www.opledtw.com

Opto Plus LED Corp.
0.40” SMD Type LED Display
OPS-D4014SY | OPS-D4013SY

EDIT HISTORY

Version A: Nov. 23, 2020

Preliminary Spec.

Opto Plus LED Corp. 7F-3, No.496 , Bannan Road, Jhonghe Dist., New Taipei City 235, Taiwan (R.O.C)
Website: www.opledtw.com E-mail: sales@opledtw.com Tel: 886-2-2222-5698 Fax: 886-2-2222-2566

Disclaimer:
Subject to change without notice

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0.40” SMD Type LED Display
OPS-D4014SY | OPS-D4013SY

FEATURES

- 0.40 inch (10.16 mm) digit height.
- SMD type.
- Low current operation.
- RoHS Compliant, Pb Free.

DESCRIPTION

The device are 0.40 inch (10.16 mm) height dual digit 7-segment displays.

The device is Opto Plus LED Corp standard LED Display.

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

The device has face and segment option, please refer to **PRODUCT APPEARANCE**.

DEVICE

	PART NO.	DESCRIPTION
	OPS-D4014SY-GW	Common Anode | Gray face | White segment
	OPS-D4013SY-GW	Common Cathode | Gray face | White segment
	OPS-D4014SY-BW	Common Anode | Black face | White segment
	OPS-D4013SY-BW	Common Cathode | Black face | White segment

RoHS Compliance

Pb Free.

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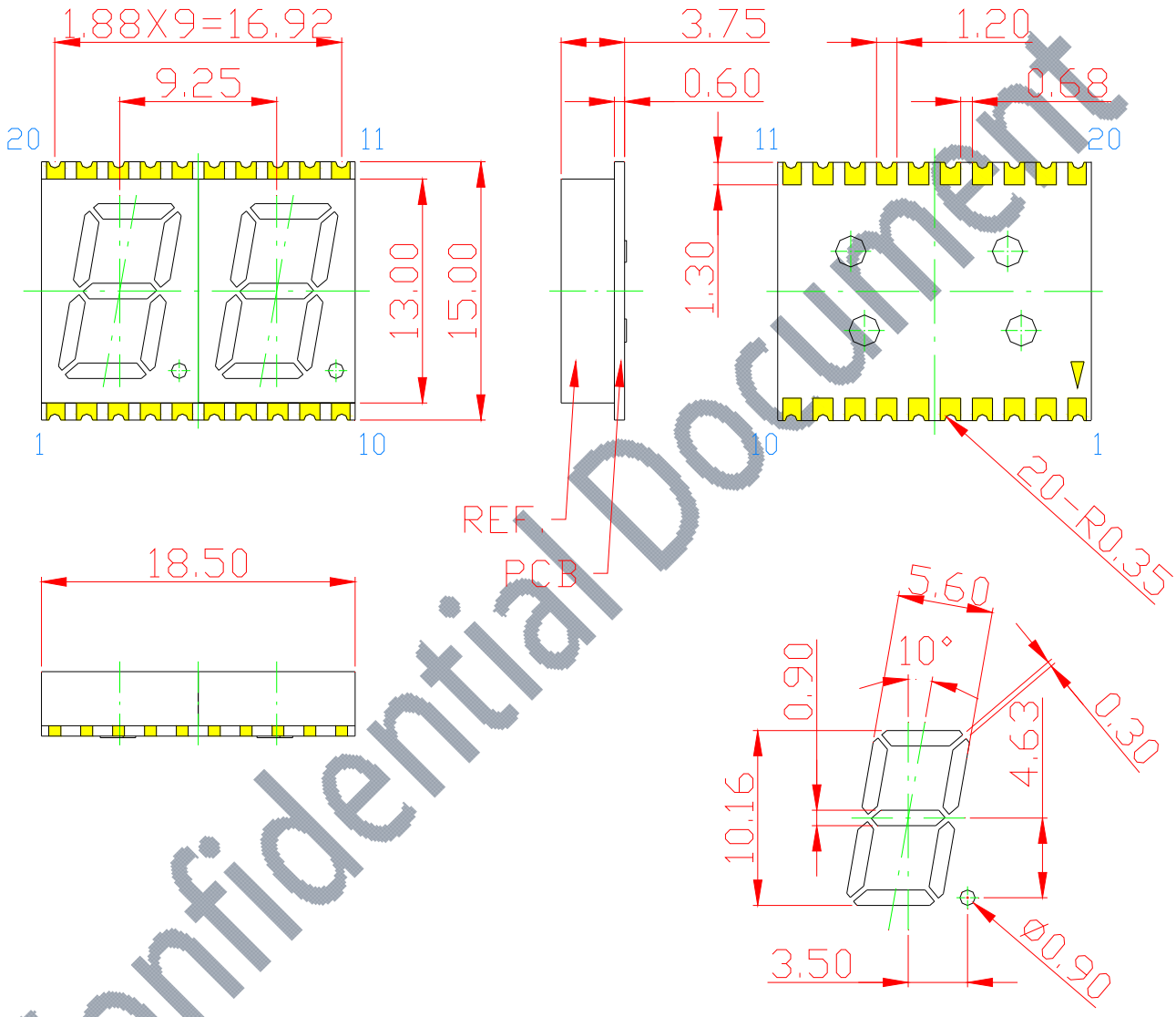
MECHANICAL DIMENSIONS



