

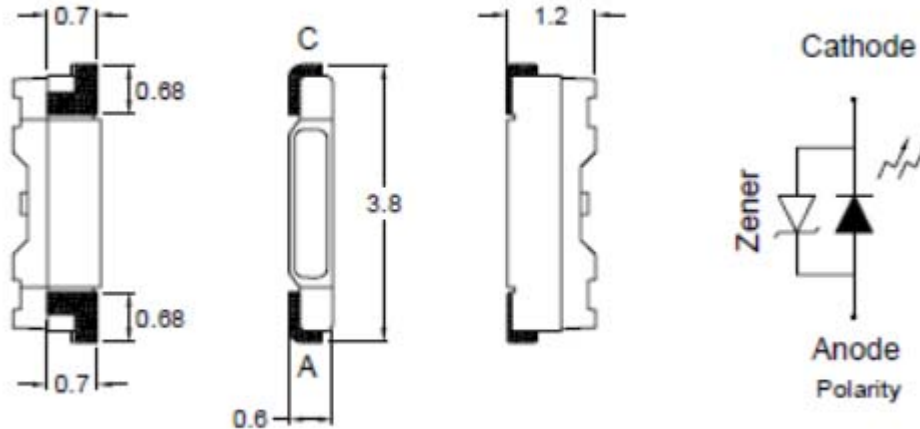


American Opto Plus LED Corp.

L234LWD-Z-GAM

3.8 x 0.6 x 1.2 mm Side View PLCC White SMD LED (Automotive)

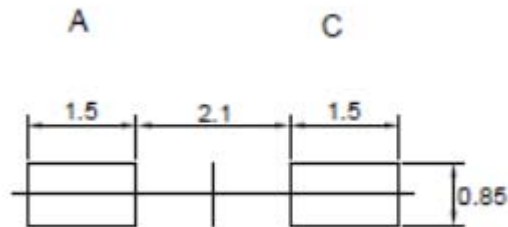
PACKAGE DIMENSION



Notes

1. All dimensions are in millimeters; tolerance is ± 0.2 mm unless otherwise noted
2. Specifications are subject to change without notice

RECOMMENDED SOLDERING PAD



Notes: All dimensions are in millimeters; toelrance is ± 0.1 mm unless otherwise noted

Material	Color	
	Emitted	Lens Color
InGaN	White	Yellow Diffused



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ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

	Symbol	Rating	Unit
Forward Current	I _F	30	mA
Forward Peak Current (1/10 duty @10kHz)	I _{FP}	100	mA
Power Dissipation	P _D	108	mW
Reverse Current @5V	I _R	1	μA
Electrostatic Discharge	ESD	2000	V
Operating Temperature	T _{OPR}	-40~+100	°C
Storage Temperature	T _{STG}	-40~+100	°C
Thermal Resistance	R _{th j-s}	100	°C/W
LED Junction Temperature	T _j	125	°C

OPTICAL-ELECTRICAL CHARACTERISTICS

(Ta=25°C)

	Symbol	Test Condition	Rating			Unit
			Min.	Typ.	Max.	
Luminous Intensity	I _v	I _F =20mA	1000	--	2000	mcd
Chromaticity Coordinate	X		0.287	--	0.318	--
	Y		0.276	--	0.329	--
Forward Voltage	V _f		2.8	--	3.6	V
Viewing Angle	2Θ _{1/2}		--	110	--	deg

Notes:

1. The Forward voltage data did not include ±0.1V testing tolerance
2. The luminous intensity data did not include ±15% testing tolerance
3. Color coordinates measurement tolerance is ±0.01



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LUMINOUS INTENSITY CLASSIFICATION

Bin Code	Iv(mcd) at 20mA	
	Min.	Max.
V21W11	1000	1200
W12W15	1200	1400
W21W24	1400	1600
W25W33	1600	1800
W34W37	1800	2000

