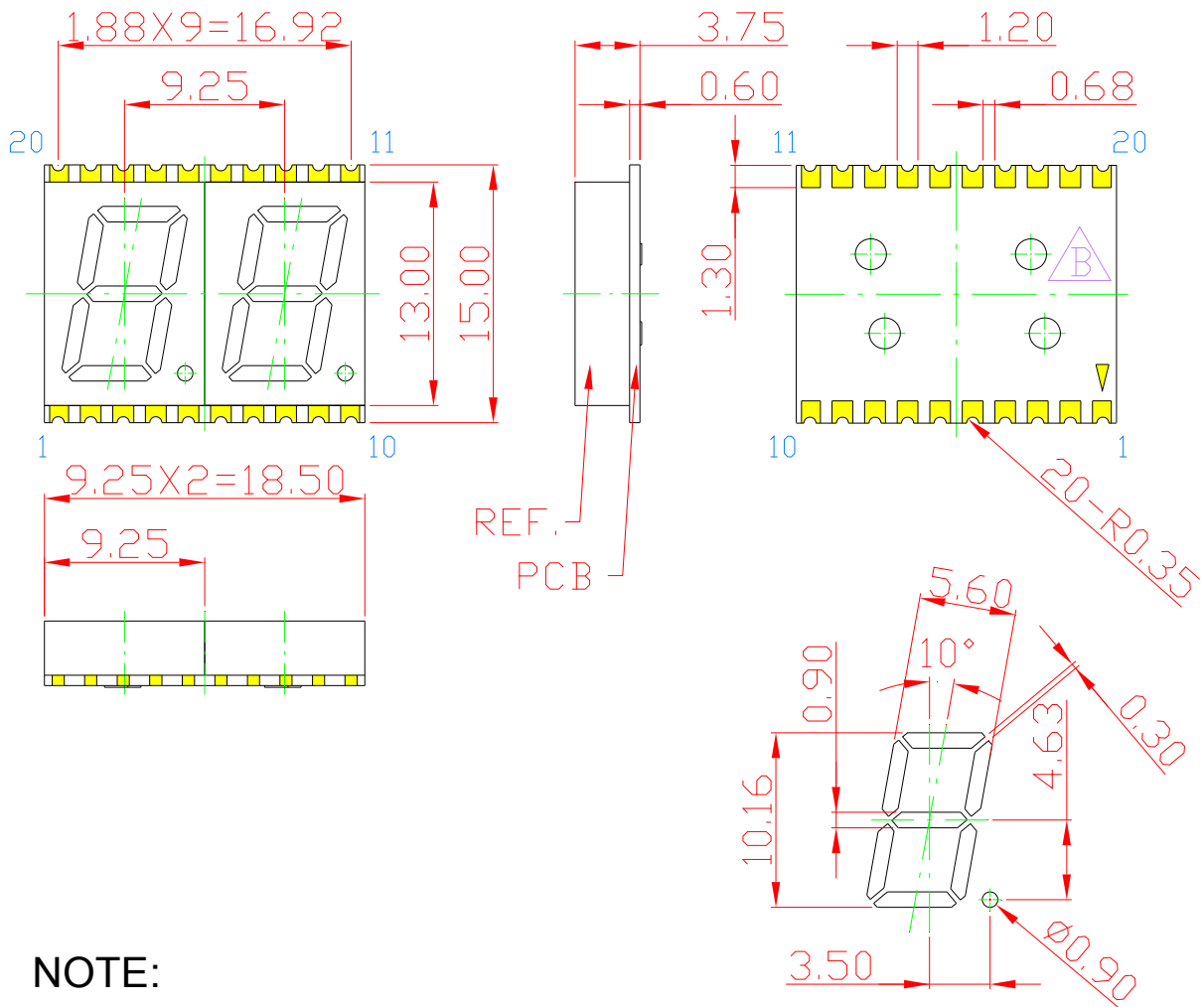
Pb free.



