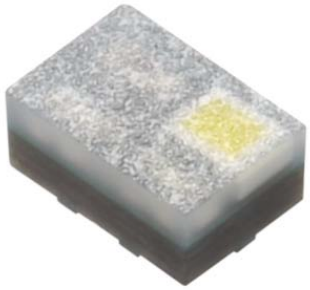
DATASHEET

SMD ▪ B1410FBN4A1-RGBWD0205-4T



Features

- Package in 8mm tape on 7″ diameter reel
- Compatible with automatic placement equipment
- Compatible with infrared and vapor phase reflow
- Solder process
- Full-color type
- Pb-free
- Component solderable surface finish is Gold
- The Product itself will remain whithn RoHS compliant version
- Compliance with EU REACH
- Compliance Halogen Free.(Br<900ppm,Cl<900ppm,Br+Cl<1500ppm)

Description

- The B1410 SMDB LED is much smaller than lead frame type components, thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.
- Besides, lightweight makes them ideal for miniature applications. etc.

Applications

- Backlighting in dashboard and switch.
- Telecommunication: indicator and backlighting in telephone and fax.
- Flat backlight for LCD, switch and symbol.
- General use.

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Device Selection Guide

Code	Chip Materials	Emitted Color	Resin Color
R	AlGaInP	Brilliant Red	White Diffused
G	InGaN	Brilliant Green	
B	InGaN	Brilliant Blue	
W	InGaN	Pure White	

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Code	Rating	Unit
Reverse Voltage	V_R		5	V
Forward Current	I_F		10	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	R	20	mA
		G	20	
		B	20	
		W	20	
Power Dissipation	Pd	R	24	mW
		G	32	
		B	32	
		W	32	
Electrostatic Discharge(HBM)	ESD	R	1000	V
		G	150	
		B	150	
		W	150	
Operating Temperature	T_{opr}		-40 ~ +85	℃
Storage Temperature	Tstg		-40 ~ +90	℃
Soldering Temperature	Tsol		Reflow Soldering : 200 ℃ for 10 sec. Hand Soldering : 280 ℃ for 3 sec.	

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Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Code	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	R	90	-----	180	mcd	
		G	225	-----	450		
		B	45	-----	90		
		W	180	-----	450		
Viewing Angle	$2\theta_{1/2}$		-----	130	-----	Deg	
Peak Wavelength	λp	R	-----	632	-----	nm	
		G	-----	518	-----		
		B	-----	468	-----		
Dominant Wavelength	λd	R	617.5	-----	625.5	nm	I_F=5mA
		G	519.5	-----	529.5		
		B	461.5	-----	470.5		
Spectrum Radiation Bandwidth	△λ	R	-----	20	-----	nm	
		G	-----	35	-----		
		B	-----	35	-----		
Forward Voltage	V_F	R	1.7	-----	2.4	V	
		G	2.4	-----	3.2		
		B	2.6	-----	3.2		
		W	2.6	-----	3.2		
Reverse Current	I_R	R	-----	-----	10	μA	V_R=5V For testing use only
		G	-----	-----	50		
		B	-----	-----	50		
		W	-----	-----	50		

Note:
1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.1V
4. RA test @5mA
5. Reverse voltage condition is test only. Do not reverse operation

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R
Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
Q2	90	112	mcd	IF=5mA
R1	112	140		
R2	140	180		

G
Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
S2	225	285	mcd	IF=5mA
T1	285	360		
T2	360	450		

B
Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
P1	45	57	mcd	IF=5mA
P2	57	72		
Q1	72	90		

W
Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
S	180	285	mcd	IF=5mA
T	285	450		

Note:
1. Tolerance of Luminous Intensity: ±11%

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R
Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
E4	617.5	621.5	mcd	I_F=5mA
E5	621.5	625.5		

G
Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
B01	519.5	524.5	mcd	I_F=5mA
B02	524.5	529.5		

B
Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
T	461.5	466.5	mcd	I_F=5mA
X	466.5	470.5		

Note:
1. Tolerance of Dominant Wavelength: ±1nm

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Chromaticity Coordinates Specifications for Bin Grading

Group	Bin Code	CIE_x	CIE_y	Condition
A	1	0.274	0.226	I_F =5mA
		0.274	0.258	
		0.294	0.286	
		0.294	0.254	
	2	0.274	0.258	
		0.274	0.291	
		0.294	0.319	
		0.294	0.286	
	3	0.294	0.254	
		0.294	0.286	
		0.314	0.315	
		0.314	0.282	
	4	0.294	0.286	
		0.294	0.319	
		0.314	0.347	
		0.314	0.315	
	5	0.314	0.282	
		0.314	0.315	
		0.334	0.343	
		0.334	0.311	
	6	0.314	0.315	
		0.314	0.347	
		0.334	0.376	
		0.334	0.343	

Notes:
1.The C.I.E. 1931 chromaticity diagram (Tolerance ±0.01).
2.The products are sensitive to static electricity and care must be fully taken when handling products.

