



Opto Plus LED Corp.
0.39" SMD Type LED Display
OPS-Q3910W-GW
OPS-Q3911W-GW

● **EDIT HISTORY**

Version A: Dec. 19, 2014

Preliminary spec.

Manufacture	Examination	Approving



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● **FEATURES**

- 0.39 inch (10.0 mm) Digit Height.
- SMD type.
- Low current operation.
- Gray face, White segment.
- RoHS compliant, Pb Free.

● **DESCRIPTION**

The OPS-Q3910W-GW & OPS-Q3911W-GW are 0.39 inch (10.0mm) height Quadruple digit 7-segment displays.

This device utilizes Super Bright White SMD LED chip which are made from InGaN on a transparent GaN, substrate.

The display has Gray face, White segment.

● **DEVICE**

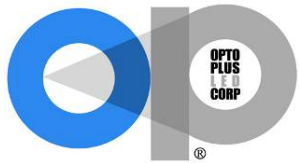
PART NO	DESCRIPTION
OPS-Q3910W-GW	Common Anode
OPS-Q3911W-GW	Common Cathode

RoHS Compliance



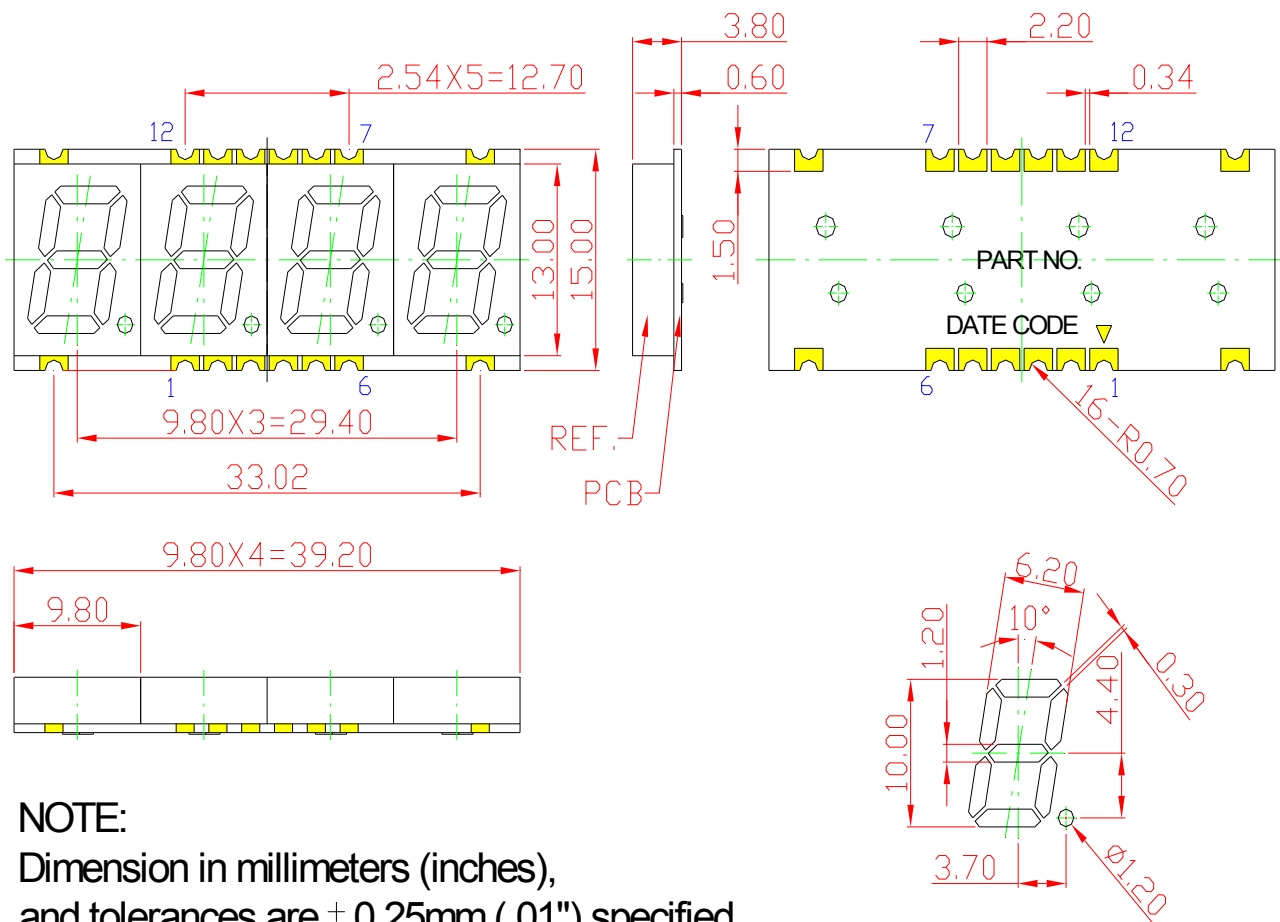
Pb free.



