



Opto Plus LED Corp.
0.4" SMD Type LED Display
OPS-AD4020SB-GW
OPS-AD4021SB-GW

● **EDIT HISTORY**

Version A: Nov. 05, 2015

Preliminary Spec.

Manufacture	Examination	Approving



Opto Plus LED Corp.
0.4" SMD Type LED Display
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OPS-AD4021SB-GW

● **FEATURES**

- 0.4 inch (10.16 mm) digit height.
- Low current operation.
- SMD type.
- Gray face, White segment.
- RoHS compliant, Pb Free.

● **DESCRIPTION**

The OPS-AD4020SB-GW & OPS-AD4021SB-GW are 0.4 inch (10.16 mm) height dual alphanumeric 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-AD4020SB-GW	Common Anode
OPS-AD4021SB-GW	Common Cathode

RoHS Compliance



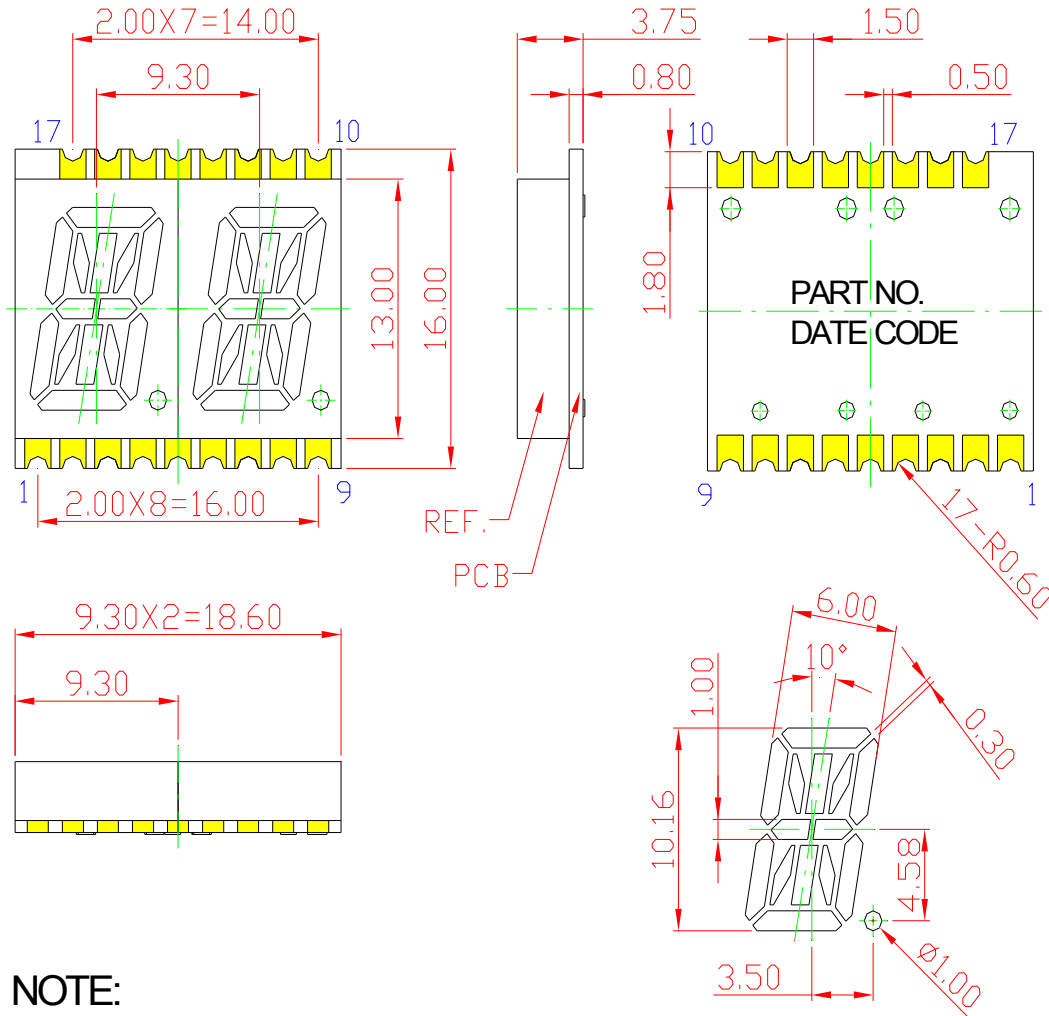
Pb free.





