

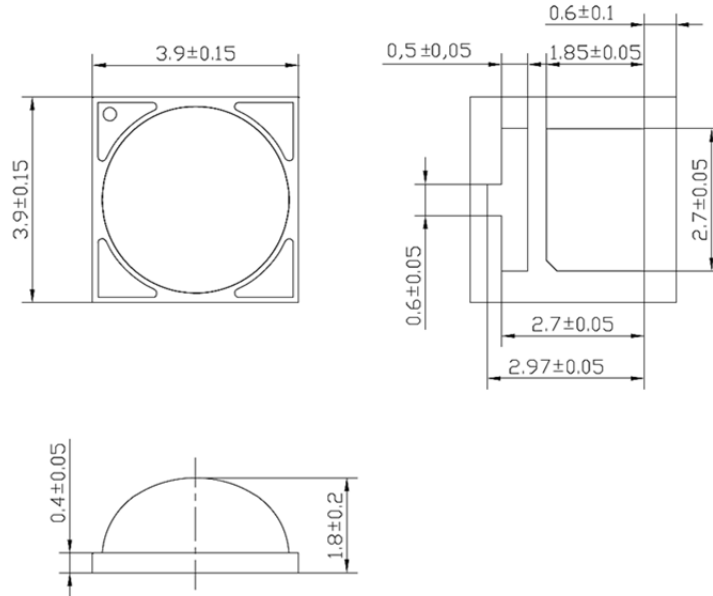


# American Opto Plus LED Corp.

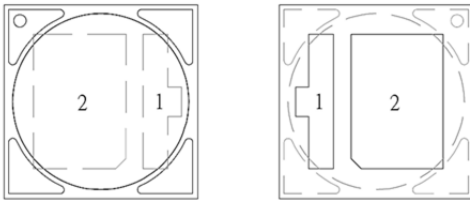
## IRP4-855C-140D

3.9 x 3.9 x 1.8mm Power IR LED

### PACKAGE OUTLINES



### PAD CONFIGURATION



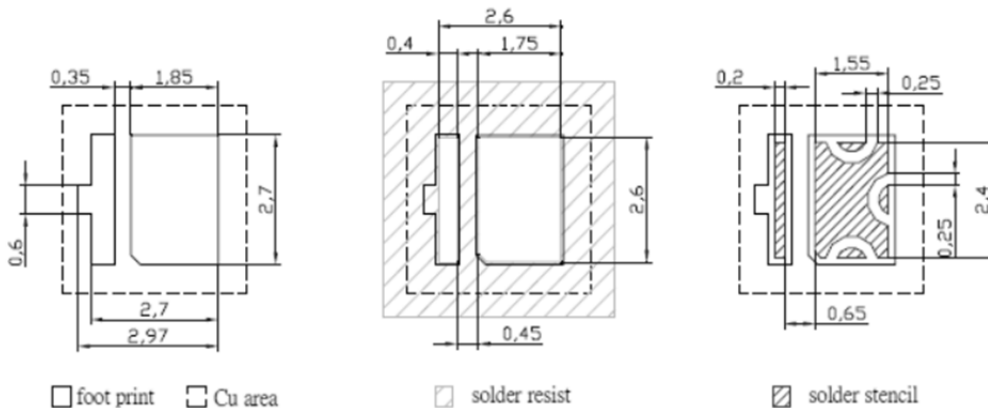
TOP

BOTTOM

PAD	Function
1	Cathode
2	Anode, Thermal

Note: Please don't put conductive material on the top surface of LEDs.

### RECOMMENDED SOLDER PATTERN



□ foot print   □ Cu area

□ solder resist

▨ solder stencil

Note: Unit (mm); tolerance  $\pm 0.05$

Version 1.0   Date: 10-02-2019   Specifications are subject to change without notice.