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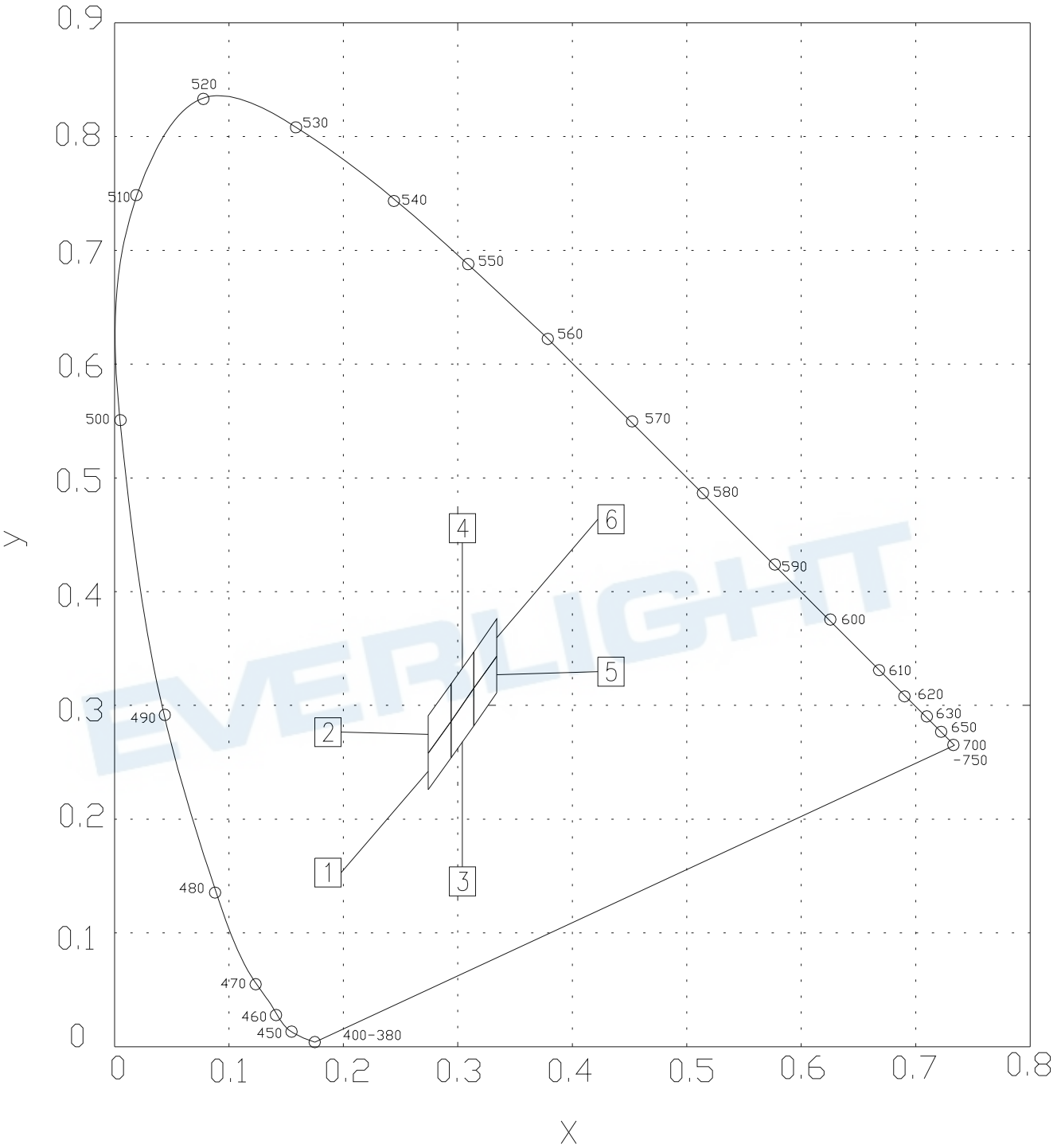
CIE Chromaticity Diagram



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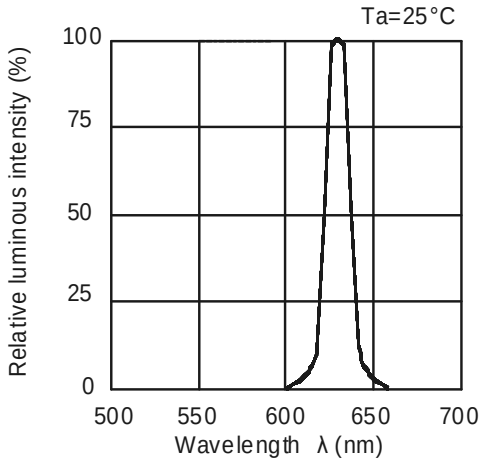
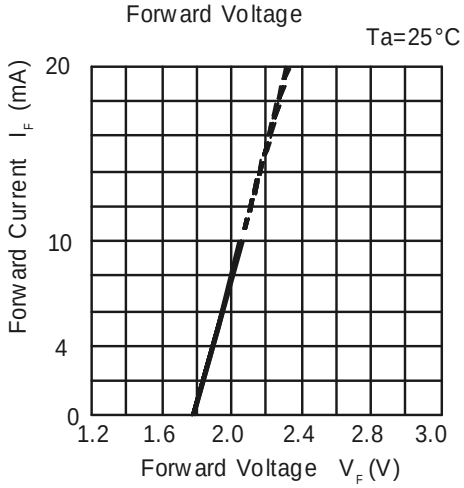
Typical Electro-Optical Characteristics Curves