NOTES: All dimensions are in millimeters. Tolerances are± 0.25 mm unless otherwise noted.

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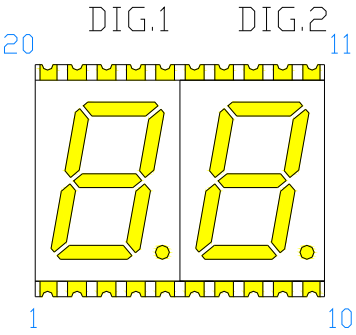
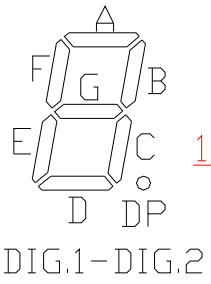
● TYPICAL INTERNAL EQUIVALENT CIRCUIT

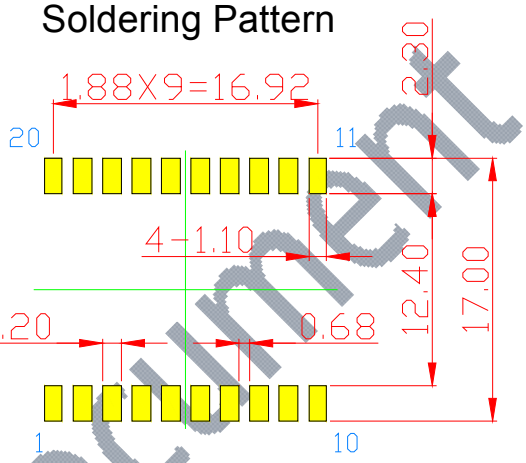
Turn On Color

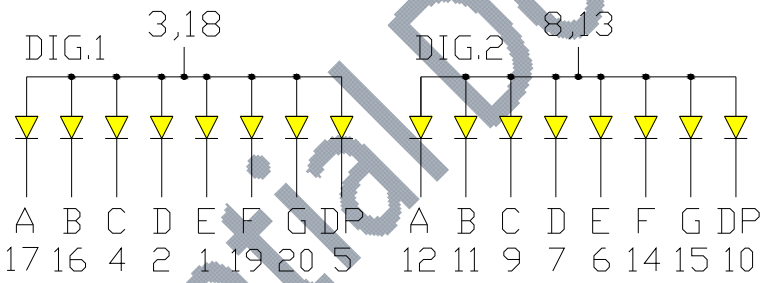




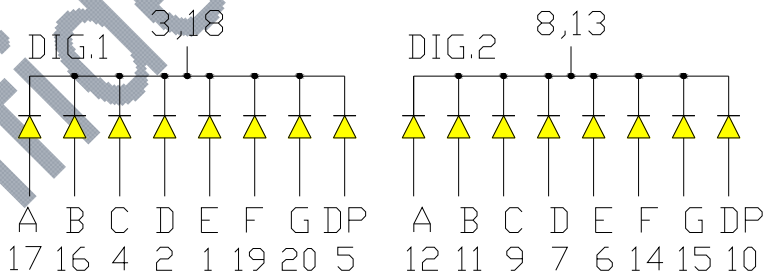
DIG.1-DIG.2

Recommended
Soldering Pattern





OPS-D4014 (Common Anode)