FORWARD VOLTAGE CLASSIFICATION

Bin Code	VF(V) at 20mA	
	Min.	Max.
1	2.8	2.9
2	2.9	3.0
3	3.0	3.1
4	3.1	3.2
5	3.2	3.3
6	3.3	3.4
7	3.4	3.5
8	3.5	3.6

CHROMATICITY COORDINATES FOR BIN GRADING

Bin Code	Color Coordinate at 20mA							
	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
W0	0.296	0.276	0.287	0.295	0.316	0.329	0.318	0.305



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TYPICAL ELECTRICAL-OPTICAL CHARACTERISTIC CURVES

WK CHIP

Fig.1 Forward current vs. Forward Voltage

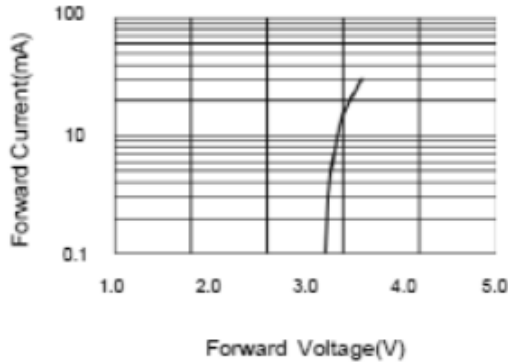


Fig.2 Relative Intensity vs. Forward Current

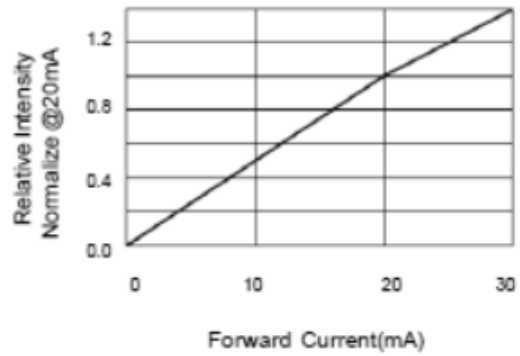


Fig.6 Forward Current vs. Temperature

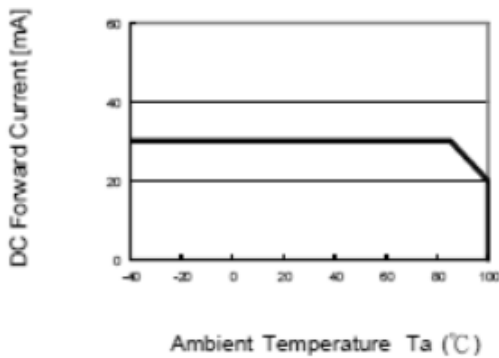


Fig.4 Relative Intensity vs. Temperature

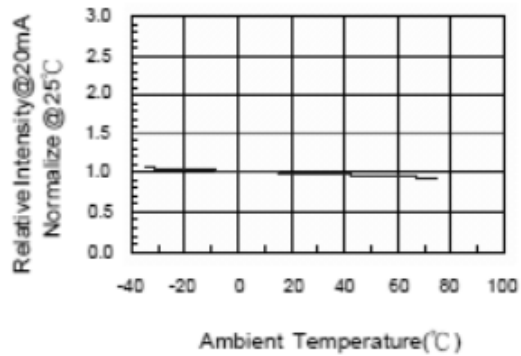


Fig.5 Luminous Spectrum ($T_a=25^\circ\text{C}$)

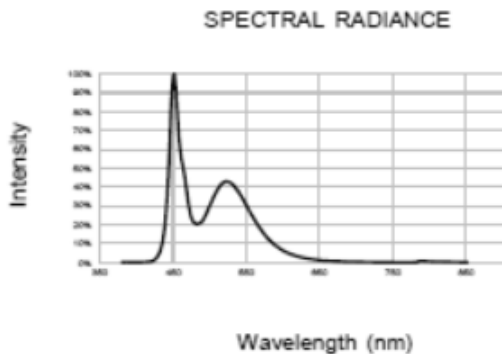
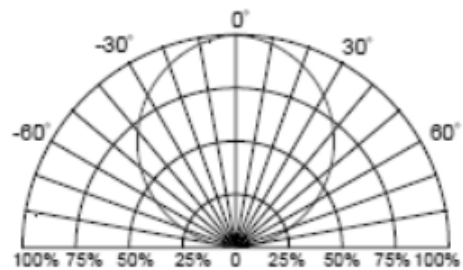


