



Opto Plus LED Corp.
1.00" Case Mold Type LED Display
OPD-S10020UPG-BW
OPD-S10021UPG-BW

● **EDIT HISTORY**

Version A: Jun. 06, 2016

Preliminary Spec.

Manufacture	Examination	Approving



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● **FEATURES**

- 1.00 inch (25.40 mm) Digit Height.
- Low current operation..
- Case mold type.
- Black face, White segment.
- RoHS compliant, Pb Free.

● **DESCRIPTION**

The OPD-S10020UPG-BW & OPD-S10021UPG-BW a 1.00 inch (25.40 mm) height single 7-segment display.

This device utilizes Pure Green LED chip which are made from InGaN on a transparent GaN substrate. The display has Black face, White segment.

● **DEVICE**

PART NO Pure Green	DESCRIPTION
OPD-S10020UPG-BW	Common Anode
OPD-S10021UPG-BW	Common Cathode

RoHS Compliance



Pb free.





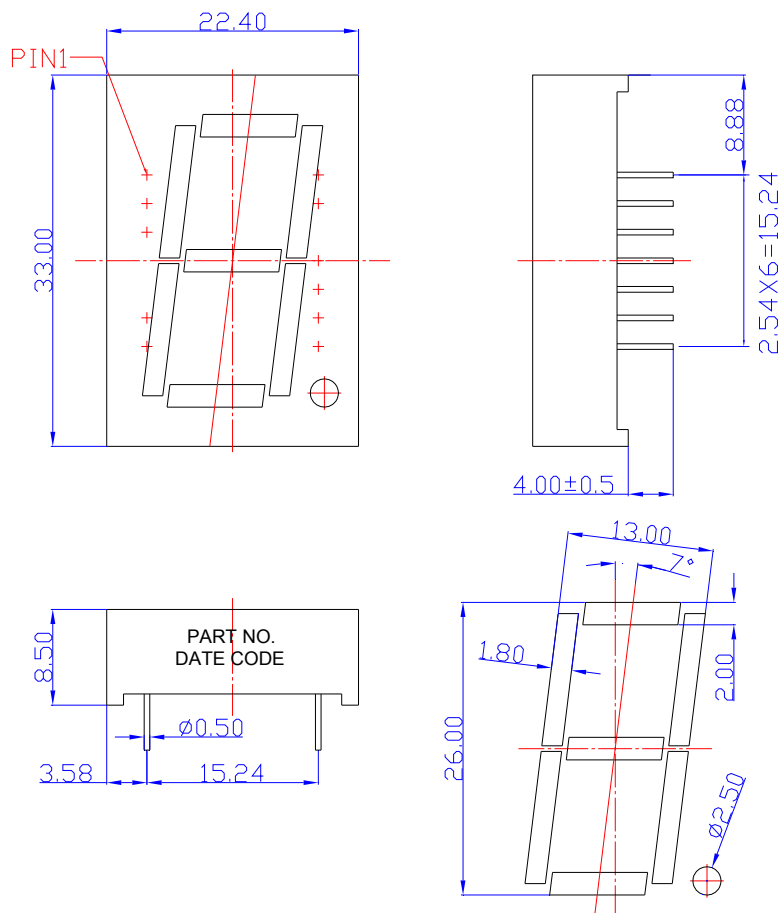
Opto Plus LED Corp.