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## IRP4-855C-140D

3.9 x 3.9 x 1.8mm Power IR LED

### ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

Parameter	Symbol	Value	Unit
Forward Current	I <sub>F</sub>	1000	mA
Power Dissipation	P <sub>D</sub>	3.5	W
Thermal Resistance, Junction-Case	R <sub>th, J-C1</sub>	5	°C/W
Reverse Voltage	V <sub>R</sub>	5	V
LED Junction Temperature	T <sub>J</sub>	125	°C
Temperature Coefficient of Brightness	TC <sub>I</sub>	-0.3	%/K
Temperature Coefficient of Voltage	TC <sub>V</sub>	-2.6	mV/K
Temperature Coefficient of Wavelength	TC <sub>A</sub>	0.3	nm/K
Operating Temperature Range	T <sub>OPR</sub>	-40~+80	°C
Storage Temperature Range	T <sub>STG</sub>	-40~+120	°C
Soldering Condition	T <sub>SOL</sub>	260°C for 10 seconds	

### OPTICAL-ELECTRO CHARACTERISTICS

(Ta=25°C)

Parameter	Test Condition	Symbol	Min	Typ	Max	Unit
Forward Voltage	I <sub>F</sub> =1000mA	V <sub>F</sub>	2.8	3.2	3.8	V
Radiant Flux		Φ <sub>e</sub>	1100	1400	--	mW
Radiant Intensity		I <sub>e</sub>	--	350	--	mW/sr
Peak Wavelength		λ <sub>P</sub>	840	855	870	nm
Spectral Half-Width		Δλ	--	40	--	nm
Viewing Angle		2θ <sub>1/2</sub>	--	140	--	deg

Note: The thermal resistance value is measured with MCPCB.



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### BIN CODES

Item	Bin Code	Symbol	Condition	Min	Max	Unit
Forward Voltage <sup>1</sup>	G	$V_F$	$I_F=1000\text{ mA}$	2.79	3.03	V
	H			3.03	3.27	
	J			3.27	3.51	
	K			3.51	3.75	
Luminous Flux <sup>2</sup>	L	$\Phi_E$	$I_F=1000\text{ mA}$	1000	1200	mW
	M			1200	1400	
	N			1400	1600	

#### Notes:

1. Forward voltage measurement allowance is  $\pm 0.1V$
2. Luminous flux & Radiant flux measurement allowance is  $\pm 10\%$