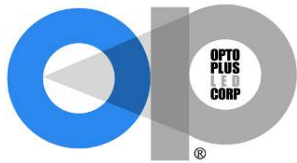


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● **MECHANICAL DIMENSIONS**



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



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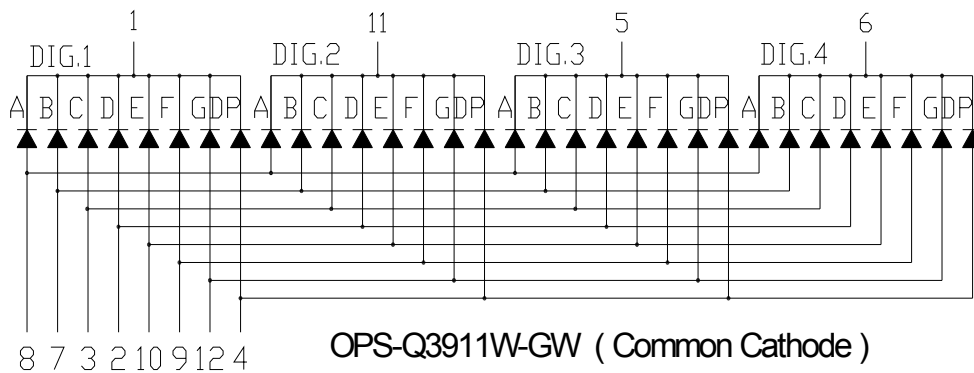
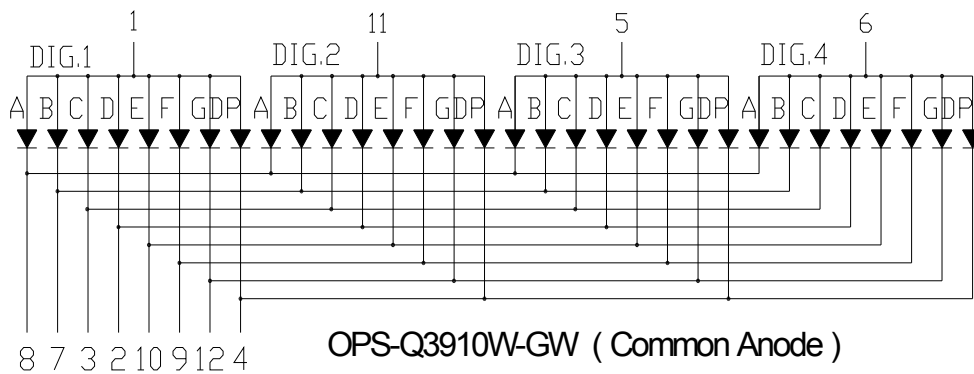
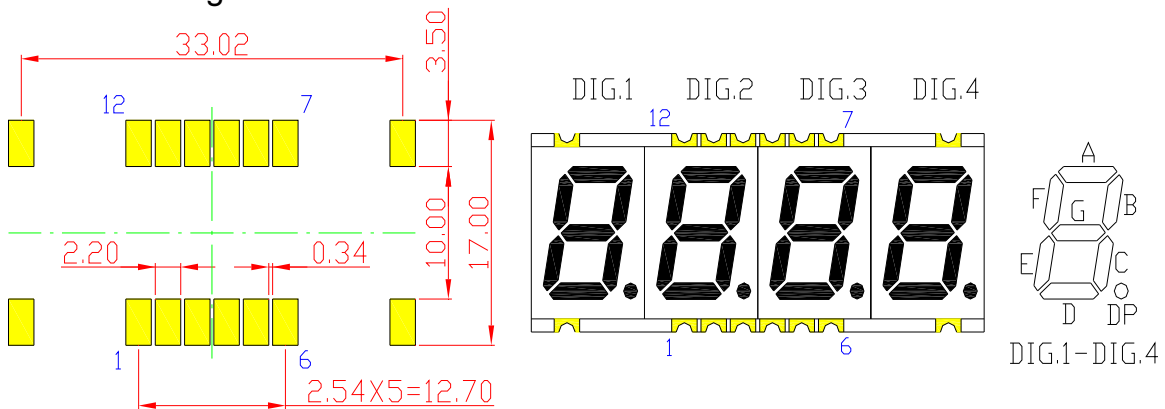
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● TYPICAL INTERNAL EQUIVALENT CIRCUIT

