

Opto Plus LED Corp.
0.4" SMD Type LED Display
OPS-Q4010(1)YG-GW

● **EDIT HISTORY**

Version A: May. 08, 2012

Preliminary Spec.

Version B: May. 10, 2012

1. Correct mechanical dimensions.
2. Correct typical internal equivalent circuit.

Version C: Oct. 28, 2015

1. Add Bin and Hue data.
2. Add package spec.
3. Modify mechanical dimensions.

Manufacture	Examination	Approving



Opto Plus LED Corp.

0.4" SMD Type LED Display

OPS-Q4010(1)YG-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-Q4010YG-GW & OPS-Q4011YG-GW are 0.40 inch (10.16mm) height Quadruple 7-segment displays.

This device utilizes Super Bright Yellow Green LED chip which are made from AlGaInP On a transparent GaAs, substrate.

The display has Gray face, White segment.

● DEVICE

PART NO	DESCRIPTION
OPS-Q4010YG-GW	Common Anode
OPS-Q4011YG-GW	Common Cathode

RoHS Compliance



Pb free.



Version: C Date: 10/28/2015

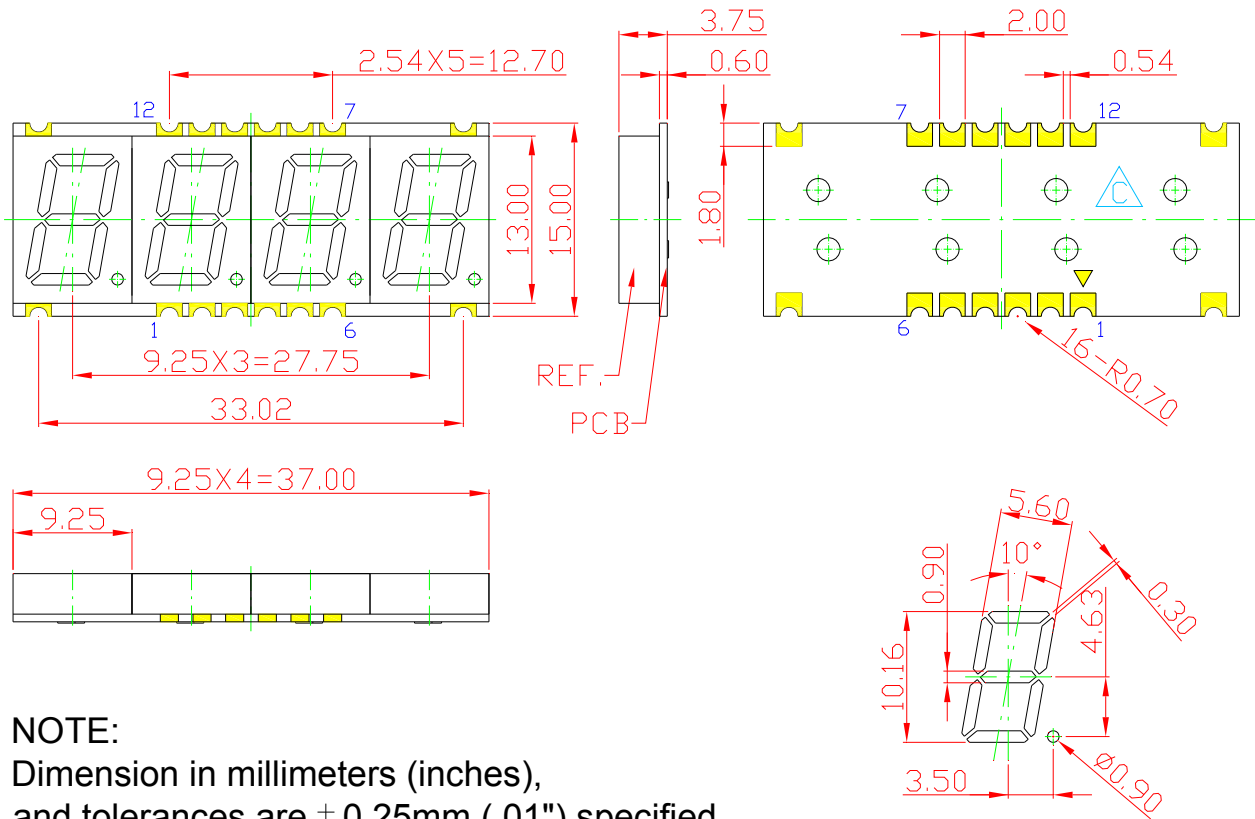
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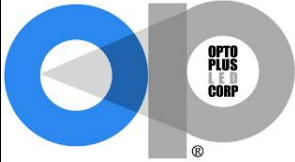