Fig.8 Directive Radiation



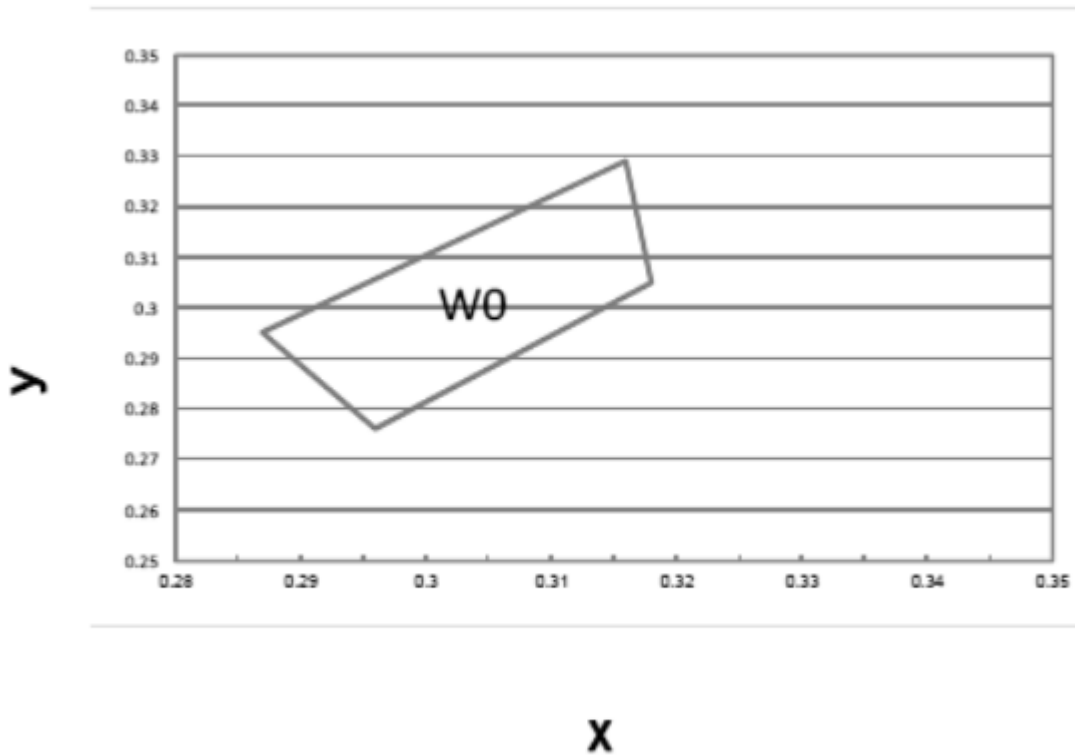


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CHROMATICITY DIAGRAM

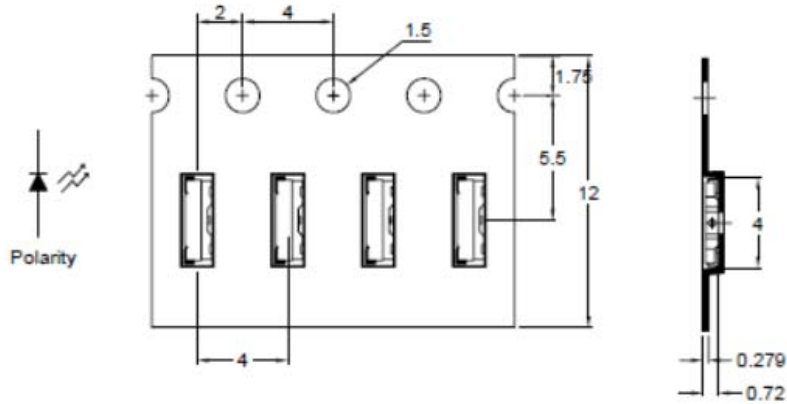




American Opto Plus LED Corp. L234LWD-Z-GAM

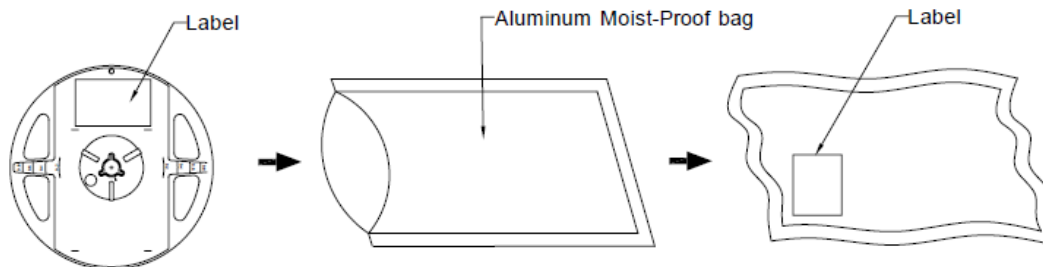
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CARRIER TAPE DIMENSION



Note : Tolerance is $\pm 0.1\text{mm}$; angle is ± 0.5 unless otherwise mentioned

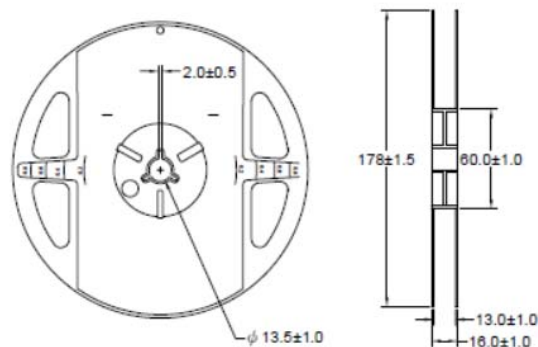
PACKING SPECIFICATIONS