OPS-D4013 (Common Cathode)

※EMITTED COLOR：SUPER BRIGHT YELLOW

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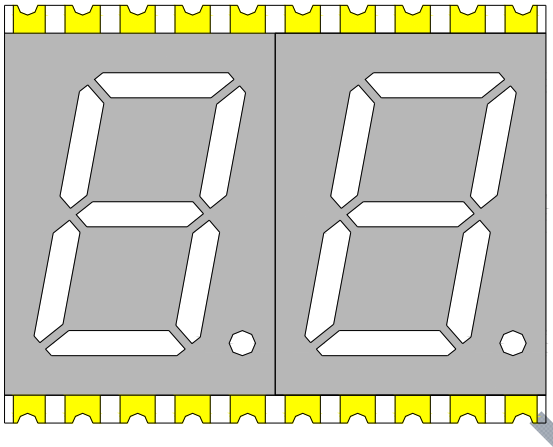
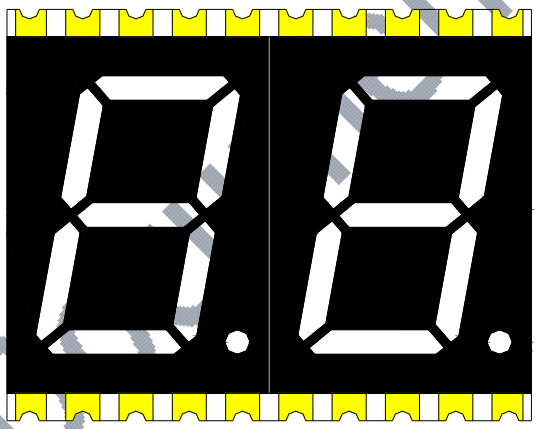
PRODUCT APPEARANCE

The most common reflector color and segment color are show in below diagram.

-GW	-BW
	
※ REFLECTOR COLOR: Gray ※ SEGMENT COLOR: White	※ REFLECTOR COLOR: Black ※ SEGMENT COLOR: White

Opto Plus can customize reflector and segment colors by customer’s request. If you have these request please visit www.opledtw.com or contact sales@opledtw.com for more **Standard Product Customization** information.

Part NO. related to reflector and segment colors show as table below.

PART NO.	DESCRIPTION
OPS-D4014SY-GW	Common Anode ｜ Gray face ｜ White segment
OPS-D4013SY-GW	Common Cathode ｜ Gray face ｜ White segment
OPS-D4014SY-BW	Common Anode ｜ Black face ｜ White segment
OPS-D4013SY-BW	Common Cathode ｜ Black face ｜ White segment

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SY: SUPER BRIGHT YELLOW (AlGaInP/GaAs)

ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Maximum Rating	Unit
Power dissipation	P_{AD}	48	mW
Continuous forward current	I_{AF}	20	mA
Peak current (duty cycle 1/10, 1kHz)	I_{PF}	40	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	-	2.1	2.4	V
Reverse Current, (Per Dice)	I_R	V_R =5V	-	-	10	μA
Peak Wavelength	λ_P	I_F =20mA	-	593	-	nm
Dominant Wavelength	λ_D	I_F =20mA	585	-	595	nm
Luminous Intensity	I_V	I_F =20mA	15	37.5	60	mcd
Spectral Line Half-Bandwidth	$\Delta\lambda$	I_F =20mA	-	20	-	nm

SY: BIN GRADE (Unit : mcd) 20mA

Super Bright Yellow	K	L	M
	15.0 -30.0	30.1 – 45.0	45.1 - 60.0

SY: HUE GRADE (λ_D : nm)

1	2	3
585.0 – 588.0	588.1 – 592.0	592.1 – 595.0

AVAILABLE BIN / HUE TABLE

K1	L1	M1
K2	L2	M2
K3	L3	M3

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● SY: SUPER BRIGHT YELLOW (AlGaInP/GaAs) CURVE