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● MECHANICAL DIMENSIONS

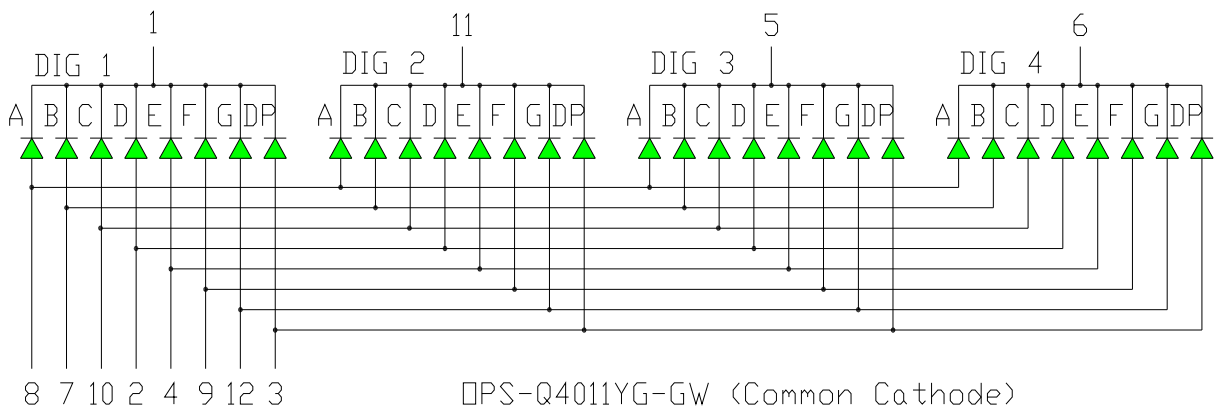
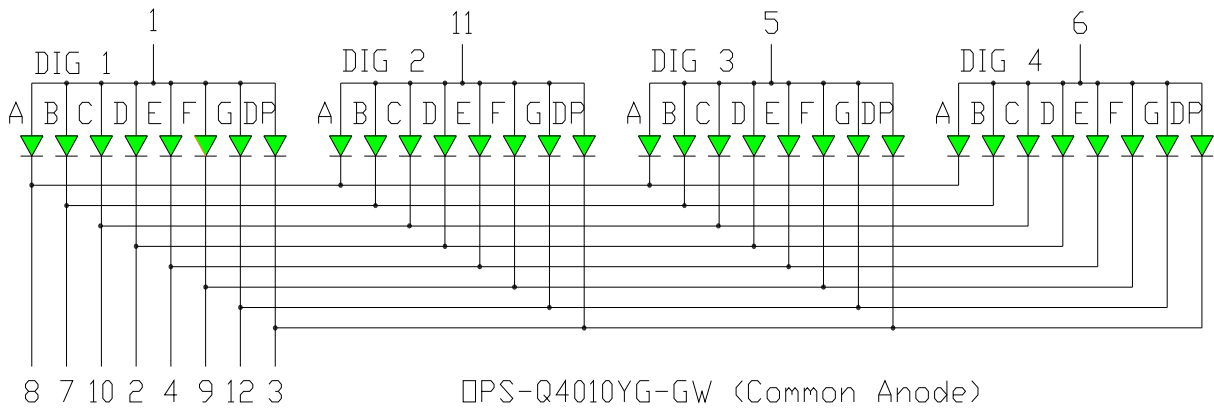
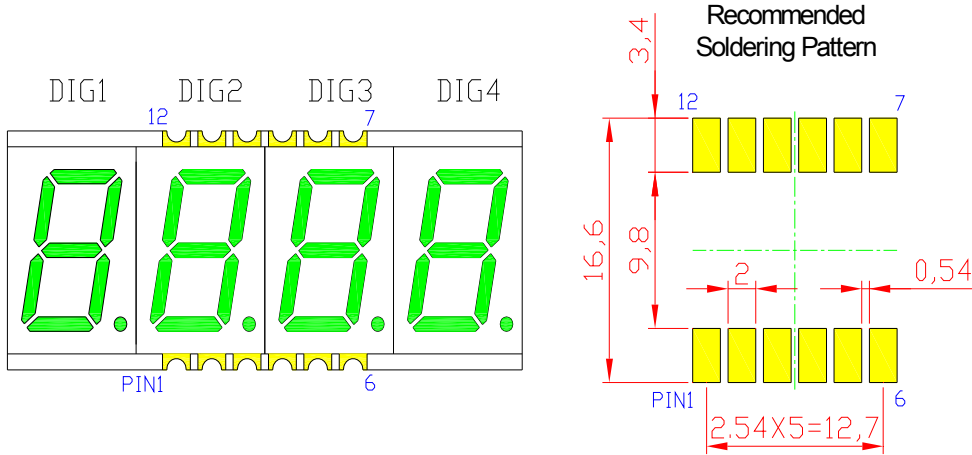


