www.opledtw.com

Opto Plus LED Corp.
0.20” SMD Type LED Display
OPS-Q2012SE | OPS-Q2013SE

EDIT HISTORY

Version A: Nov. 11, 2020

Preliminary Spec.

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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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0.20” SMD Type LED Display
OPS-Q2012SE | OPS-Q2013SE

FEATURES

- 0.20 inch (5.08 mm) Digit Height.
- SMD type.
- Low current operation.
- RoHS Compliant, Pb Free.

DESCRIPTION

The device are 0.20 inch (5.08 mm) height quadruple digit 7-segment displays.

The device is Opto Plus LED Corp standard LED Display.

This device utilizes Super Bright Red 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-Q2012SE-GW	Common Anode | Gray face | White segment
	OPS-Q2013SE-GW	Common Cathode | Gray face | White segment
	OPS-Q2012SE-BW	Common Anode | Black face | White segment
	OPS-Q2013SE-BW	Common Cathode | Black face | White segment

RoHS Compliance

Pb Free.

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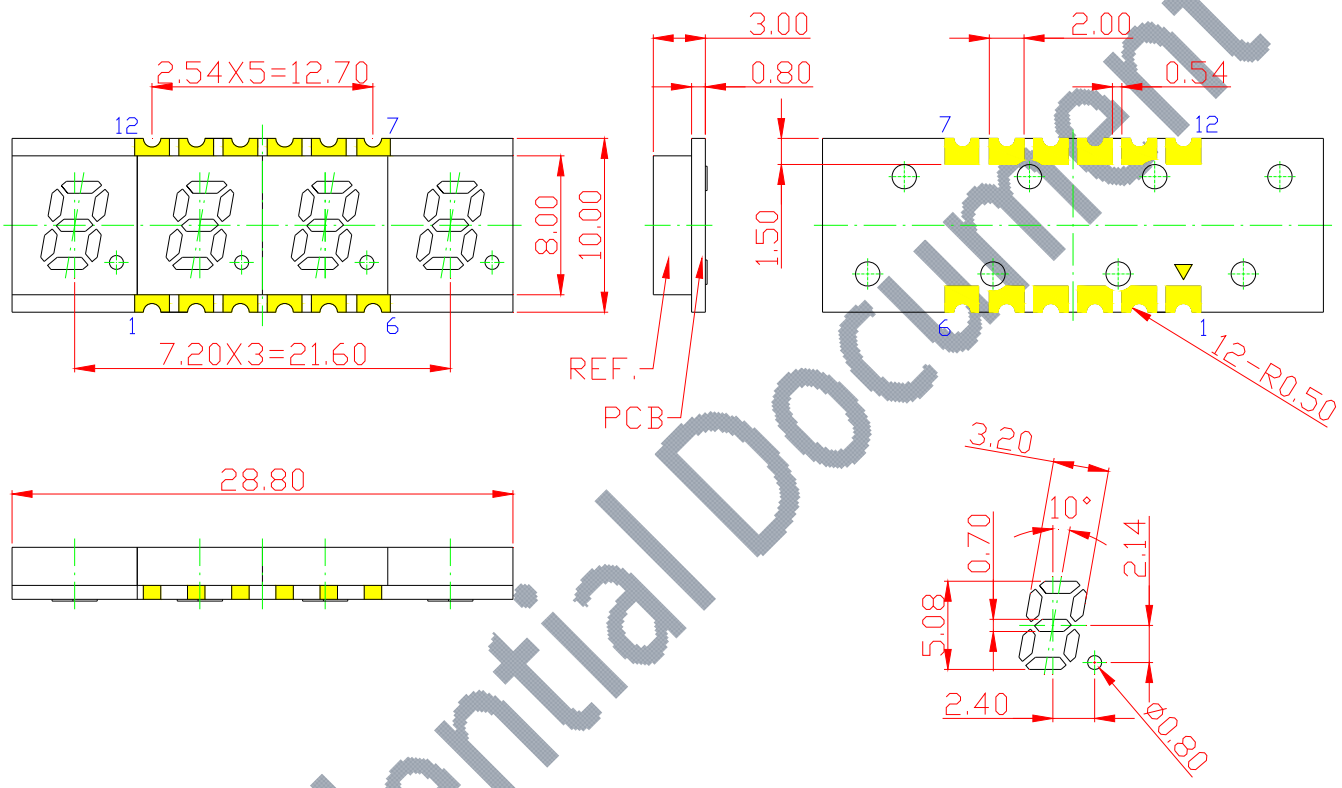
0.20” SMD Type LED Display
OPS-Q2012SE | OPS-Q2013SE

