

Opto Plus LED Corp.
0.20" SMD Type LED Display
OPS-D2010SB-GW
OPS-D2011SB-GW

● **EDIT HISTORY**

Version A: Oct. 22, 2015

Preliminary Spec.

Manufacture	Examination	Approving



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OPS-D2011SB-GW

● **FEATURES**

- 0.20 inch (5.08 mm) Digit Height.
- SMD type.
- Low current operation.
- Gray face, White segment.
- RoHS compliant, Pb Free.

● **DESCRIPTION**

The OPS-D2010SB-GW & OPS-D2011SB-GW are 0.20 inch (5.08 mm) height Dual digits 7-segment display.

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**

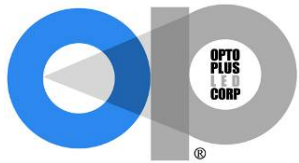
PART NO	DESCRIPTION
OPS-D2010SB-GW	Common Anode
OPS-D2011SB-GW	Common Cathode

RoHS Compliance



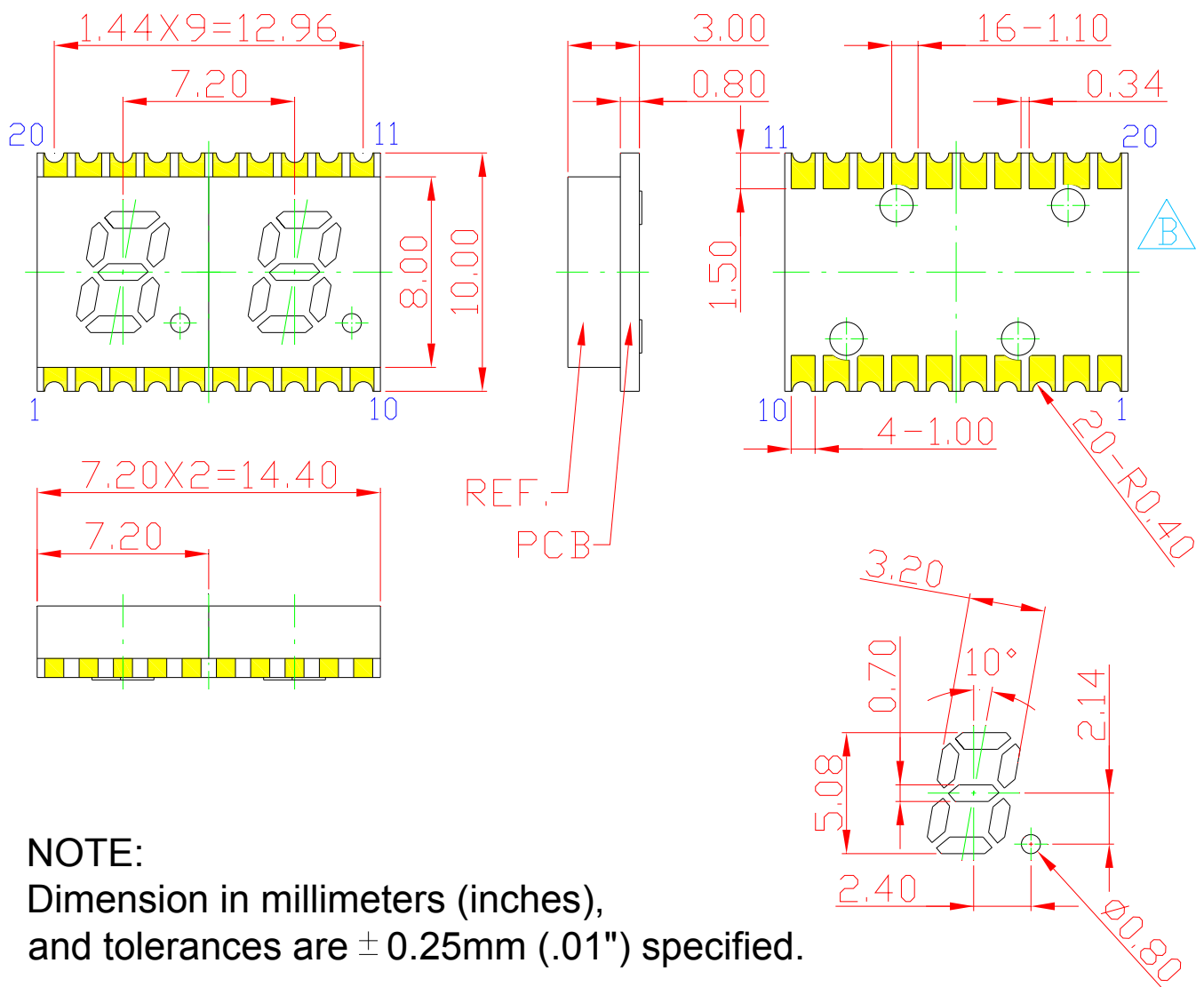
Pb free.