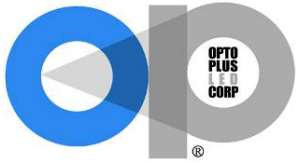


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● **MECHANICAL DIMENSIONS**

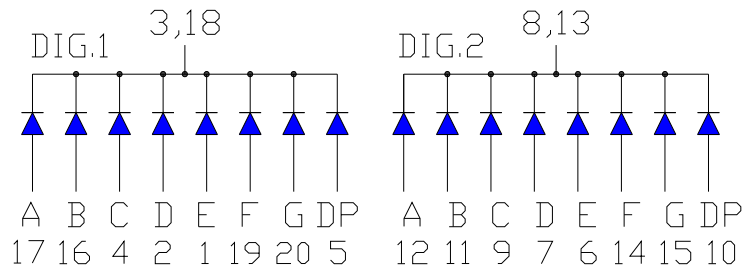
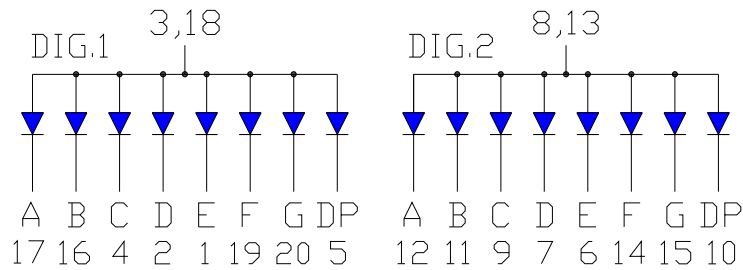
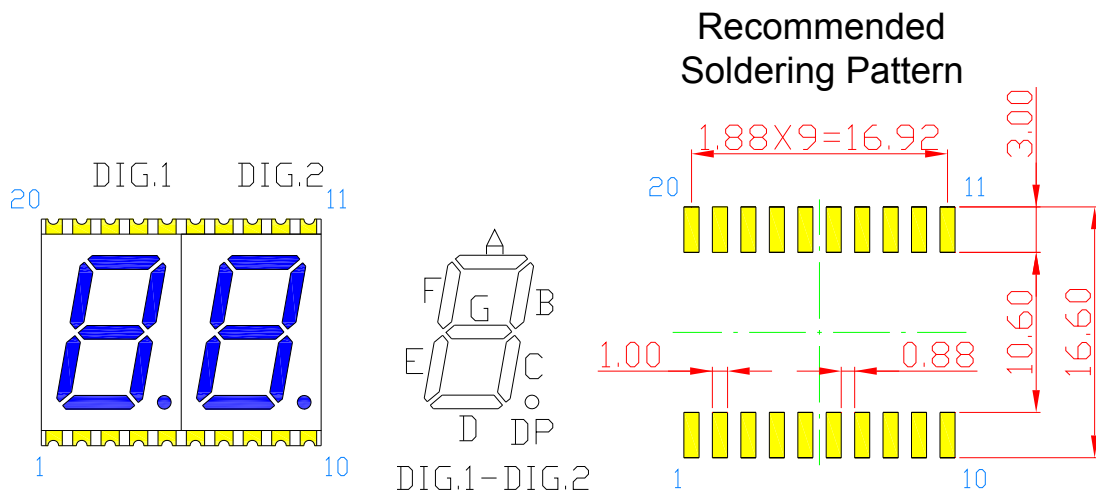


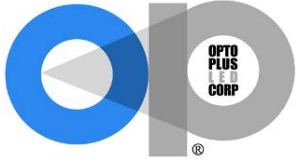
NOTE:
 Dimension in millimeters (inches),
 and tolerances are ± 0.25 mm (.01") specified.



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● **TYPICAL INTERNAL EQUIVALENT CIRCUIT**





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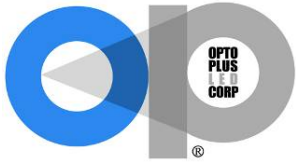
● **LB: SUPER BRIGHT BLUE (InGaN/GaN)**

ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Maximum Rating	Unit
Power dissipation	P_{AD}	120	mW
Derating liner from 25°C	-	0.3	mA / °C
Continuous forward current	I_{AF}	30	mA
Peak current (duty cycle 1/10, 1kHz)	I_{PF}	100	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	$I_F = 20\text{mA}$	-	3.1	4.0	V
Reverse Current, (Per Dice)	I_R	$V_R = 8\text{V}$	-	-	10	μA
Dominant Wavelength	λ_D	$I_F = 20\text{mA}$	466	470	474	nm
Luminous Intensity	I_V	$I_F = 20\text{mA}$	10	-	40	mcd
Spectral radiation bandwidth	$\Delta\lambda$	$I_F = 20\text{mA}$	-	30	-	nm



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● **LB: BIN GRADE (Unit : mcd / I_F =20mA)**