Recommended
Soldering Pattern





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● **W: SUPER BRIGHT WHITE (InGaN/GaN)**

ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Maximum Rating	Unit
Power dissipation	P_{AD}	64	mW
Continuous forward current	I_{AF}	20	mA
Peak current (duty cycle 1/10, 1kHz)	I_{PF}	80	mA
Reverse voltage	V_R	5	V
Operating temperature	T_{OPR}	-30 to + 85	°C
Storage temperature	T_{STG}	-40 to + 90	°C

ELECTRICAL - OPTICAL CHARACTERISTICS AT Ta=25°C

Characteristic	Symbol	Condition	Min.	Type	Max.	Unit	
Forward Voltage	V_F	$I_F = 5mA$	-	2.95	3.5	V	
Reverse Current	I_R	$V_R = 5V$	-	-	10	μA	
Dominant Wavelength	λ_D	$I_F = 5mA$	X	-	0.29	-	nm
			Y	-	0.31	-	
Average Luminous Intensity	I_V	$I_F = 5mA$	25	-	110	mcd	
Spectrum Radiation Bandwidth	$\Delta\lambda$	$I_F = 5mA$	-	30	-	nm	



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● **WHITE: BIN GRADE (Unit : mcd / I_v=5mA)**

Super Bright White	R	S	T
	25.0 – 50.0	50.1- 80.0	80.1 – 110.0

● **WHITE: HUE GRADE (λD : nm)**

CIE	G2	H1	H2	E2	F1	F2
X	0.30	0.31	0.32	0.30	0.31	0.32
	0.29	0.30	0.31	0.29	0.30	0.31
Y	0.31	0.32	0.33	0.30	0.31	0.32
	0.29	0.30	0.31	0.28	0.29	0.30

CIE	C2	D1	D2	A2	B1	B2
X	0.30	0.31	0.32	0.30	0.31	0.32
	0.29	0.30	0.31	0.29	0.30	0.31
Y	0.29	0.30	0.31	0.28	0.29	0.30
	0.27	0.28	0.29	0.26	0.27	0.28

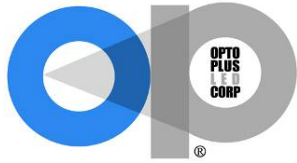


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● **AVAILABLE BIN / HUE TABLE**

RG2	RH1	RH2	RE2	RF1	RF2
SG2	SH1	SH2	SE2	SF1	SF2
TG2	TH1	TH2	TE2	TF1	TF2

RC2	RD1	RD2	RA2	RB1	RB2
SC2	SD1	SD2	SA2	SB1	SB2
TC2	TD1	TD2	TA2	TB1	TB2



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● W: SUPER BRIGHT WHITE (InGaN/GaN) CURVE