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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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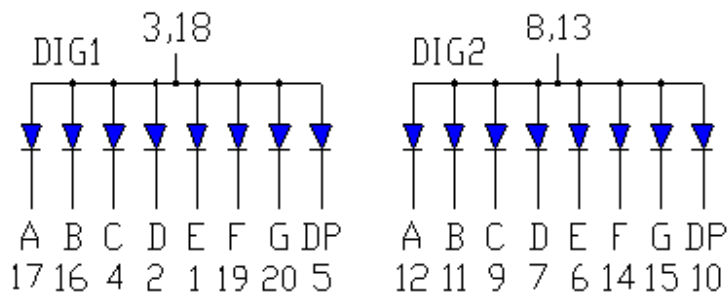
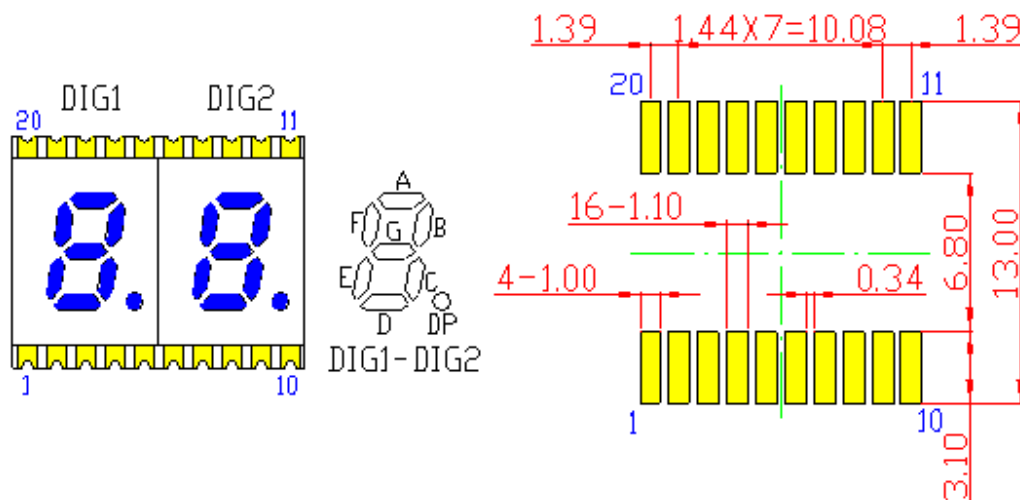
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OPS-D2010SB-GW

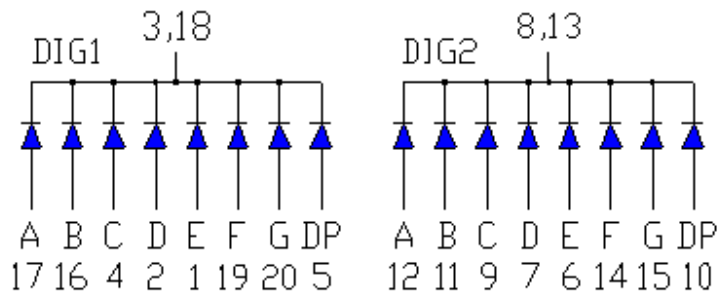
OPS-D2011SB-GW

● TYPICAL INTERNAL EQUIVALENT CIRCUIT

Recommended Soldering Pattern



OPS-D2010SB-GW (Common Anode)



OPS-D2011SB-GW (Common Cathode)



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● **SB: 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 = 20mA	-	3.1	4.0	V
Reverse Current, (Per Dice)	I _R	V _R = 8V	-	-	10	μA
Dominant Wavelength	λ _D	I _F = 20mA	464	-	474	nm
Luminous Intensity Per Segment	I _V	I _F = 20mA	30	-	80	mcd
Spectral radiation bandwidth	Δλ	I _F = 20mA	-	30	-	nm



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● **SB: BIN GRADE (Unit : mcd) Test Condition: 8V / 20mA**