1.00" Case Mold Type LED Display

OPD-S10020UPG-BW

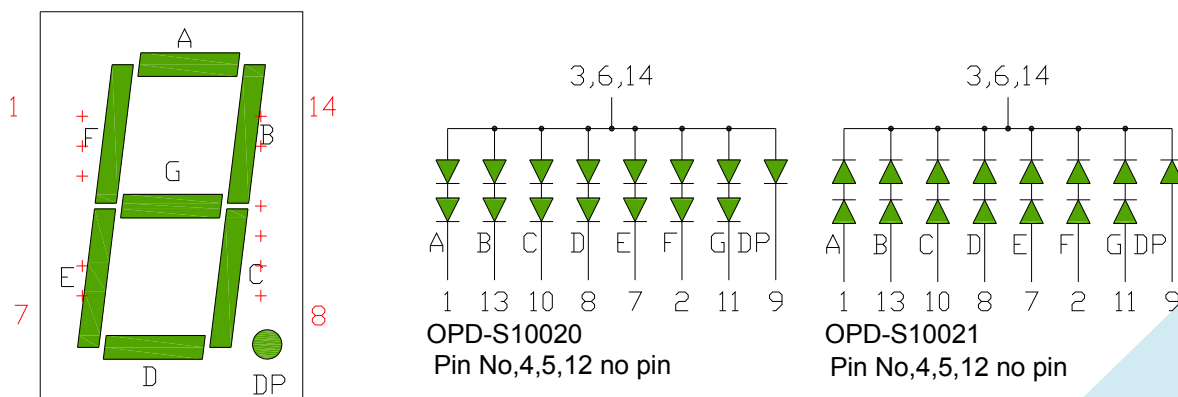
OPD-S10021UPG-BW

MECHANICAL DIMENSIONS



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

TYPICAL INTERNAL EQUIVALENT CIRCUIT





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● **PG: PURE GREEN (InGaN/GaN)**

ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Pure Green	Unit
Power dissipation per dice	P _{AD}	120	mW
Derating liner from 25°C per dice	-	0.4	mA / °C
Continuous forward current per dice	I _{AF}	30	mA
Peak current per dice (duty cycle 1/10, 1kHz)	I _{PF}	120	mA
Reverse voltage per dice	V _R	8	V
Operating temperature	T _{OPR}	-25 to +85	°C
Storage temperature	T _{STG}	-25 to +85	°C

ELECTRICAL - OPTICAL CHARACTERISTICS AT Ta=25°C

Characteristic	Symbol	Condition	Min.	Type.	Max.	Unit
Forward Voltage per segment (per DP)	V _F	I _F =20mA	(2.8) 5.6	(3.2) 6.4	(3.6) 7.2	V
Reverse Current per segment (per DP)	I _R	V _R =8V	-	-	10	μA
Dominant wavelength	λ _D	I _F =20mA	500	525	535	nm
Luminous intensity	I _V	I _F =20mA	-	200	-	mcd
Spectral radiation bandwidth	Δλ	I _F =20mA	-	30	-	nm



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● PG: PURE GREEN (InGaN/GaN) CURVE

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

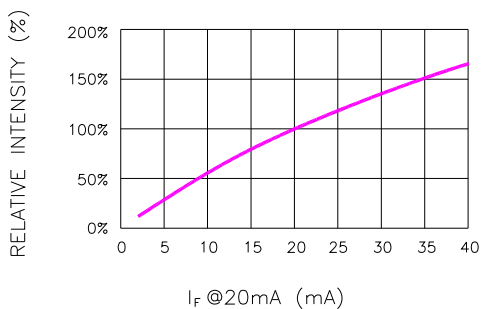


Fig.1 RELATIVE INTENSITY VS. FORWARD CURRENT

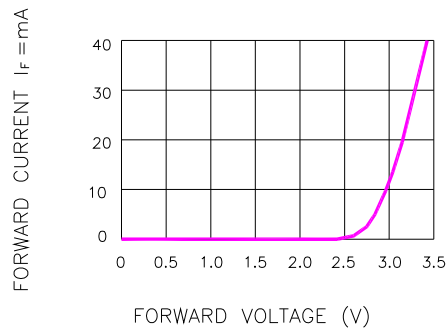


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

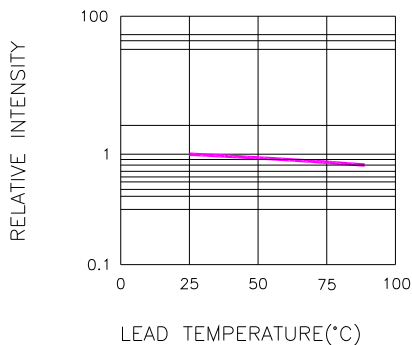


Fig.3 RELATIVE INTENSITY VS. LEAD TEMPERATURE
(PULSED 20 mA; 300us PULSE, 10ms PERIOD)

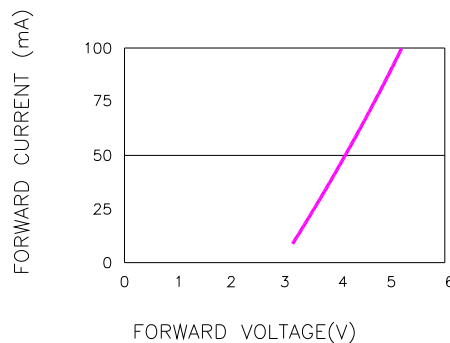


Fig.4 PEAK FORWARD VOLTAGE VS. FORWARD CURRENT
(100us TEST PULSE, 1% DUTY CYCLE)