### TYPICAL RADIATION PATTERN

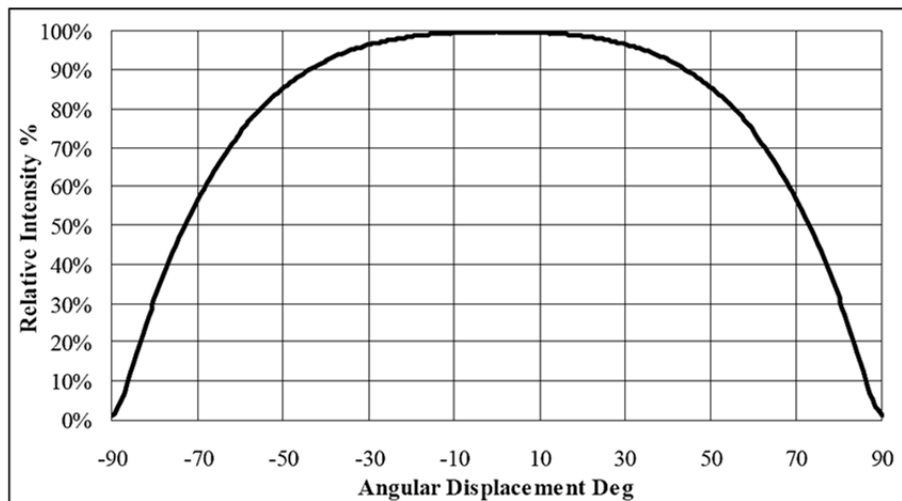


Fig. Typical Representative Spatial Radiation Pattern



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### CHARACTERISTIC DIAGRAM

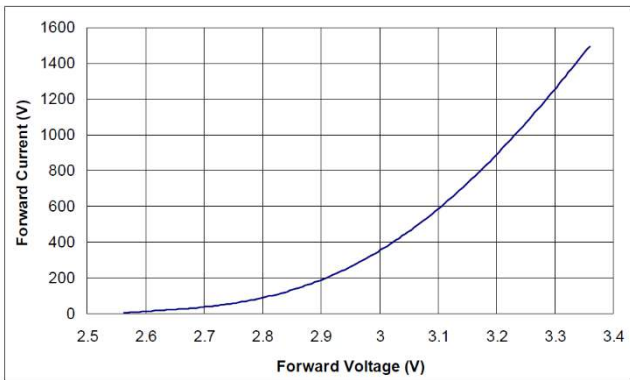


Fig. Forward Current vs. Forward Voltage

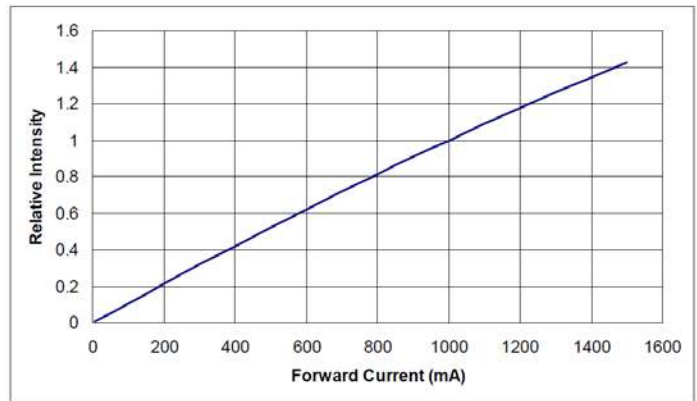


Fig. Relative Intensity vs. Forward Current

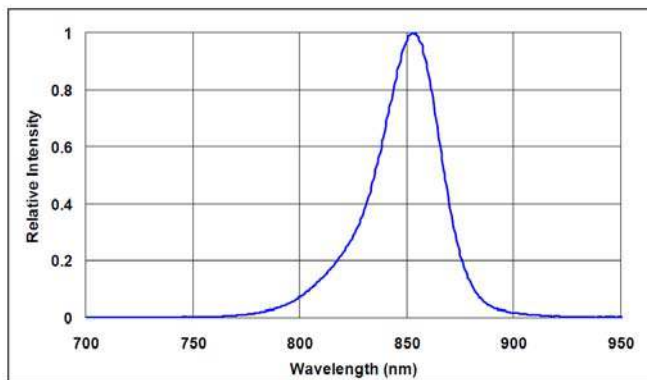


Fig. Typical Relative Intensity vs. wavelength

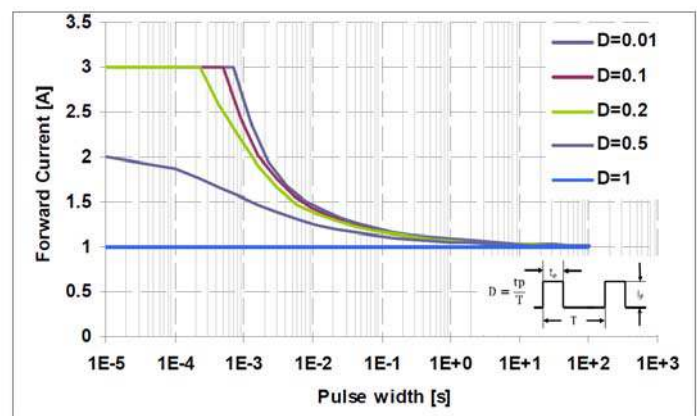


Fig. Permissible pulse handling capability at Tj=85°C for various duty cycles (D)