R

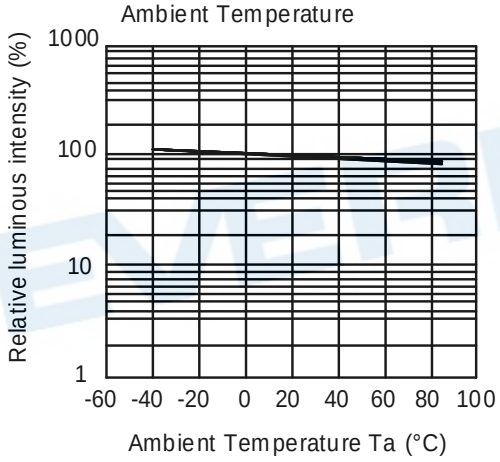
Spectrum Distribution



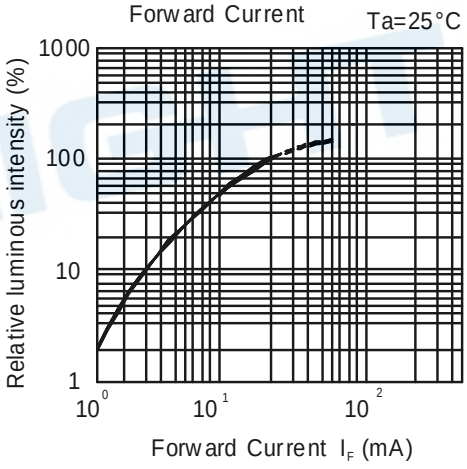
Forward Current vs. Forward Voltage



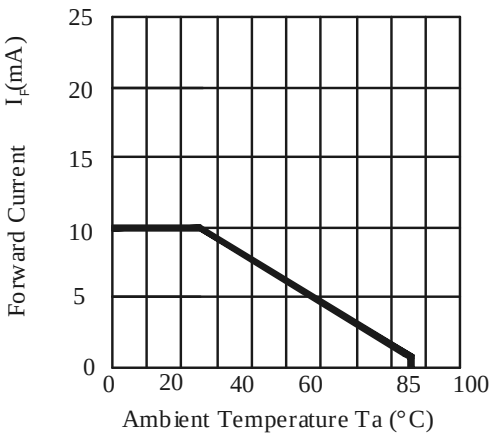
Luminous Intensity vs. Ambient Temperature



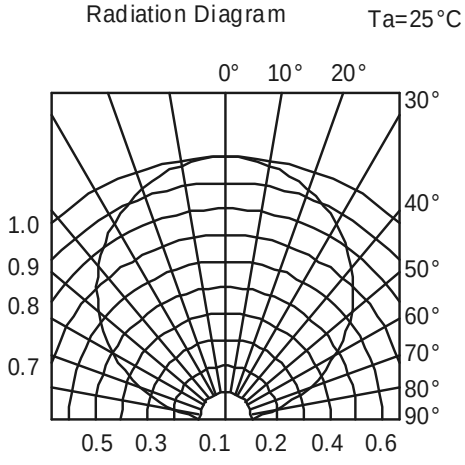
Luminous Intensity vs. Forward Current



Forward Current Derating Curve



Radiation Diagram



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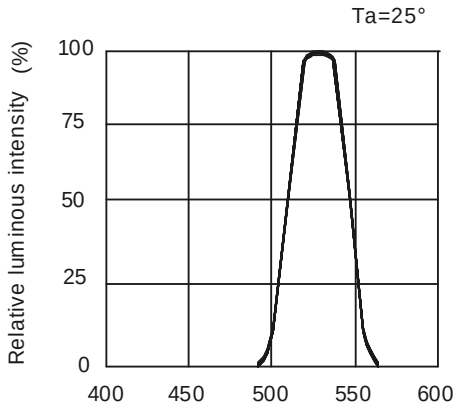
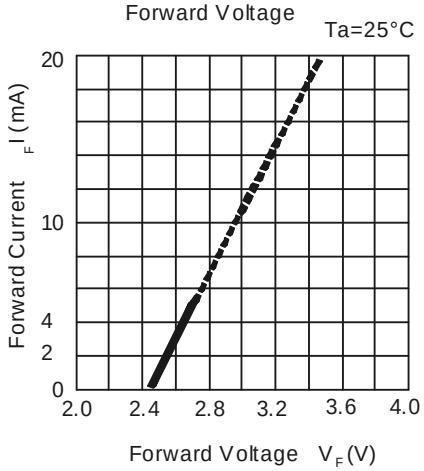
Typical Electro-Optical Characteristics Curves