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

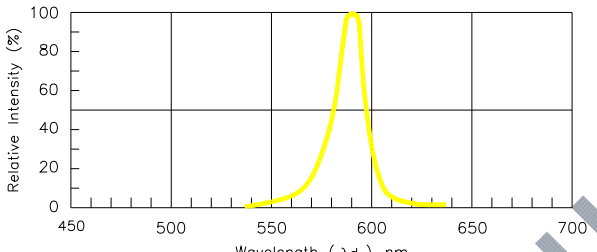

Fig.1—Relative Intensity VS. Wavelength

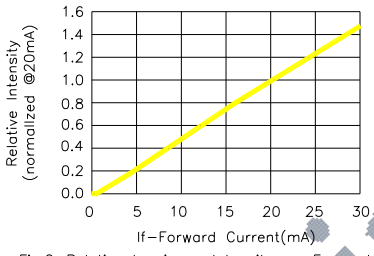

Fig.2—Relative Luminous Intensity vs. Forward Current

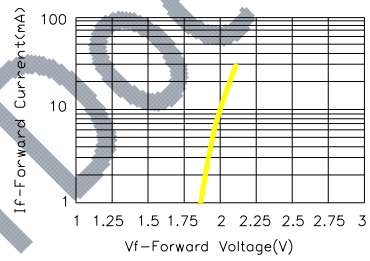

Fig.3—Forward Current vs. Forward Voltage

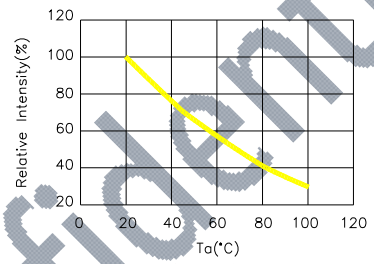

Fig.4—Relative Intensity(@20mA) vs. Ambient Temperature

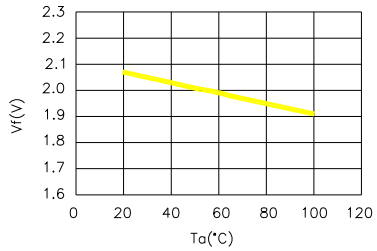

Fig.5—Forward Voltage(@20mA) vs. Ambient Temperature

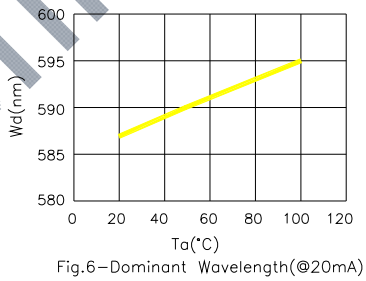

Fig.6—Dominant Wavelength(@20mA)
VS. Ambient Temperature

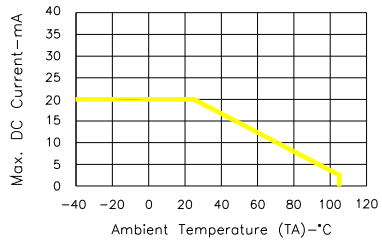

Fig.7—Max. Allowable DC Current
VS. Ambient Temperature

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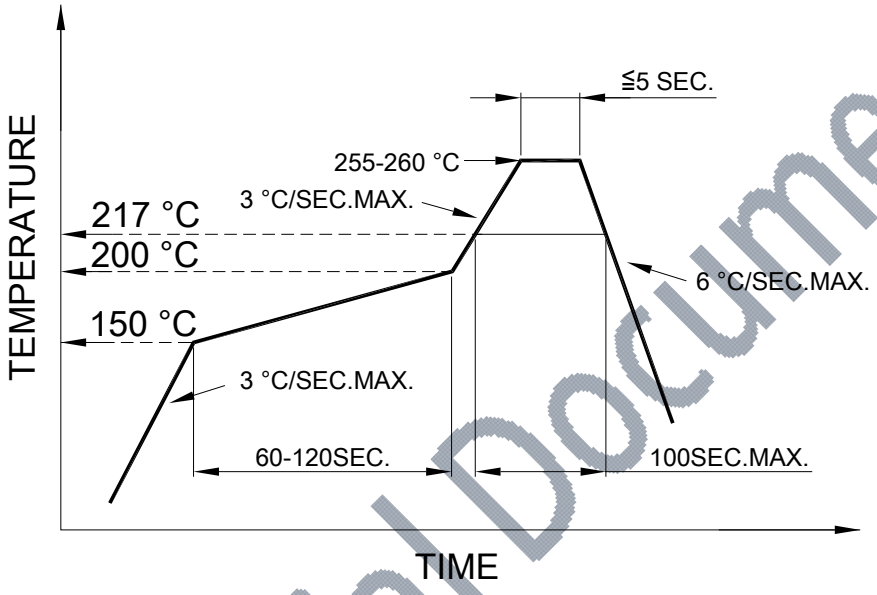
SMT REFLOW SOLDERING INSTRUCTIONS

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.