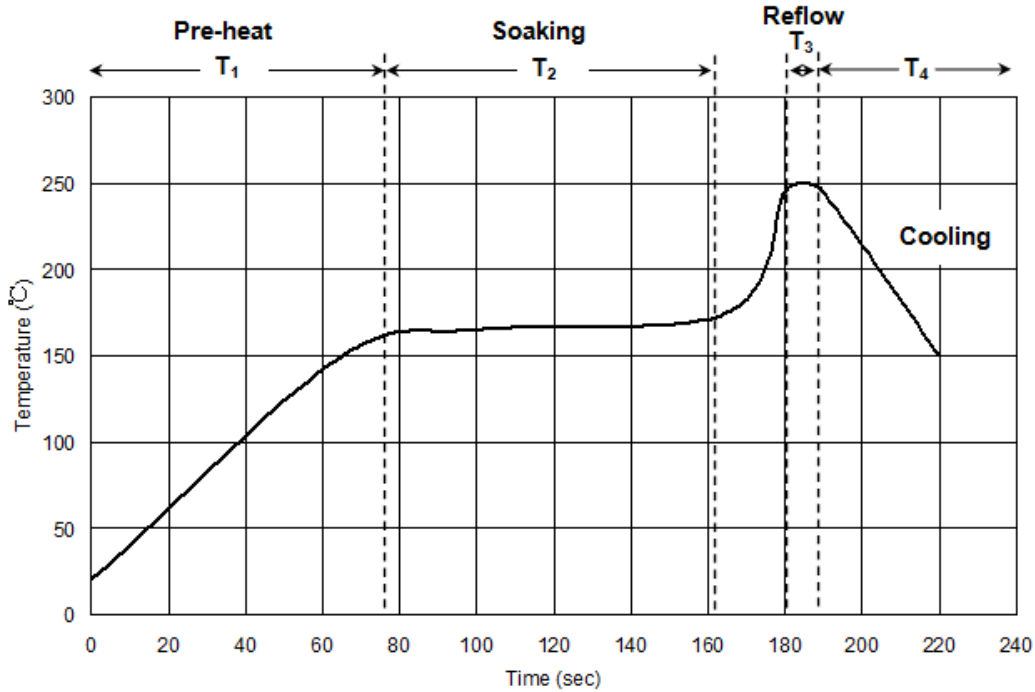


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### REFLOW SOLDERING CHARACTERISTICS



<b>T1</b>	Ramp up rate	1.0~3.0 °C/sec
	Pre-heat time	50~80 sec
<b>T2</b>	Soaking temperature	155~185 °C
	Dwell time during soaking	60~120 sec
<b>T3</b>	Reflow temperature	240~250 °C
	Reflow time	Max 10 sec
<b>T4</b>	Ramp up rate during reflow	1.2~2.3 °C/sec
	Cooling	1.0~6.0 °C/sec

Note:

1. Suggest using Sn96Ag3Cu0.5 lead free solder

### CLEANING

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED if necessary.



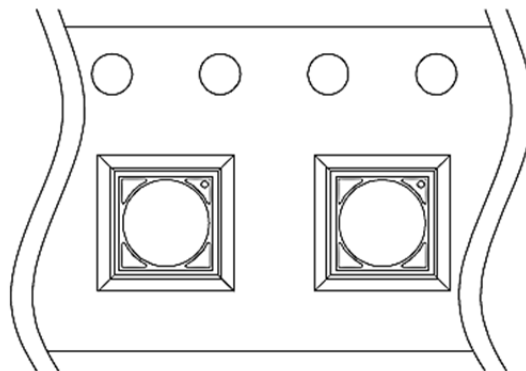
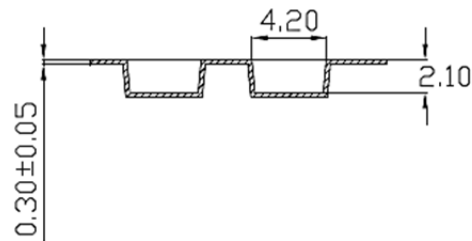
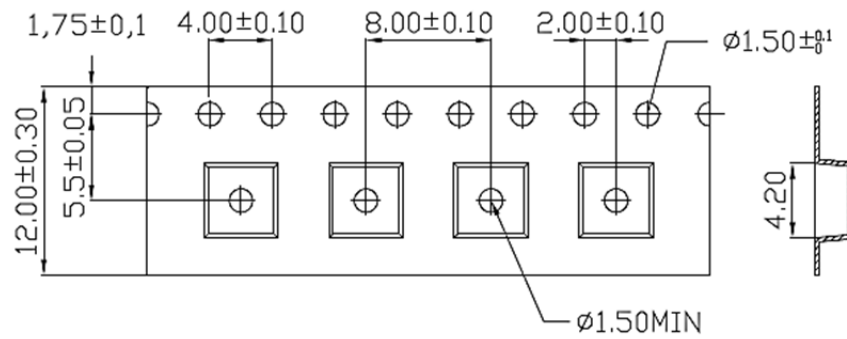
**American Opto Plus LED Corp.**