G

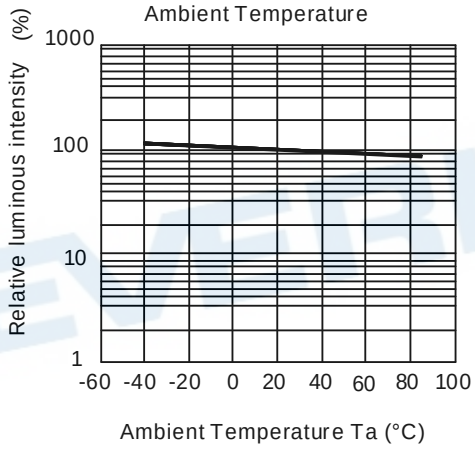
Spectrum Distribution



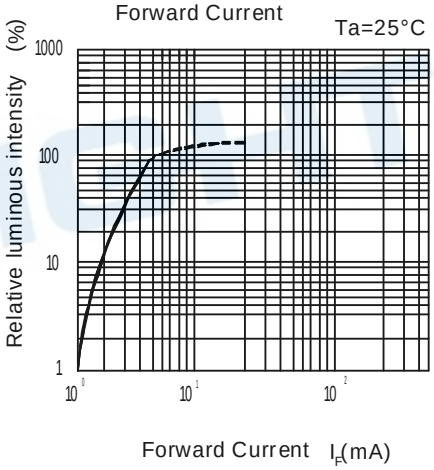
Forward Current vs. Forward Voltage



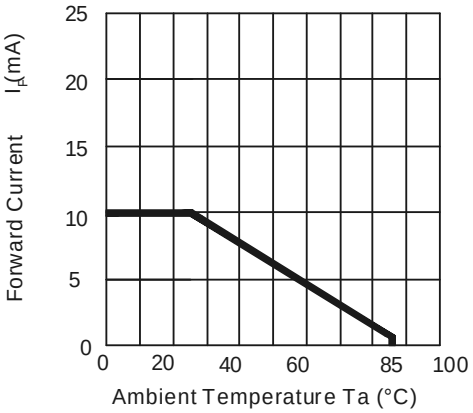
Luminous Intensity vs. Ambient Temperature



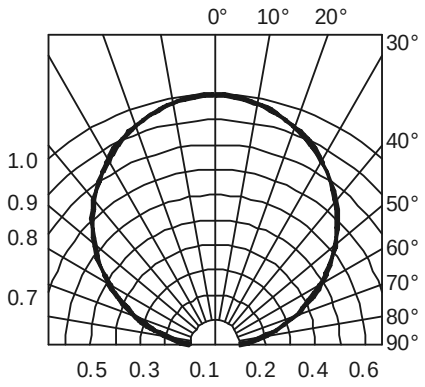
Luminous Intensity vs Forward Current



Forward Current Derating Curve



Radiation Diagram Ta=25°C



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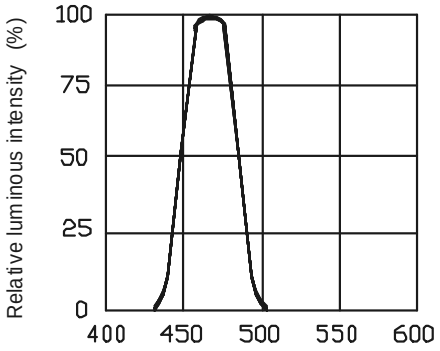
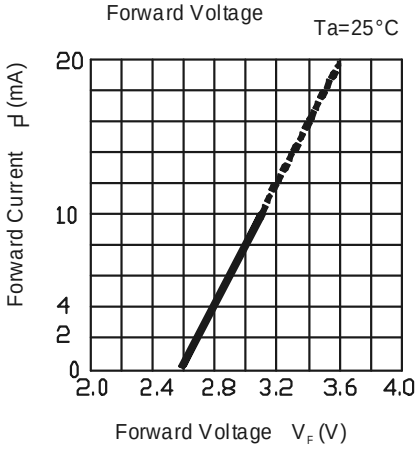
Typical Electro-Optical Characteristics Curves