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

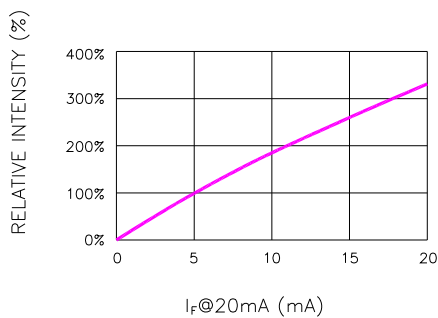


Fig.1 RELATIVE INTENSITY VS. FORWARD CURRENT

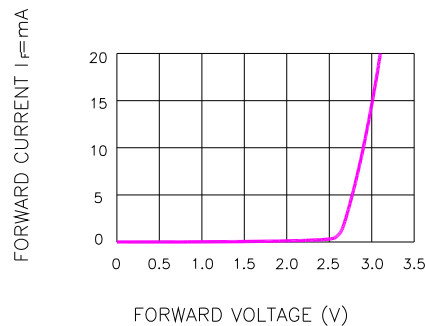


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

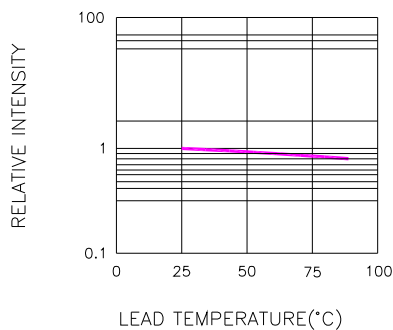


Fig.3 RELATIVE INTENSITY VS. LEAD TEMPERATURE
(PULSED 20 mA; 300us PULSE, 10ms PERIOD)

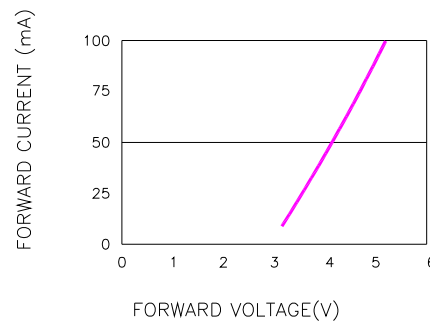


Fig.4 PEAK FORWARD VOLTAGE VS. FORWARD (100us TEST PULSE, 1% DUTY CYCLE)

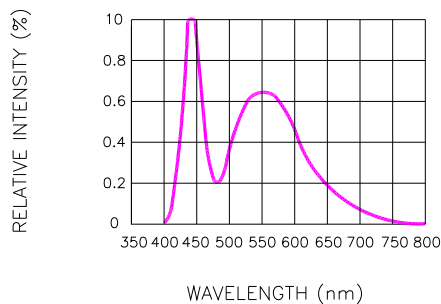


Fig.4 RELATIVE INTENSITY VS. WAVELENGTH

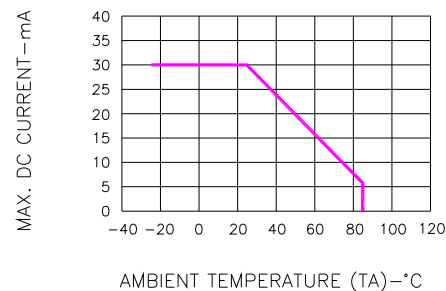
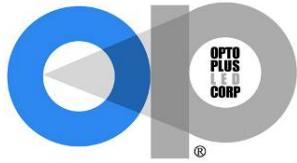