MECHANICAL DIMENSIONS



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

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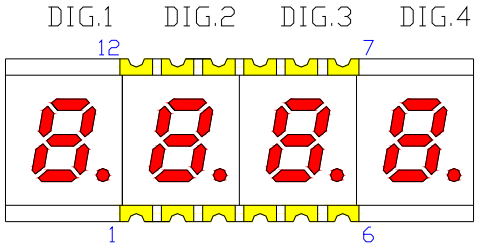
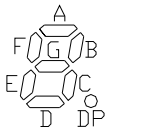
● TYPICAL INTERNAL EQUIVALENT CIRCUIT

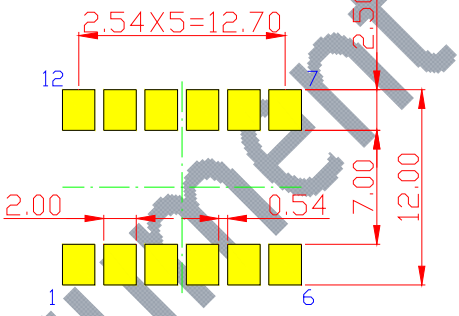
Turn On Color

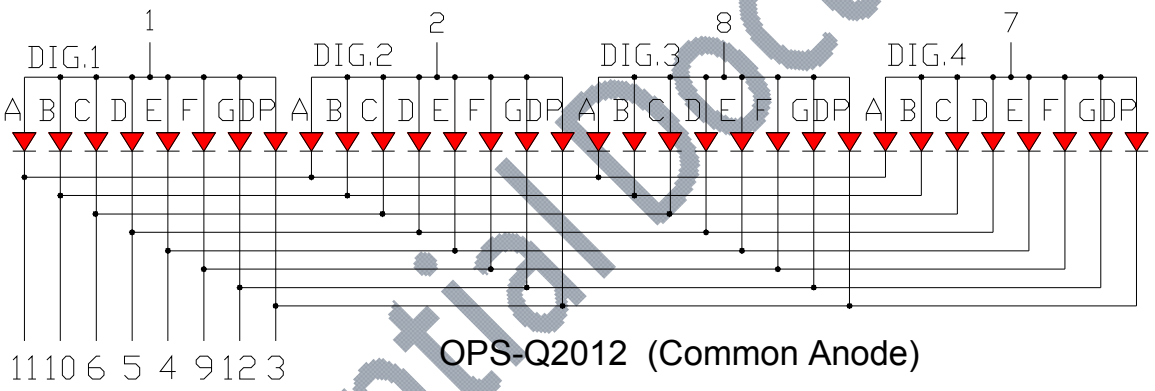




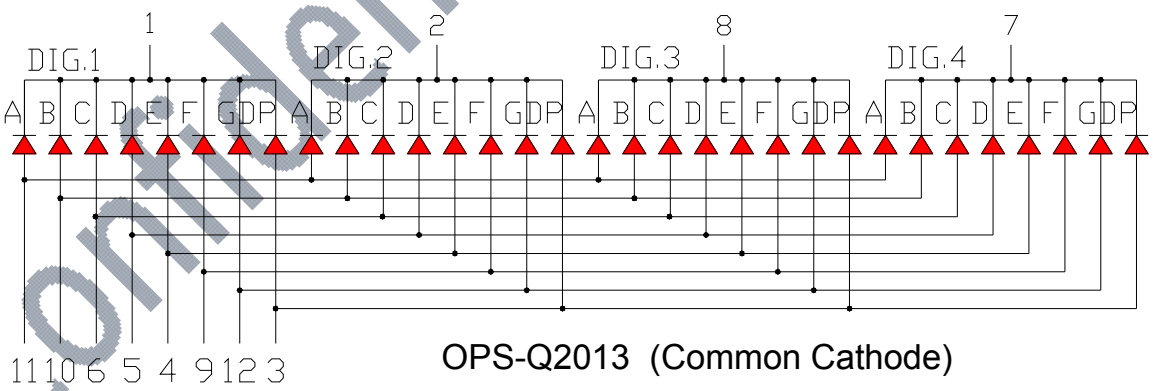
DIG.1-DIG.4

Recommended
Soldering Pattern





OPS-Q2012 (Common Anode)



OPS-Q2013 (Common Cathode)

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※EMITTED COLOR：SUPER BRIGHT RED

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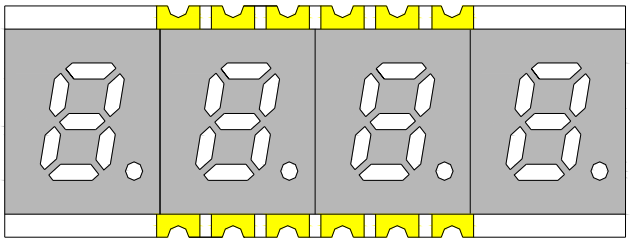
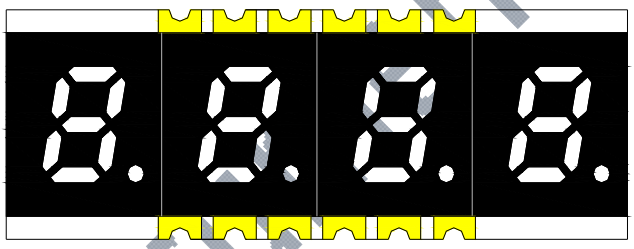
PRODUCT APPEARANCE

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-Q2012SE-GW	Common Anode ｜ Gray face ｜ White segment
OPS-Q2013SE-GW	Common Cathode ｜ Gray face ｜ White segment
OPS-Q2012SE-BW	Common Anode ｜ Black face ｜ White segment
OPS-Q2013SE-BW	Common Cathode ｜ Black face ｜ White segment

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SE: SUPER BRIGHT RED (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	-	632	-	nm
Dominant Wavelength	λ_D	I_F =20mA	619	-	629	nm
Luminous Intensity	I_V	I_F =20mA	10	32.5	55	mcd
Spectral Line Half-Bandwidth	$\Delta\lambda$	I_F =20mA	-	20	-	nm

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- SE: BIN GRADE (Unit : mcd) 20mA

Super Bright Red	K	L	M
	10.0 – 25.0	25.1 - 40.0	40.1 - 55.0

- SE: HUE GRADE (λ_D : nm)

1	2	3
619.0 – 622.0	622.1 – 626.0	626.1 – 629.0

- AVAILABLE BIN / HUE TABLE

K1	K2	K3
L1	L2	L3
M1	M2	M3

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SE: SUPER BRIGHT RED (AlGaInP/GaAs) CURVE