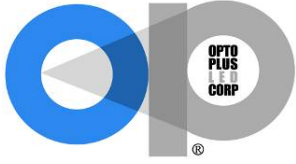
Super Bright Blue	J	K	L
	10.0 – 20.0	20.1 – 30.0	30.1 – 40.0

● **LB: HUE GRADE (λ_D : nm)**

Super Bright Blue	1	2
	466.0 ~ 470.0	470.1~474.0

● **AVAILABLE BIN / HUE TABLE**

J1	J2
K1	K2
L1	L2



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● LB: SUPER BRIGHT BLUE (InGaN/GaN) CURVE

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

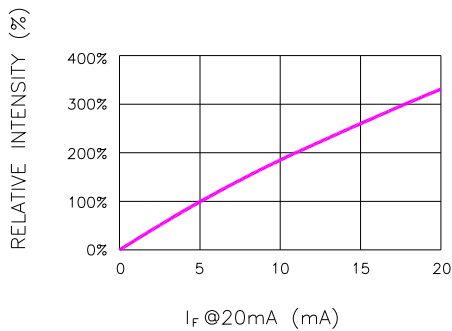


Fig.1 RELATIVE INTENSITY VS. FORWARD CURRENT

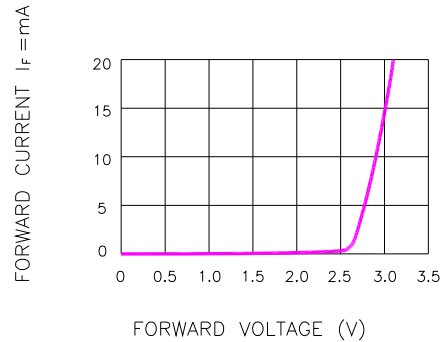


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

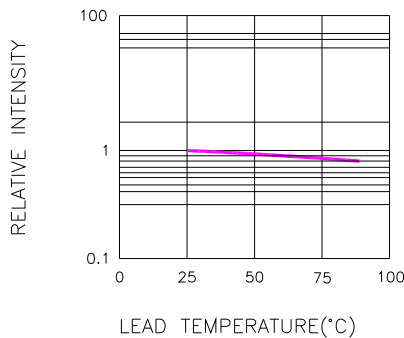


Fig.3 RELATIVE INTENSITY VS. LEAD TEMPERATURE
(PULSED 20 mA; 300us PULSE, 10ms PERIOD)

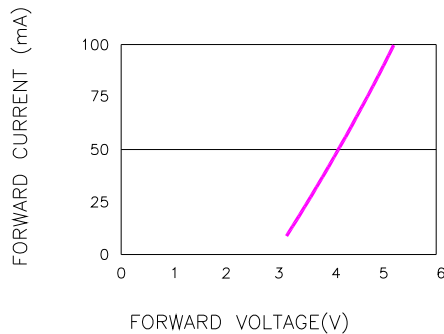


Fig.4 PEAK FORWARD VOLTAGE VS. FORWARD CURRENT
(100us TEST PULSE, 1% DUTY CYCLE)

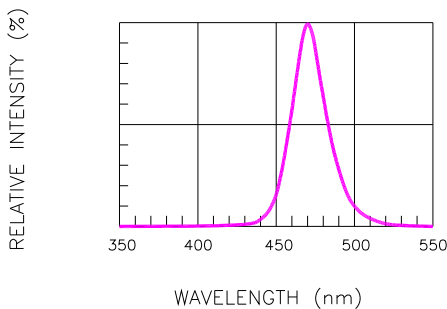


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

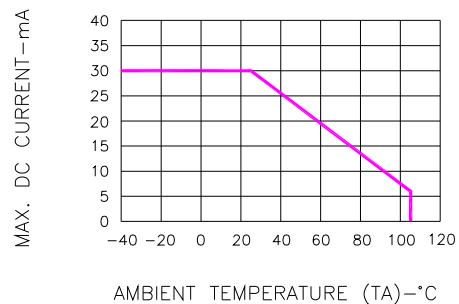
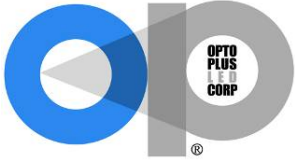