B

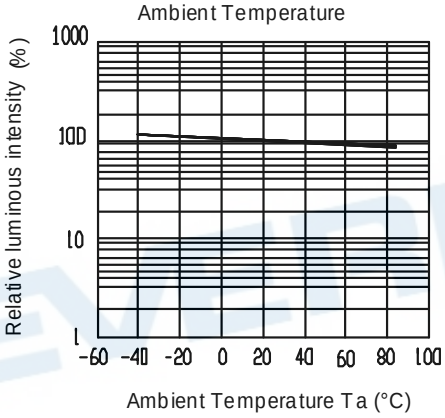
Spectrum Distribution



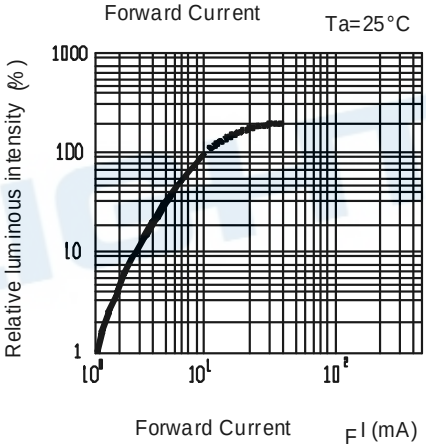
Forward Current vs. Forward Voltage



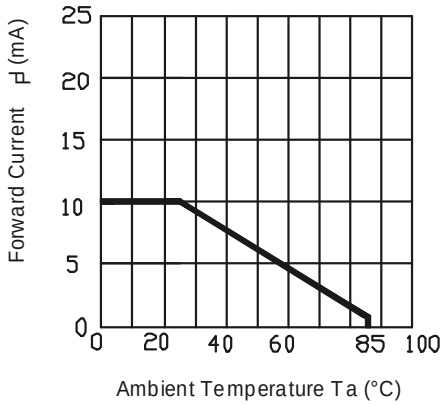
Luminous Intensity vs. Ambient Temperature



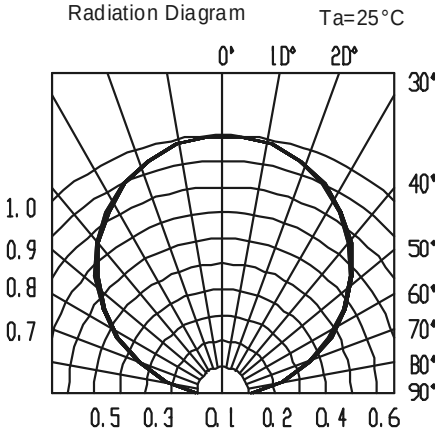
Luminous Intensity vs. Forward Current



Forward Current Derating Curve



Radiation Diagram



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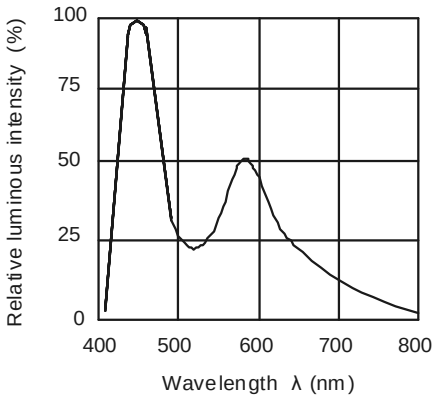
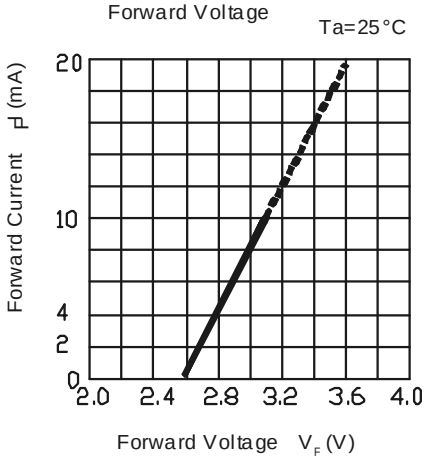
Typical Electro-Optical Characteristics Curves

W

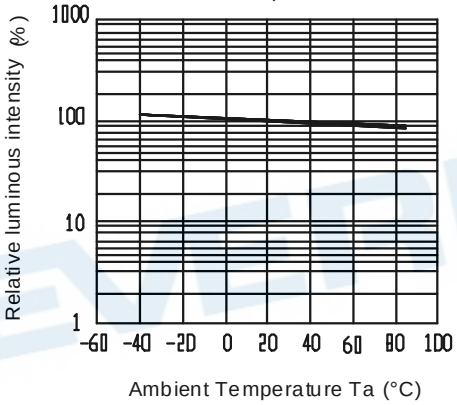
Spectrum Distribution



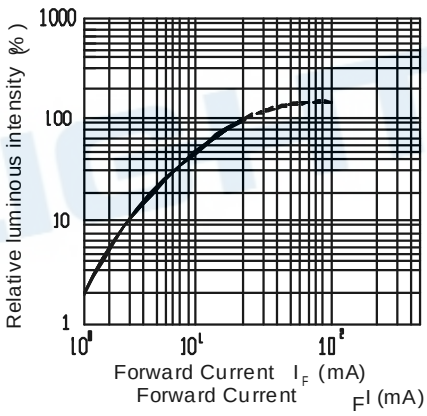
Forward Current vs. Forward Voltage



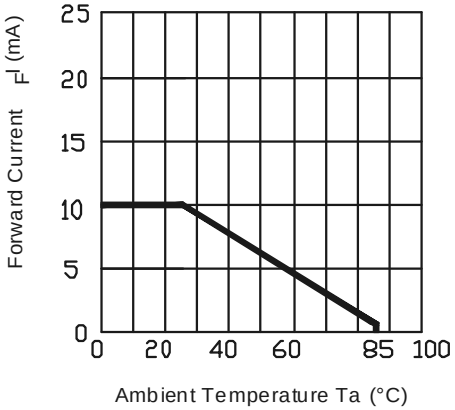
Luminous Intensity vs. Ambient Temperature