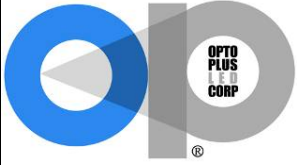
NOTE:
Dimension in millimeters (inches),
and tolerances are $\pm 0.25\text{mm}$ (.01") specified.



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● TYPICAL INTERNAL EQUIVALENT CIRCUIT





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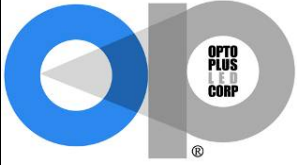
● **YG: SUPER BRIGHT YELLOW GREEN (AlGaInP/GaAs)**

ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Super Bright Yellow Green	Unit
Power dissipation per segment	P _{AD}	70	mW
Derating liner from 25°C per segment	-	0.28	mA / °C
Continuous forward current per segment	I _{AF}	25	mA
Peak current per dice (duty cycle 1/10, 1kHz)	I _{PF}	90	mA
Reverse voltage per segment	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 segment	V _F	I _F =20mA	-	2.1	2.6	V
Reverse current per segment	I _R	V _R =5V	-	-	10	μA
Peak wavelength	λ _P	I _F =20mA	-	573	-	nm
Dominant wavelength	λ _D	I _F =20mA	566	-	576	nm
Luminous intensity per segment	I _V	I _F =10mA	2	-	15	mcd
Spectral radiation bandwidth	Δλ	I _F =20mA	-	20	-	nm



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● **YG: BIN GRADE (Unit :5V / 20mA)**

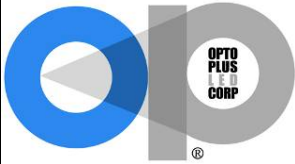
Super Bright Yellow Green	F	G	H
	2.0 ~ 6.0	6.1~ 10.0	10.1~15.0

● **YG: HUE GRADE (λD : nm)**

1	2	3
566~569	569.1~572	572.1~576

● **AVAILABLE BIN / HUE TABLE**

F1	F2	F3
G1	G2	G3
H1	H2	H3



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● YG: SUPER BRIGHT YELLOW GREEN (AlGaInP/GaAs) CURVE