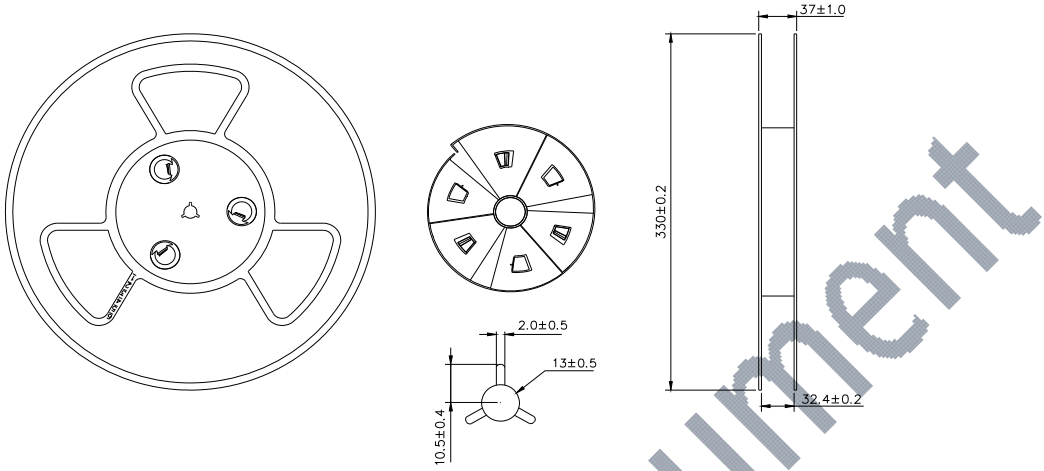
SOLDERING IRON

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.

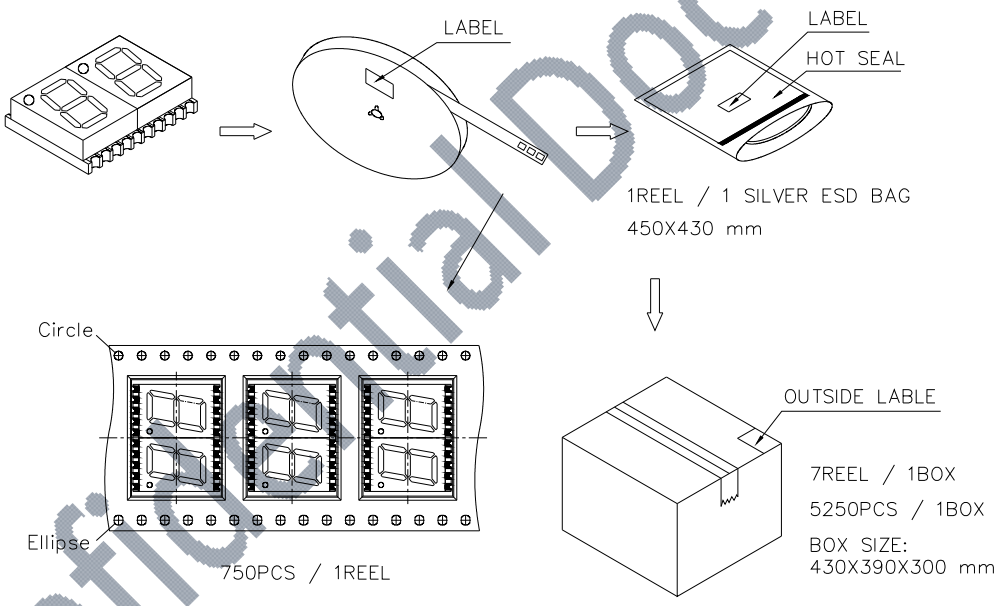
REWORK

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

REEL DIMENSIONS



PACKING & LABEL SPECIFICATIONS



STORAGED CONDITION

In factory original sealed bag package

TEMPERATURE CONDITION	HUMIDITY CONDITION
5℃ ~ 30℃	Below 60%RH

After opened and not in factory original sealed bag package

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

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