**IRP4-855C-140D**

**3.9 x 3.9 x 1.8mm Power IR LED**

## SHIPPING PACKAGE DIMENSIONS

### Tapping Dimension Packaging Specification



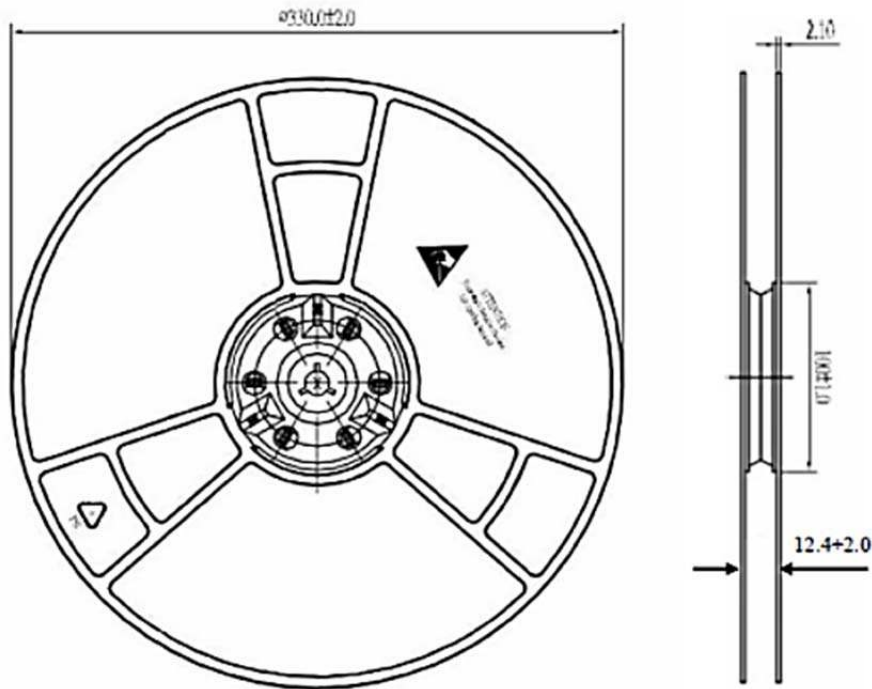


# American Opto Plus LED Corp.

## IRP4-855C-140D

3.9 x 3.9 x 1.8mm Power IR LED

### REEL PACKAGING



#### Notes:

1. Unit (mm)
2. Ship in moisture proof bag
3. 1 Reel/Bag

### 13 inch Reel Package

Box Type	Dimension (mm)	Reel/Box	Lens Type (Pcs)
Small Box(S)	415 x 380 x 95	5 Reel/Box	12500
Middle Box(M)	415 x 380 x 290	15 Reel/Box	37500
Large Box(L)	780 x 432 x 310	30 Reel/Box	75000