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

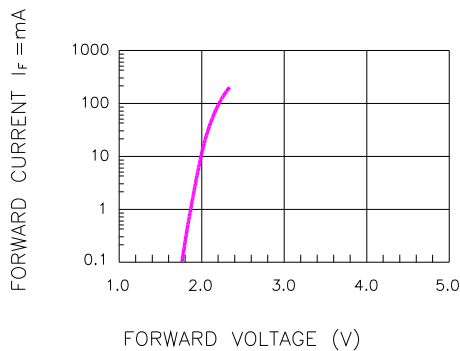


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

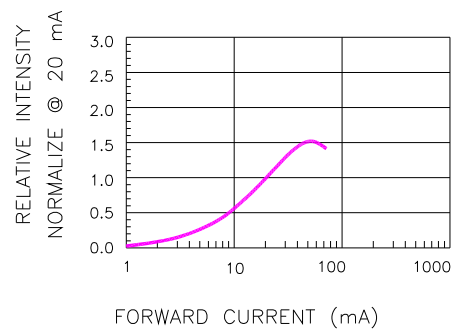


Fig.2 RELATIVE INTENSITY VS. FORWARD CURRENT

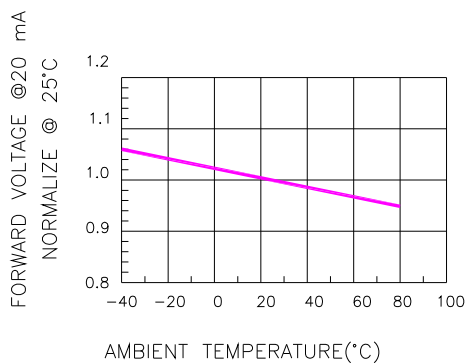


Fig.3 FORWARD VOLTAGE VS. TEMPERATURE

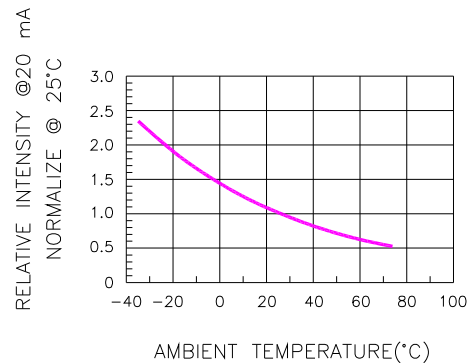


Fig.4 RELATIVE INTENSITY VS. TEMPERATURE

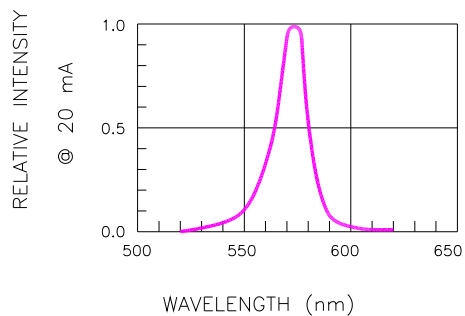


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

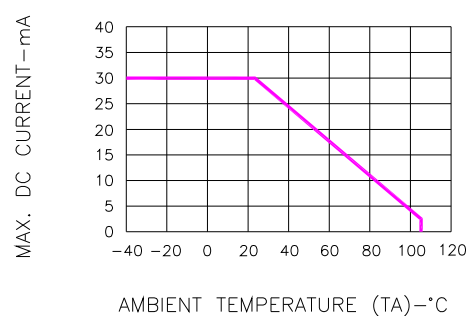
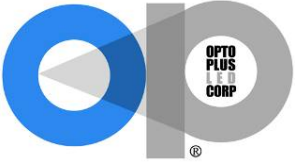


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE

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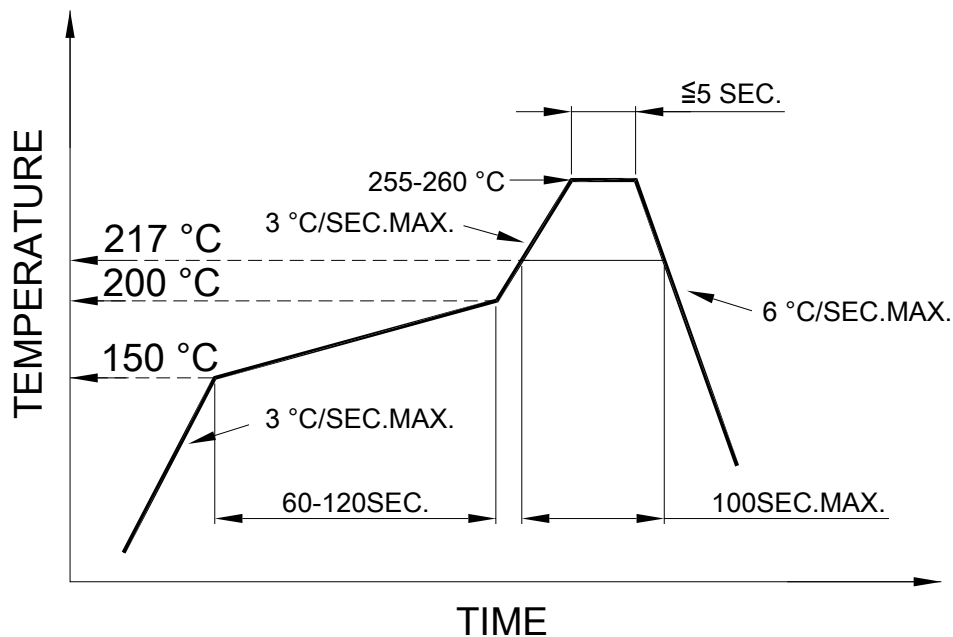


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● RECOMMEND SOLDERING PROFILE

SMT Soldering Profile

Pb free reflow soldering Profile



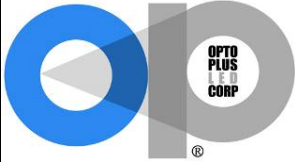
- We recommend the reflow temperature 245°C (+/- 5°C).
The maximum soldering temperature should be limited to 260°C.
- Number of reflow process shall be 2 times or less.