Super Bright Blue	M	N	O
	30.0 ~ 45.0	45.1 ~ 60.0	60.1 ~ 80.0

● **SB: HUE GRADE (λD : nm)**

1	2	3
464.0 ~ 467.0	467.1 ~ 470.0	470.1 ~ 474.0

● **AVAILABLE BIN / HUE TABLE**

M1	N1	O1
M2	N2	O2
M3	N3	O3



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

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

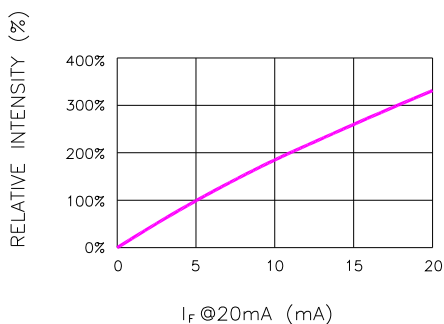


Fig.1 RELATIVE INTENSITY VS. FORWARD CURRENT

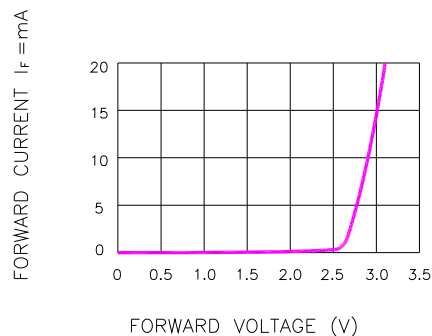


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

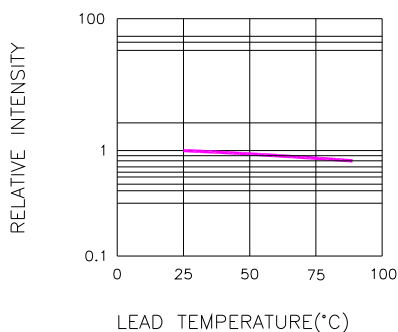


Fig.3 RELATIVE INTENSITY VS. LEAD TEMPERATURE
(PULSED 20 mA; 300us PULSE, 10ms PERIOD)

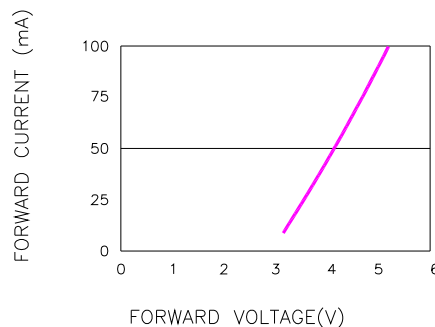


Fig.4 PEAK FORWARD VOLTAGE VS. FORWARD (100us TEST PULSE, 1% DUTY CYCLE)

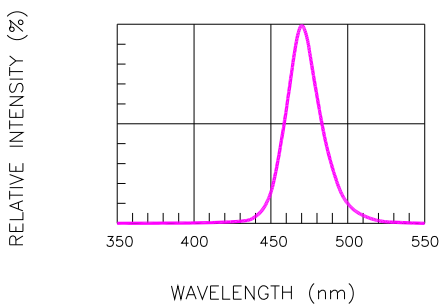


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

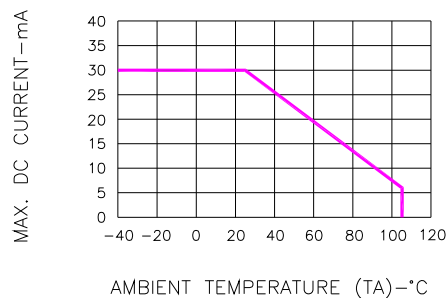


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE

Version: A Date: 10/22/2015

Opto Plus LED Corp. 7F-3, No.496, Bannan Road, Zhonghe Dist., New Taipei City 235, Taiwan (R.O.C)

Website: www.opled.com.tw E-mail: sales@opled.com.tw Tel: 886-2-2222-5698 Fax: 886-2-2222-2566