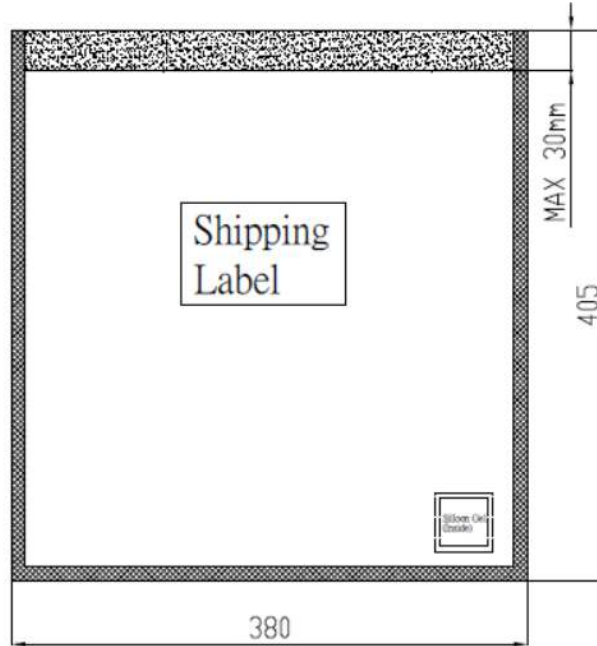


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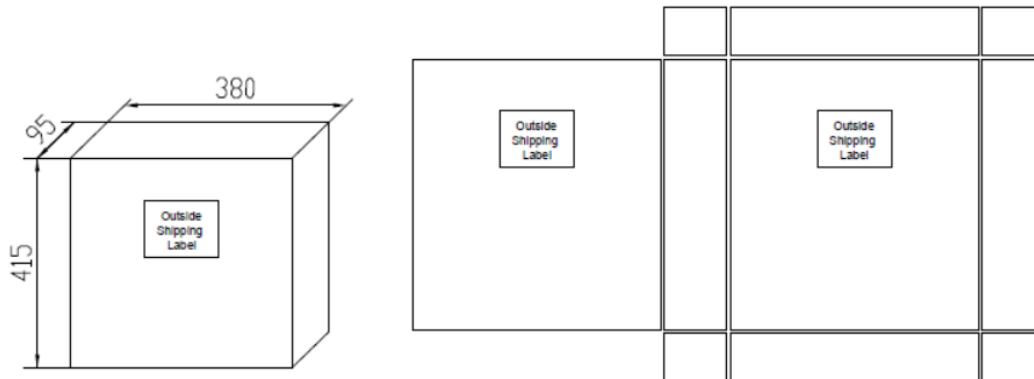
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### ANTI-STATISTIC BAG



### SMALL BOX





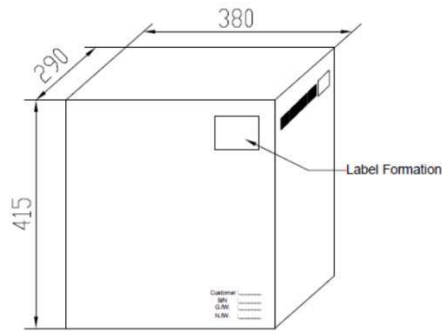
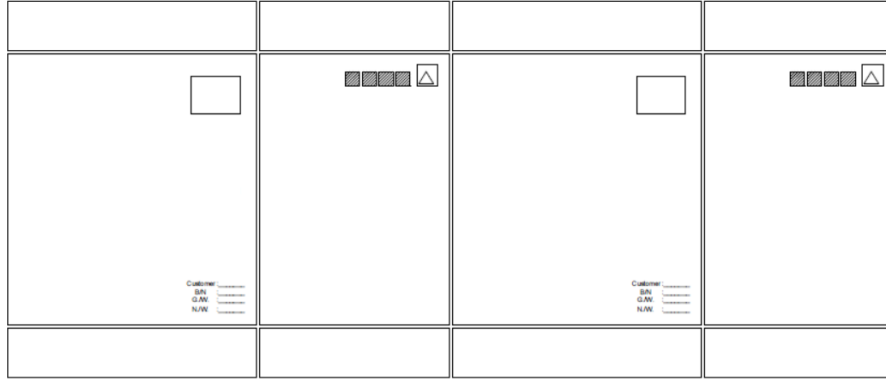