Notes:

1. 12mm tape
2. 7inch reel

REEL DIMENSIONS



Notes: 3,000pcs / Reel

Tentative Date: 10/18/2018 Specifications are subject to change without notice.

American Opto Plus LED Corp. 1206 E. Lexington Ave., Pomona CA 91766 Tel: 909-465-0080 Fax: 909-465-0130 www.aopled.com

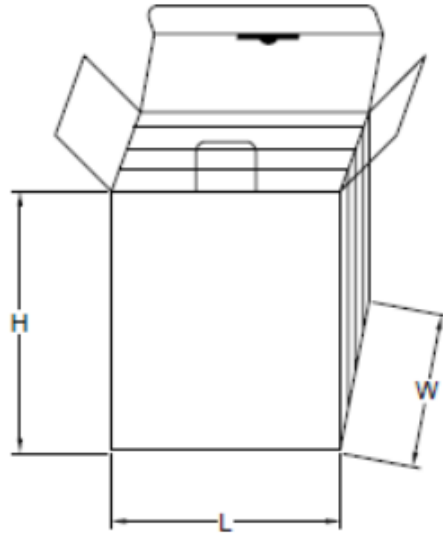


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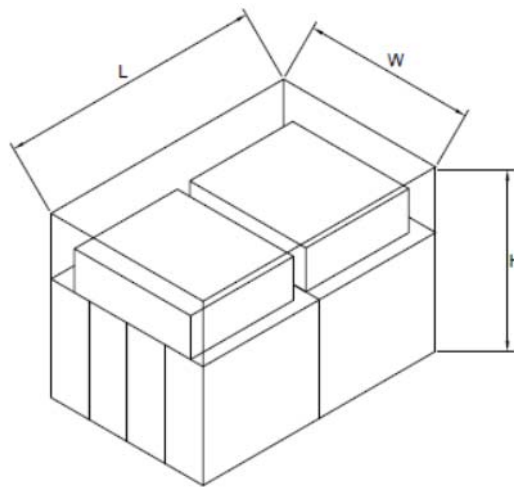
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BOX EXPLANATION