● 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.

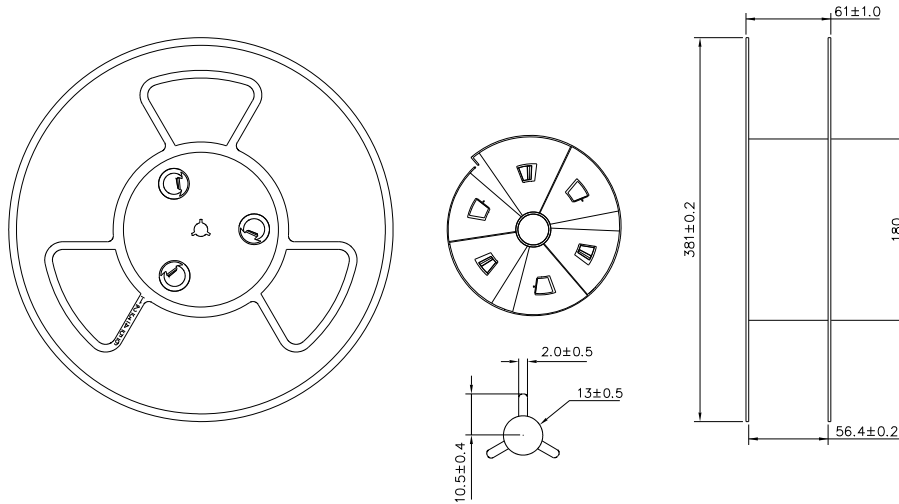
● REWORK

- Customer must finish rework within 3 sec. under 350°C.
- The head of soldering iron cannot touch copper foil.

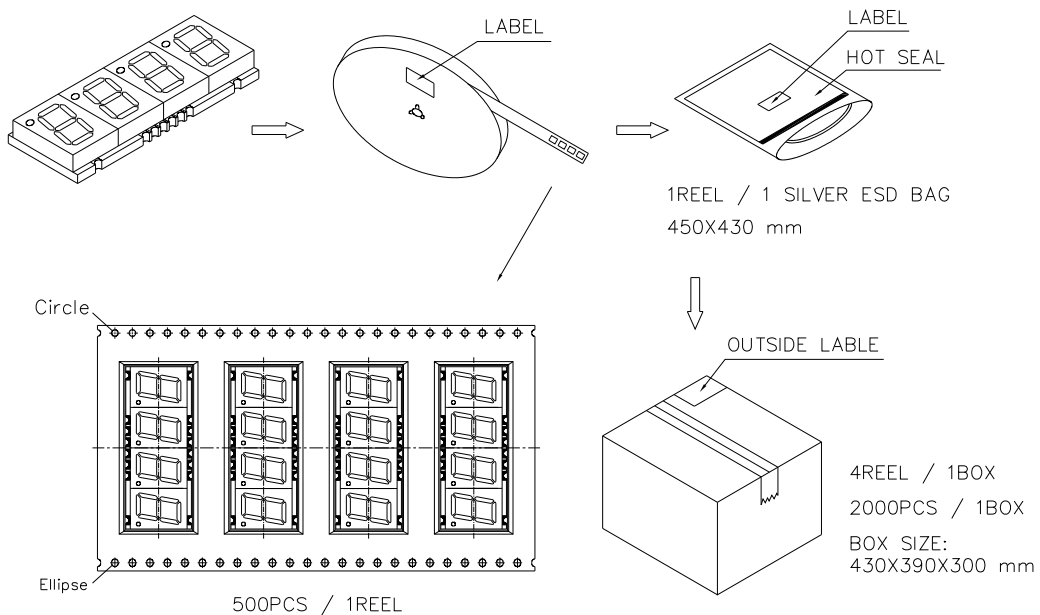


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● REEL DIMENSIONS



● 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)