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● **MECHANICAL DIMENSIONS**



NOTE:

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



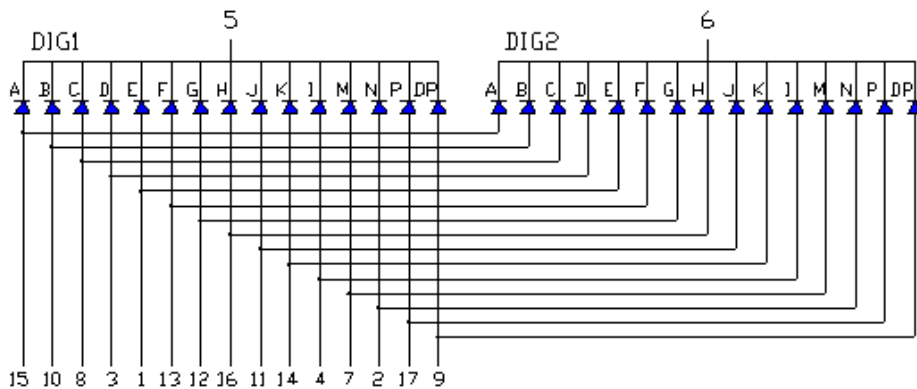
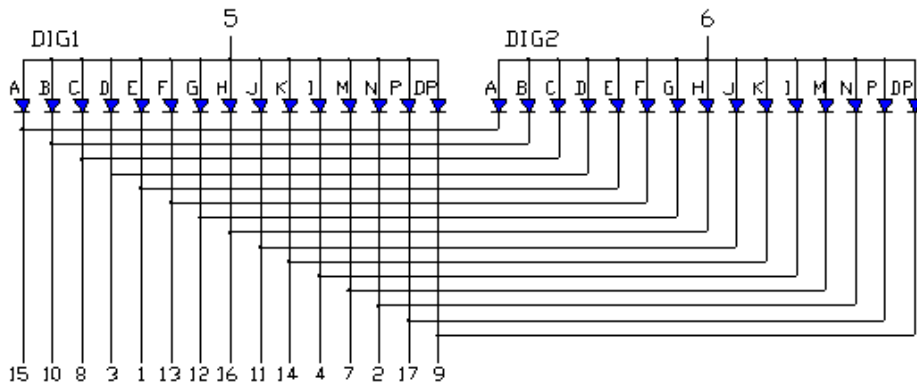
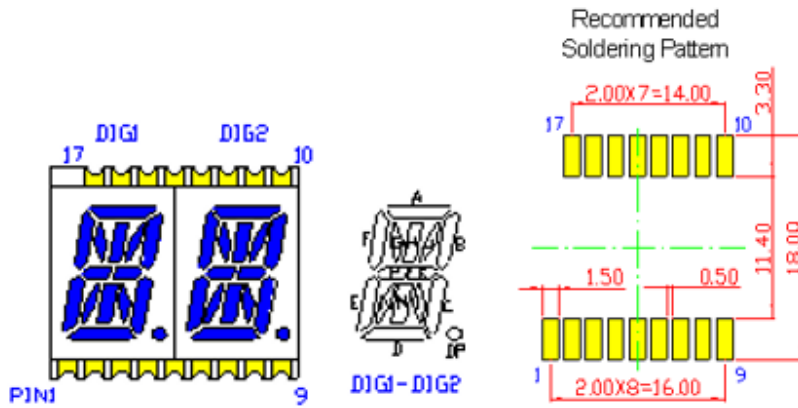
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● TYPICAL INTERNAL EQUIVALENT CIRCUIT





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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}	43	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
Peak Wavelength	λ _P	I _F =20mA	464	-	474	nm
Dominant Wavelength	λ _D	I _F =20mA	-	30	-	nm
Luminous Intensity	I _V	I _F =20mA	-	30	-	mcd
Spectral radiation bandwidth	Δλ	I _F =20mA	-	3.1	4.0	nm