NOTES:

1. 4 BAG / INNER BOX
2. Inner box size : L X W X H 23cm X 8.5cm x 26cm



NOTES:

1. 10 INNER BOXES / CARTON
2. Carton size : L X W X H 58cm X 34cm x 35cm



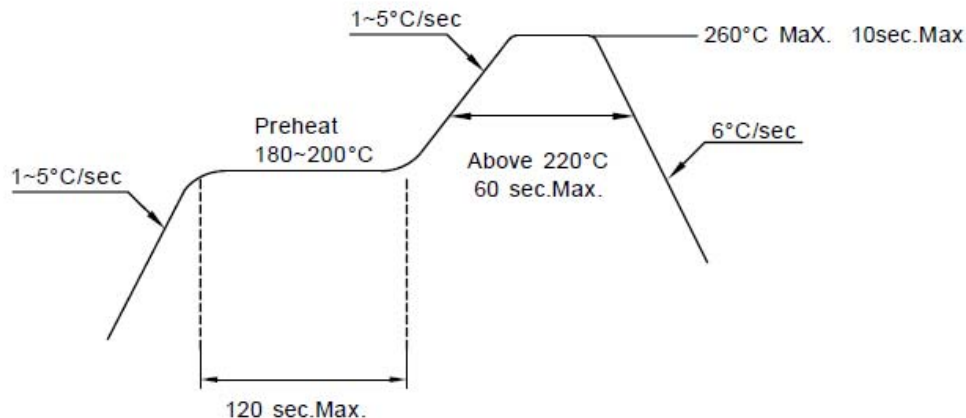
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RECOMMENDED SOLDERING CONDITION

1. Hand Solder
Basic spec is $\leq 320^{\circ}\text{C}$ for 3 seconds one time only
2. PB-Free Reflow Solder



Notes:

1. Reflow soldering should not be done more than 2 times
2. When soldering, do not put stress on the LEDs during heating
3. After soldering, do not warp the circuit board

PRECAUTION

Storage Time:

1. Calculated shelf life before opening is 12 months at $< 30^{\circ}\text{C}$ and $< 90\%$ relative humidity(RH)
2. After bag is opened, devices which will be subjected to reflow soldering or other high temperature processes must be
 - a. Assembled within 168 hours in an environment of $\leq 30^{\circ}\text{C}/60\%$ RH or
 - b. Stored at ambient of 10% RH or less
3. Devices are required baking before assembly if:
 - a. Humidity indicator card reads $> 10\%$ (for level 2a-5a) or $> 60\%$ (for level 2) at ambient temperature $23 \pm 5^{\circ}\text{C}$
 - b. 2.a) or 2.b) doesn't meet
4. If baking is required, devices should be baked for > 72 hours at $60 \pm 5^{\circ}\text{C}/5\%$ RH. Performing baking only once and using baked devices within 72 hours
5. MSL Level 3.



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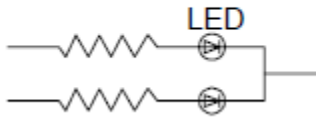
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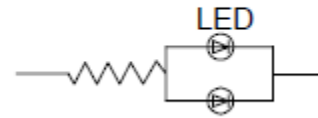
Drive method:

LED is a current operated device and therefore require some kind of current limiting incorporated into the driver circuit. This current limiting typically takes the form of a current limiting resistor places in series with the LED. Consider worst case voltage variations than could occur across the current limiting resistor. The forward current should not be allowed to change by more than 40% of its desired value

Circuit model A



Circuit model B



- a. Recommended circuit
- b. The difference of brightness between LED could be found due to the VF-IF characteristics of LED

Cleaning:

1. Use alcohol based cleaning solvents such as isopropyl alcohol to clean the LED

Electrostatic Discharge(ESD)

1. Static electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrostatic glove is recommended when handling these LED. All devices, equipment and machinery must be properly grounded