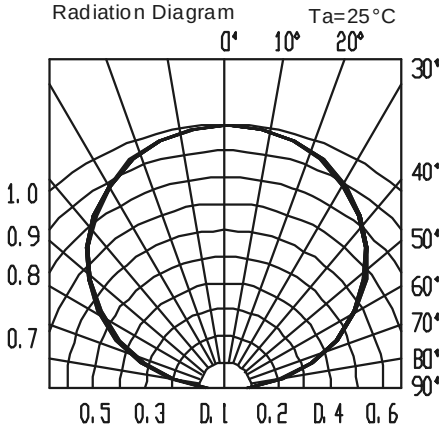
Luminous Intensity vs. Forward Current



Forward Current Derating Curve



Radiation Diagram



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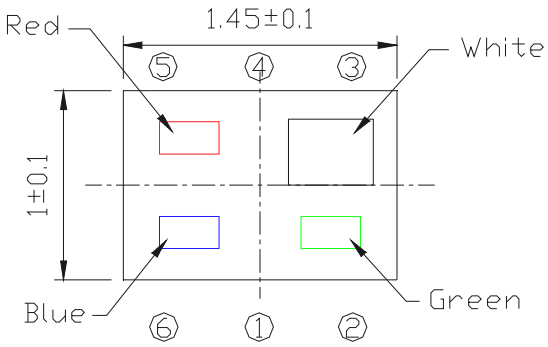
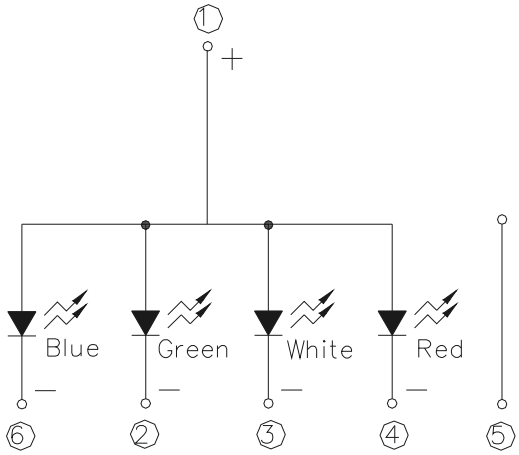
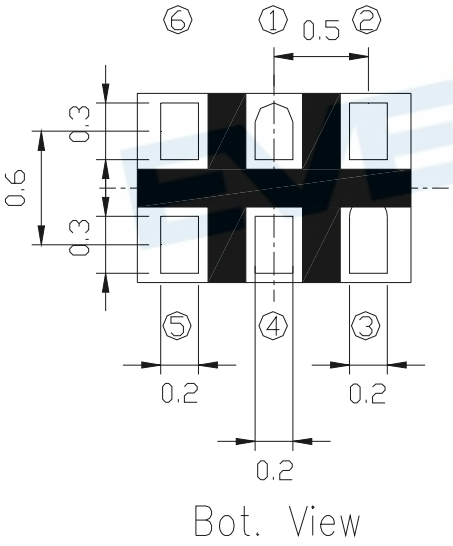
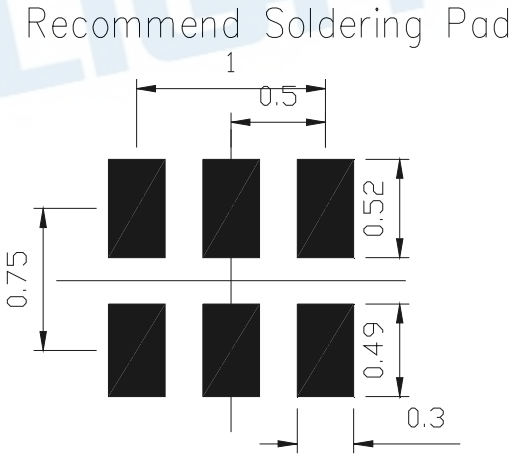
Package Dimension









單位(Unit):mm 公差(Tolerance):±0.05

Suggested pad dimension is just for reference only.
Please modify the pad dimension based on individual need.