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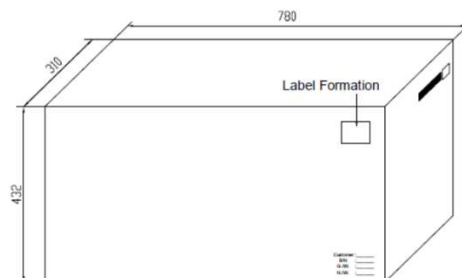
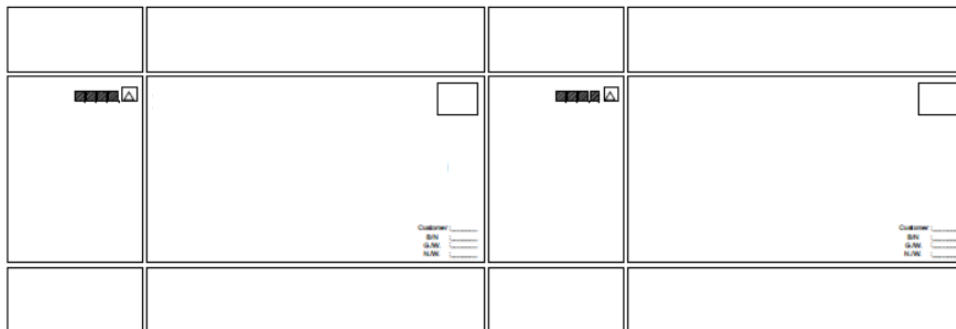
## IRP4-855C-140D

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### MIDDLE BOX



### LARGE BOX





# American Opto Plus LED Corp.

## IRP4-855C-140D

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### RELIABILITY TEST

Classification	Test Item	Test conditions	Reference Standard
Endurance Test	Operation Life	$I_F = 1000\text{mA}$ $T_a = 25^\circ\text{C}$ Test Duration = 1000hrs	MIL-STD-750: 1026 MIL-STD-883: 1005 JIS C 7021: B-1
	High Temperature High Humidity Storage	$I_F = 1000\text{mA}$ $T_a = 85\pm 5^\circ\text{C}$ $RH = 85\pm 5\%$ Test Duration = 1000hrs	MIL-STD-202: 103B JIS C 7021: B-11
	High Temperature Storage	$T_a = 105\pm 5^\circ\text{C}$ Test Duration = 1000hrs	MIL-STD-202: 1008 JIS C 7021: B10
	Low Temperature Storage	$T_a = -40\pm 5^\circ\text{C}$ Test Duration = 1000hrs	JIS C 7021: B-12
Environmental Test	Temperature Cycling	$-30^\circ\text{C} \sim 25^\circ\text{C} \sim 105^\circ\text{C} \sim 25^\circ\text{C}$ 30min 5min 30min 5min Test Duration = 10 cycle	MIL-STD-202: 107D MIL-STD-750: 1051 MIL-STD-883: 1010 JIS C 7021: A-4
	Thermal Shock	$-30\pm 5^\circ\text{C} \sim 105\pm 5^\circ\text{C}$ 30min 30min Test Duration = 10 cycle	MIL-STD-202: 107D MIL-STD-750: 1051 MIL-STD-883: 1011
	Solder Resistance	$T_{sol} = 260\pm 5^\circ\text{C}$ Dwell Time = 10sec	MIL-STD-202: 210A MIL-STD-750: 2031 JIS C 7021: A-1

Measuring Items	Symbol	Measuring Conditions	Failure Criteria
Forward voltage	$V_F$	$I_F = 1000\text{mA}$	$V_F$ shift > 10%
Luminous	$I_v\%$	$I_F = 1000\text{mA}$	$I_v\%$ shift > 10%