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

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

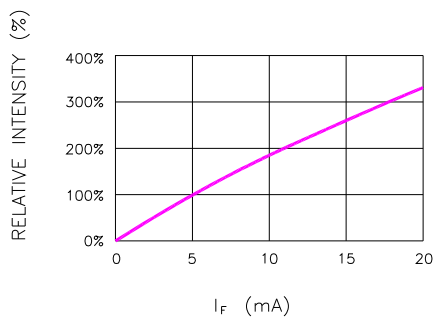


Fig.1 RELATIVE INTENSITY VS. FORWARD CURRENT

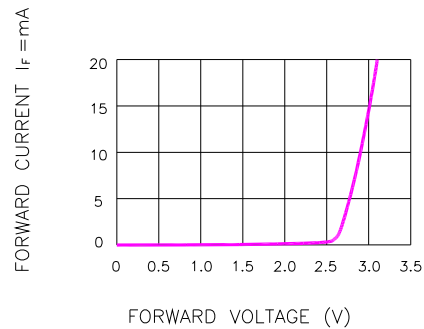


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

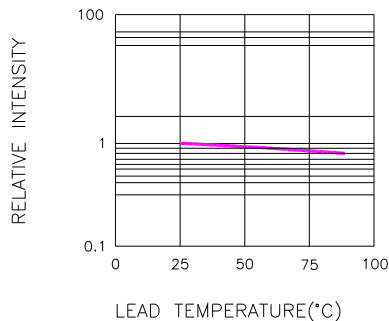


Fig.3 RELATIVE INTENSITY VS. LEAD TEMPERATURE
(PULSED 20 mA; 300us PULSE, 10ms PERIOD)

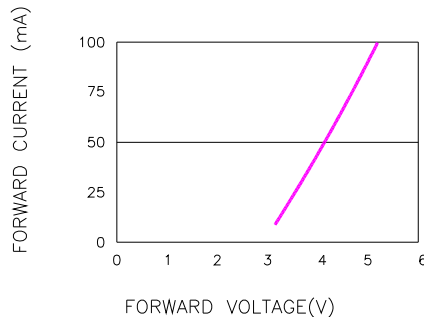


Fig.4 PEAK FORWARD VOLTAGE VS. FORWARD (100us TEST PULSE, 1% DUTY CYCLE)

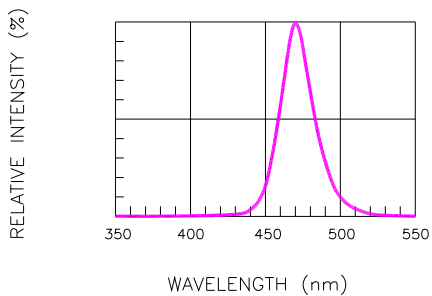


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

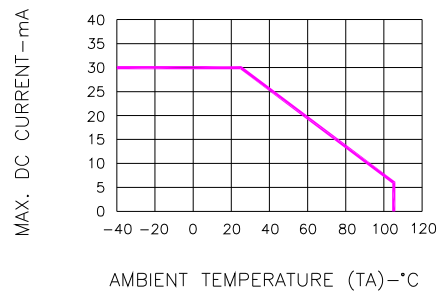


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE

Version: A Date: 11/5/2015

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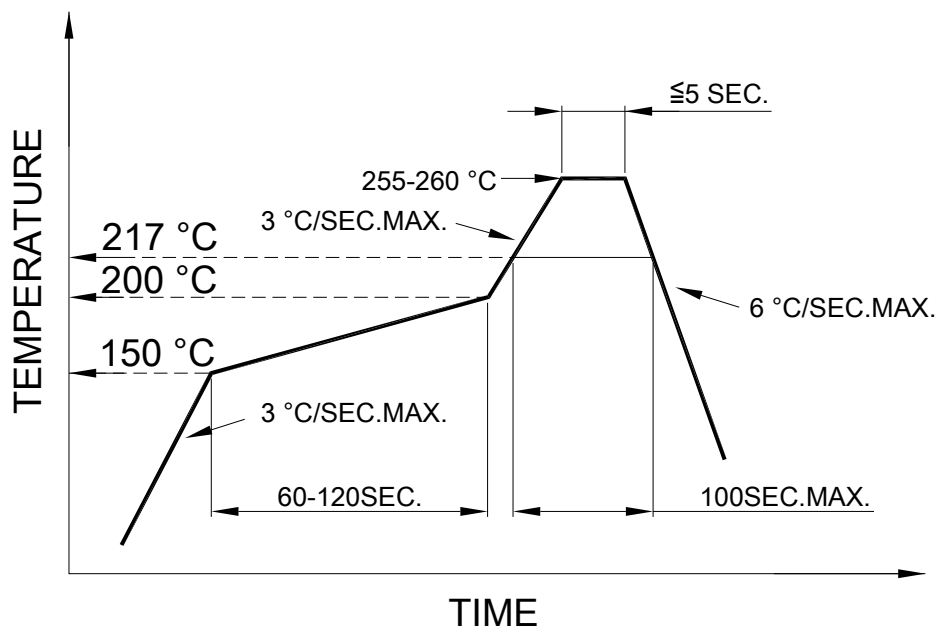


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● **SMT REFLOW SOLDERING INSTRUCTIONS**

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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