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE

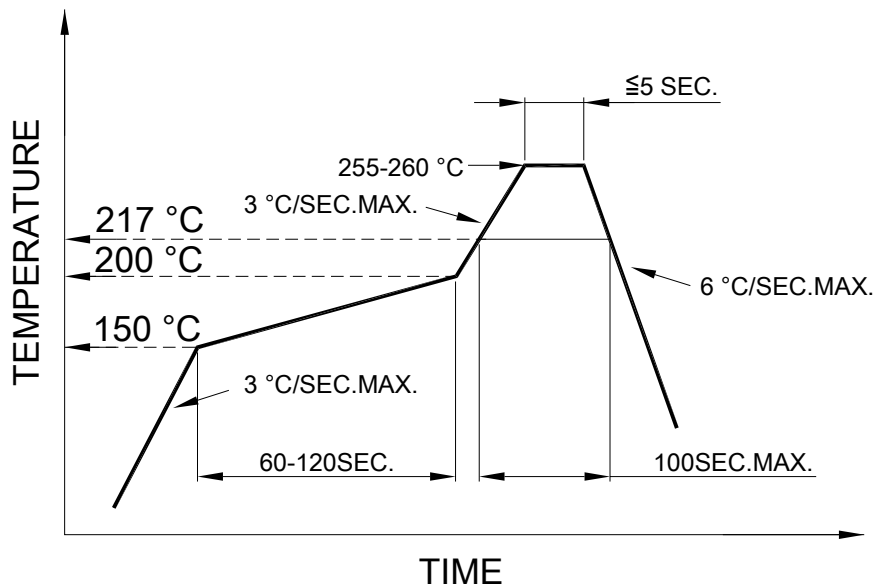


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● **SMT REFLOW SOLDERING INSTRUCTIONS**

SMT Soldering Profile

Pb free reflow soldering Profile

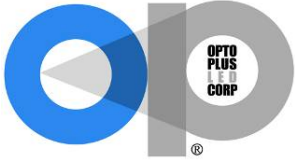


● **SOLDERING IRON**

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.

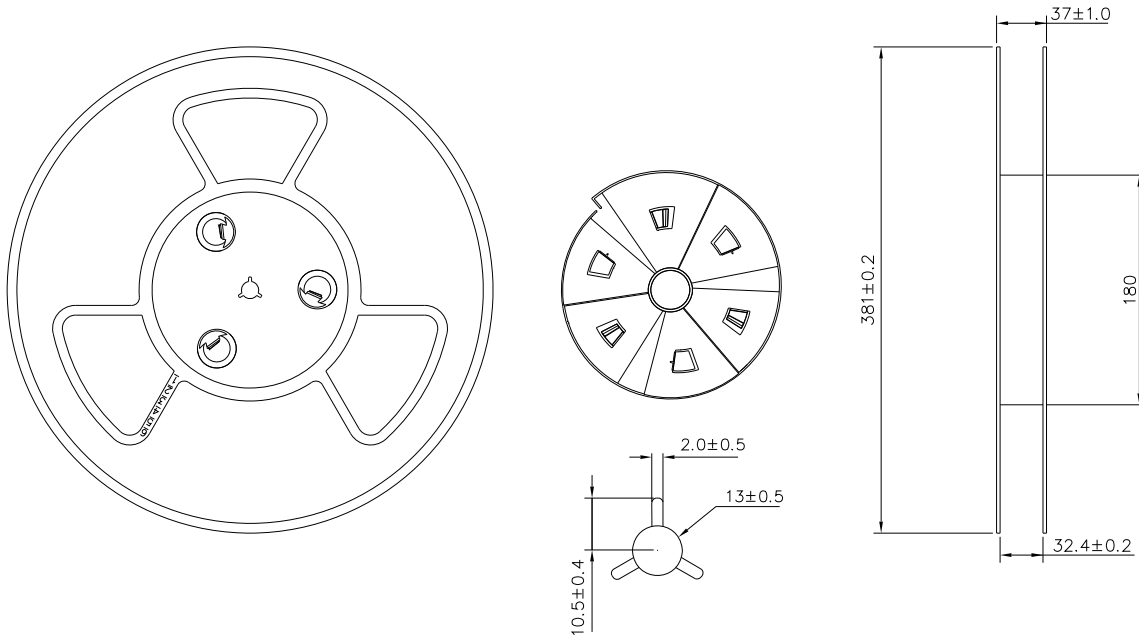
● **REWORK**

- Customer must finish rework within 3 sec. under 350°C.
- The head of soldering iron cannot touch copper foil.
- Number of reflow process shall be times or less.



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● **REEL DIMENSIONS**



● **PACKING & LABEL SPECIFICATIONS**