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

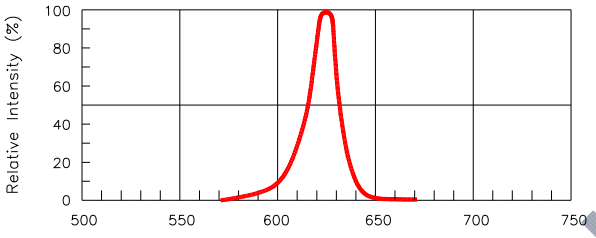

Fig.1—Relative Intensity VS. Wavelength

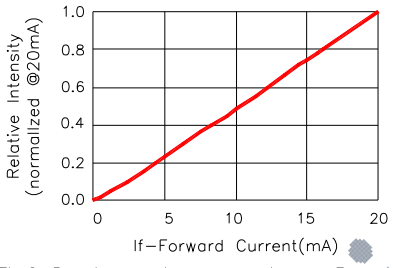

Fig.2—Relative Luminous Intensity vs. Forward Current

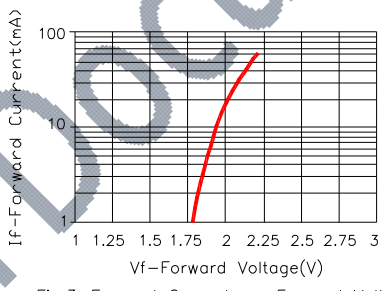

Fig.3—Forward Current vs. Forward Voltage

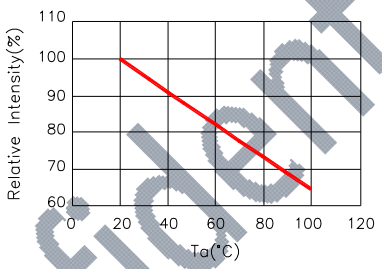

Fig.4—Relative Intensity(@20mA) vs. Ambient Temperature

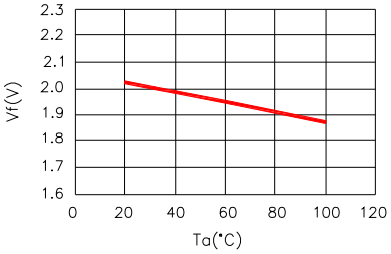

Fig.5—Forward Voltage(@20mA) vs. Ambient Temperature

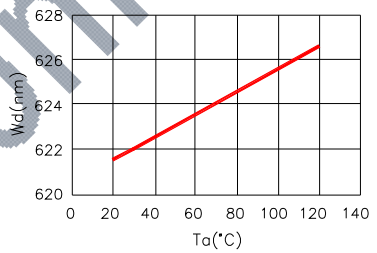

Fig.6—Dominant Wavelength(@20mA)
VS. Ambient Temperature

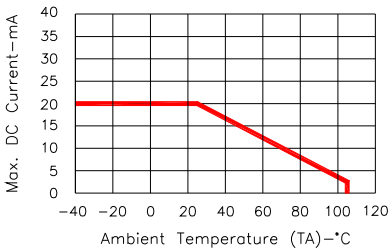

Fig.7—Max. Allowable DC Current
VS. Ambient Temperature

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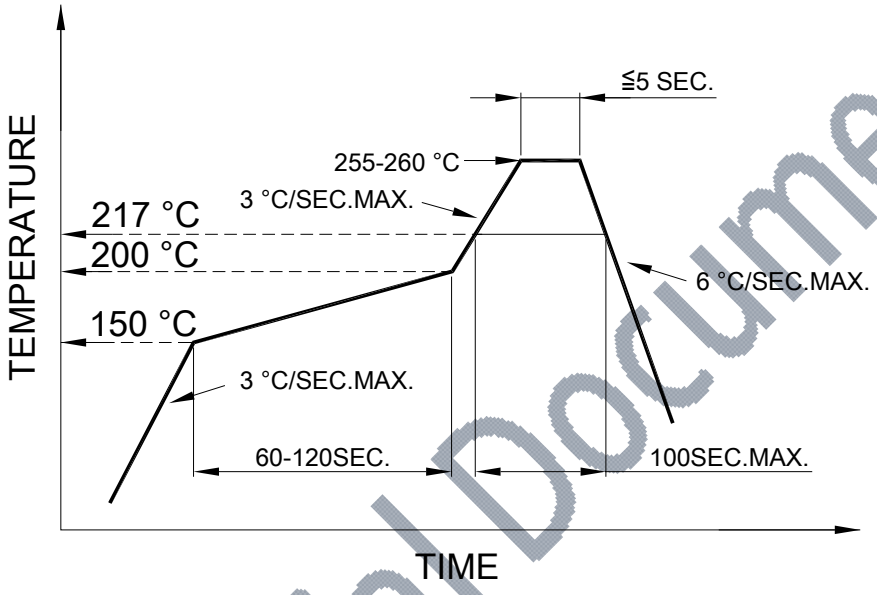
SMT REFLOW SOLDERING INSTRUCTIONS

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.