Fig.7 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE

Version: A Date: 12/19/2014

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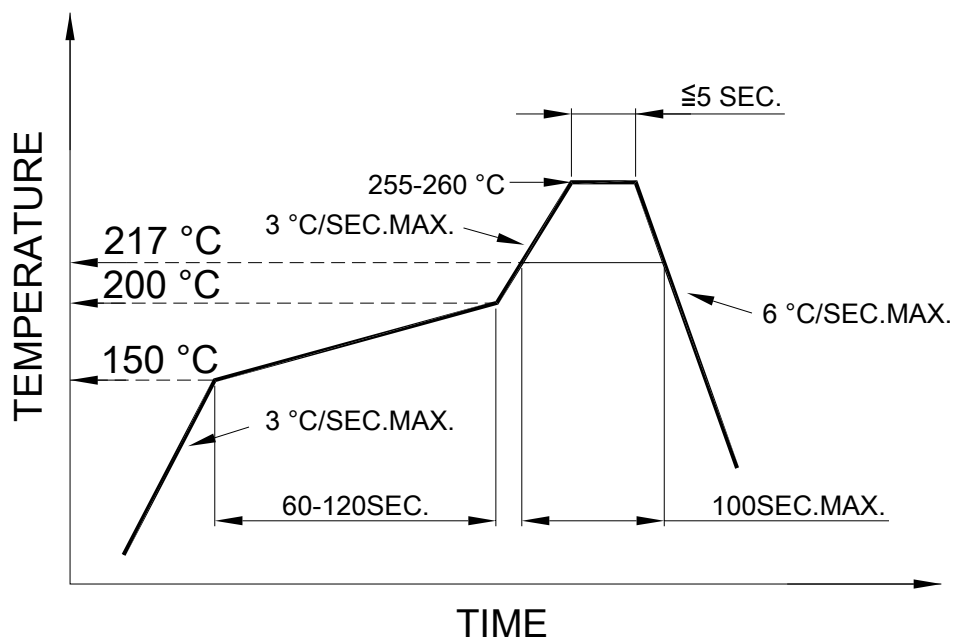


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● **RECOMMEND SOLDERING PROFILE**

SMT Soldering Profile

Pb free reflow soldering Profile



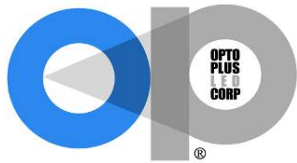
● **SOLDERING IRON**

Basic specification : ≤ 4 seconds 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**

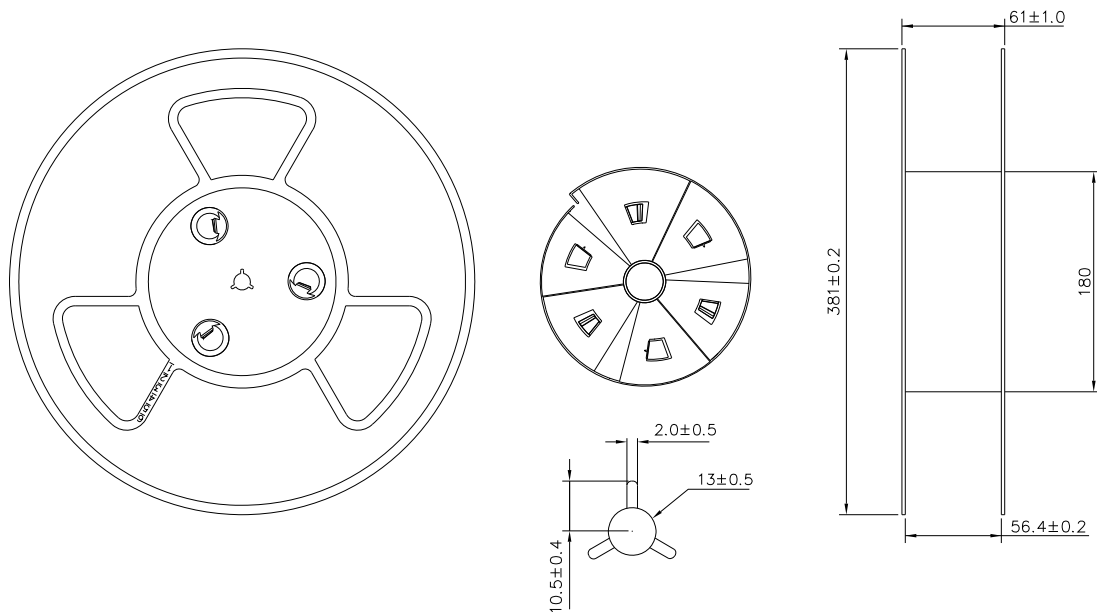
Customer must finish rework within 3 sec. under 350°C.

The head of soldering iron cannot touch copper foil.



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● **REEL DIMENSIONS**



● **PACKING & LABEL SPECIFICATIONS**