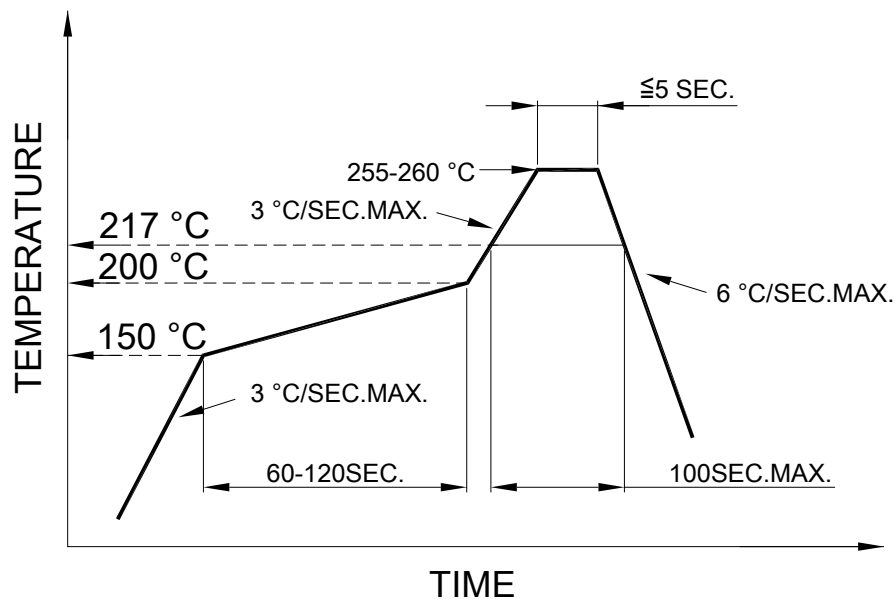


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● **SMT REFLOW SOLDERING INSTRUCTIONS**

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°C.
- The head of soldering iron cannot touch copper foil.



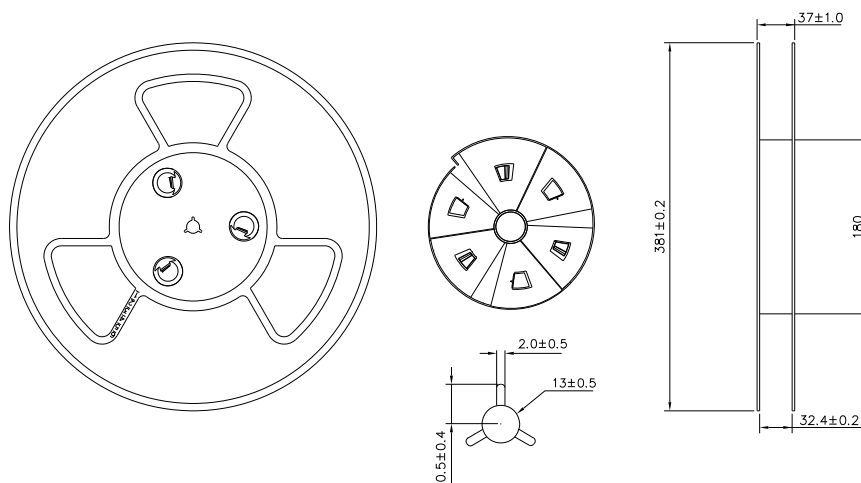
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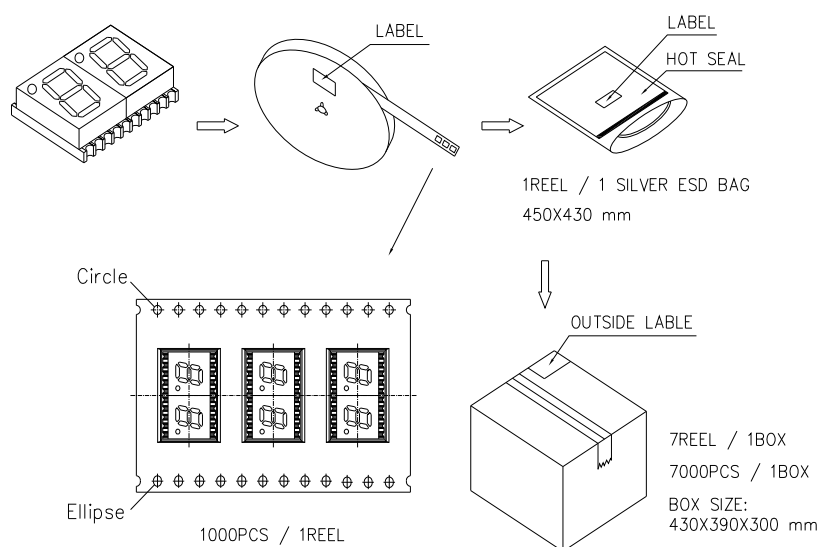
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● REEL DIMENSIONS



● PACKING & LABEL SPECIFICATIONS



● STORAGE CONDITION

In factory original sealed bag package

TEMPERATURE CONDITION	HUMIDITY CONDITION
5°C ~ 30°C	Below 60%RH

After opened and not in factory original sealed bag package

TEMPERATURE CONDITION	HUMIDITY CONDITION	STORAGE TIME
5°C ~ 30°C	Below 60%RH	Within 4 weeks (MSL as level 2a)

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Website: www.opled.com.tw E-mail: sales@opled.com.tw Tel: 886-2-2222-5698 Fax: 886-2-2222-2566