Note: Tolerances unless mentioned ±0.1mm. Unit = mm

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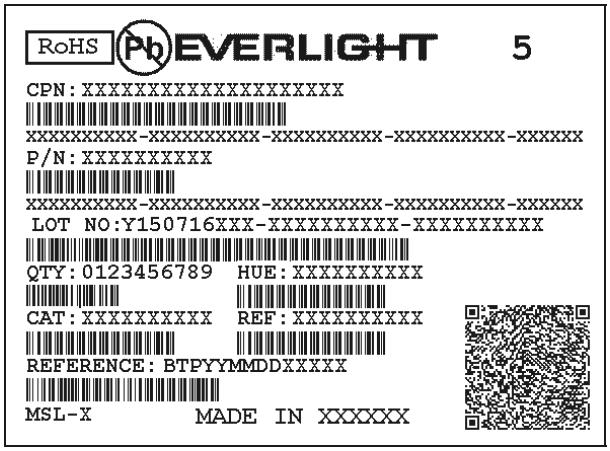
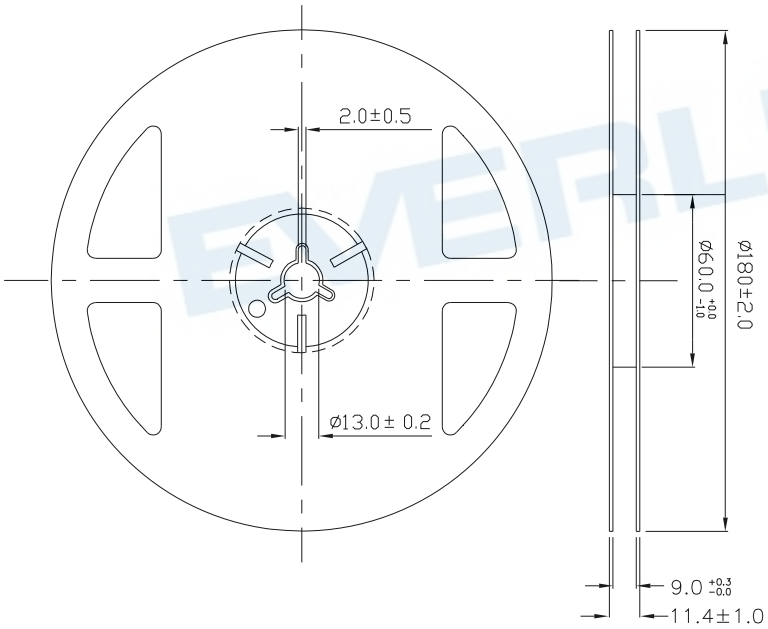
Moisture Resistant Packing Materials

Label Explanation



- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Chromaticity Coordinates & Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions



Note: The tolerances unless mentioned is ±0.1mm ,Unit = mm

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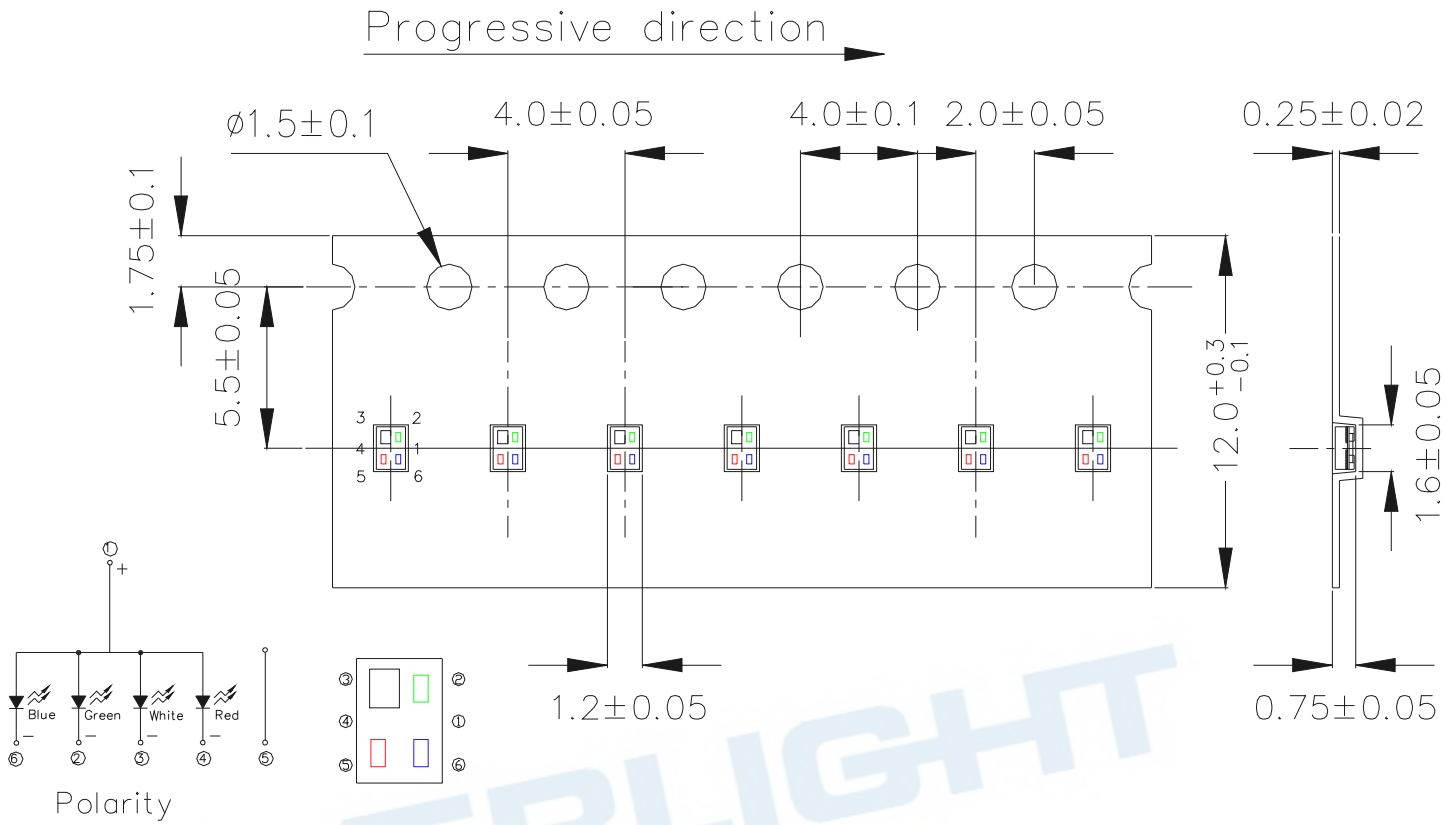
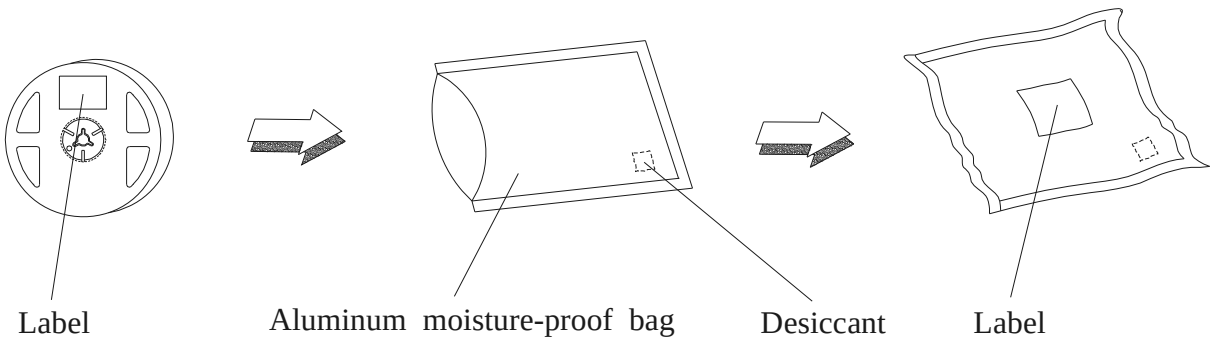
Carrier Tape Dimensions: Loaded quantity 4000 PCS per reel