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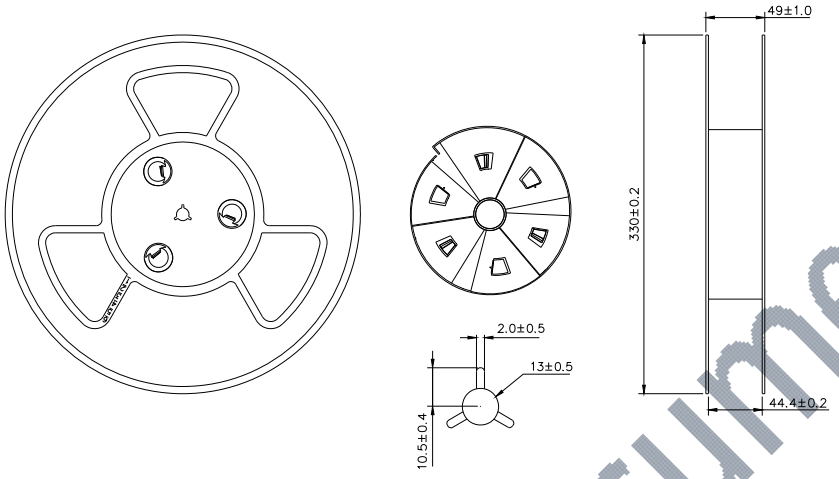
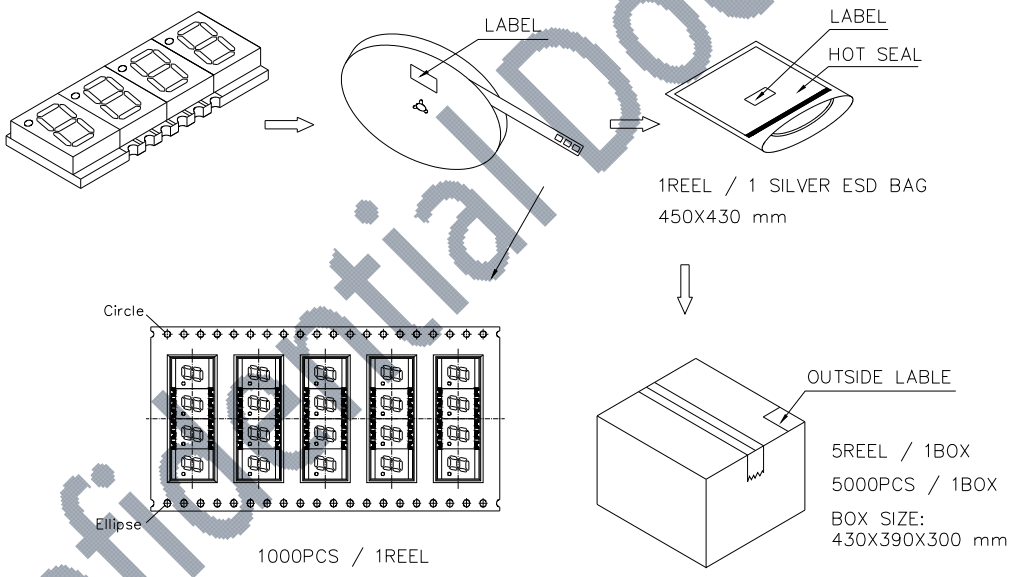
REEL DIMENSIONS



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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