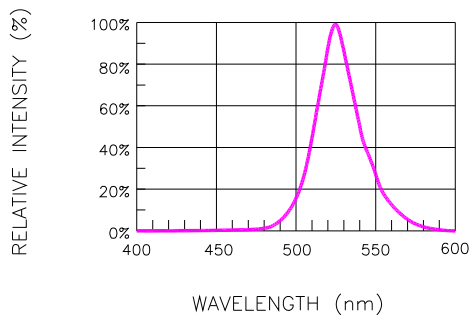


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

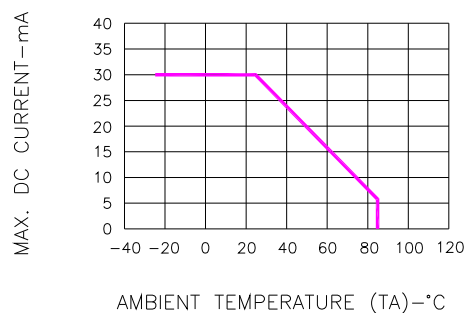
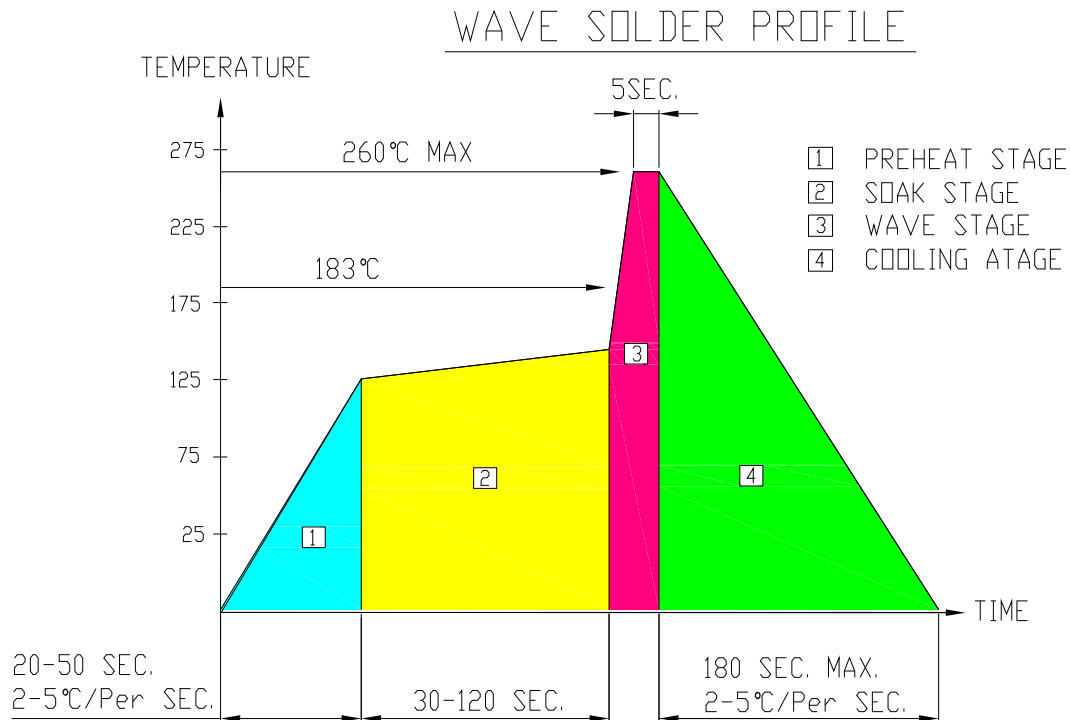


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE



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● **RECOMMEND SOLDERING PROFILE**



● **Note:**

- Recommend pre-heat temperature of 105°C or less (as measured with a thermocouple attached to the LED pins) prior to immersion in the solder wave with a maximum solder bath temperature of 260°C
- Peak wave soldering temperature between 245°C ~ 225°C for 3 sec (5 sec max)
- No more than one wave soldering pass

● **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.