Note: The tolerances unless mentioned is ±0.1mm ,Unit = mm

Moisture Resistant Packaging



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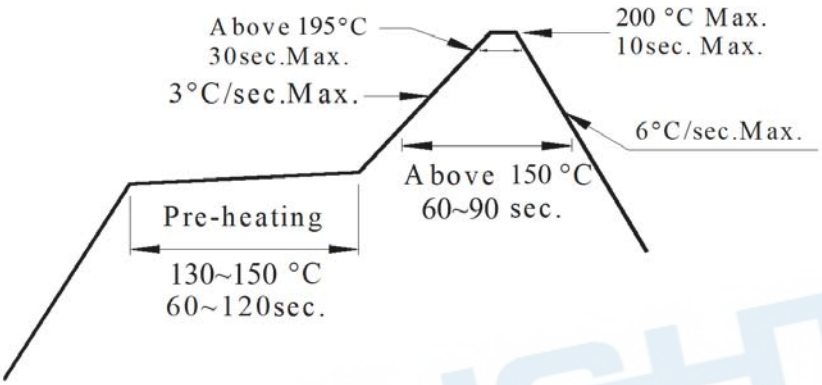
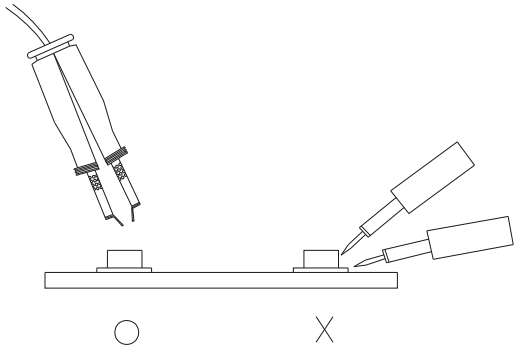
Precautions For Use

1. Over-current-proof
Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).
2. Storage
2.1 Do not open moisture proof bag before the products are ready to use.
2.2 Before opening the package: The LEDs should be kept at 30℃ or less and 90%RH or less.
2.3 After opening the package: The LED's floor life is 168 hr under 30℃ or less and 60% RH or less.
If unused LEDs remain, it should be stored in moisture proof packages.
2.4 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.
Baking treatment : 60±5℃ for 24 hours.
3. Soldering Condition
3.1 Pb-free solder temperature profile



3.2 Reflow soldering should not be done more than two times.
3.3 When soldering, do not put stress on the LEDs during heating.
3.4 After soldering, do not warp the circuit board.
4.Soldering Iron
Each terminal is to go to the tip of soldering iron temperature less than 350℃ for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5.Repairing
Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.



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Application Restrictions

High reliability applications such as military/aerospace, automotive safety/security systems, and medical equipment may require different product. If you have any concerns, please contact Everlight before using this product in your application. This specification guarantees the quality and performance of the product as an individual component. Do not use this product beyond the specification described in this document.

DISCLAIMER

1. EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.
2. The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
4. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from the use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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