



Technical Data Sheet

White Chip LED with Right Angle Lens

12-215/W1D-P2R1/TR8

Features

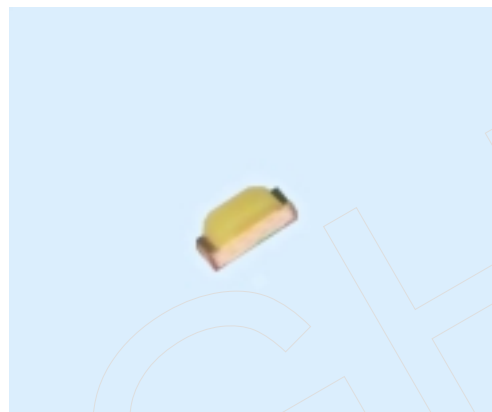
- Package in 8mm tape on 7" diameter reel.
- Compatible with automatic placement equipment.
- Compatible with infrared and vapor phase reflow solder process.
- Mono-color type.

Descriptions

- The 12-215 SMD Taping 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

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

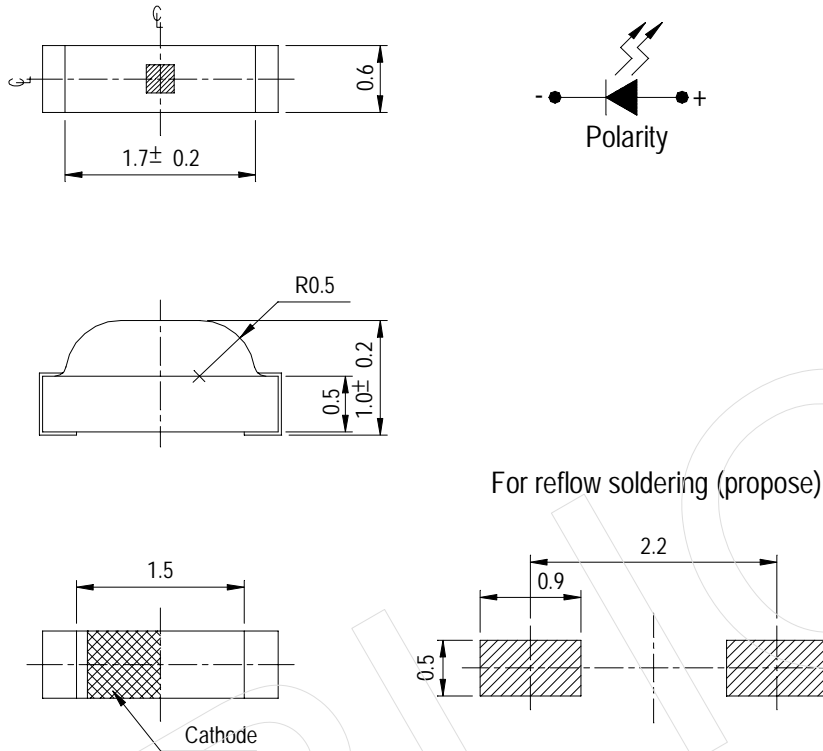


Device Selection Guide

Part No.	Chip		Lens Color
	Material	Emitted Color	
12-215/W1D-P2R1/TR8	InGaN	White	Yellow Diffused

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Package Outline Dimensions



Notes: Tolerances Unless Dimension ± 0.1 mm , Angle $\pm 0.5^\circ$,Unit = mm

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V _R	5	V
Forward Current	I _F	25	mA
Operating Temperature	T _{opr}	-40 ~ +85	°C
Storage Temperature	T _{stg}	-40~ +90	°C
Soldering Temperature	T _{sol}	260 (for 5 second)	°C
Power Dissipation	P _d	110	mW
Electrostatic Discharge	ESD	150	V
Peak Forward Current (Duty 1/10 @1KHz)	I _F	100	mA

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Electro-Optical Characteristics (Ta=25°C)

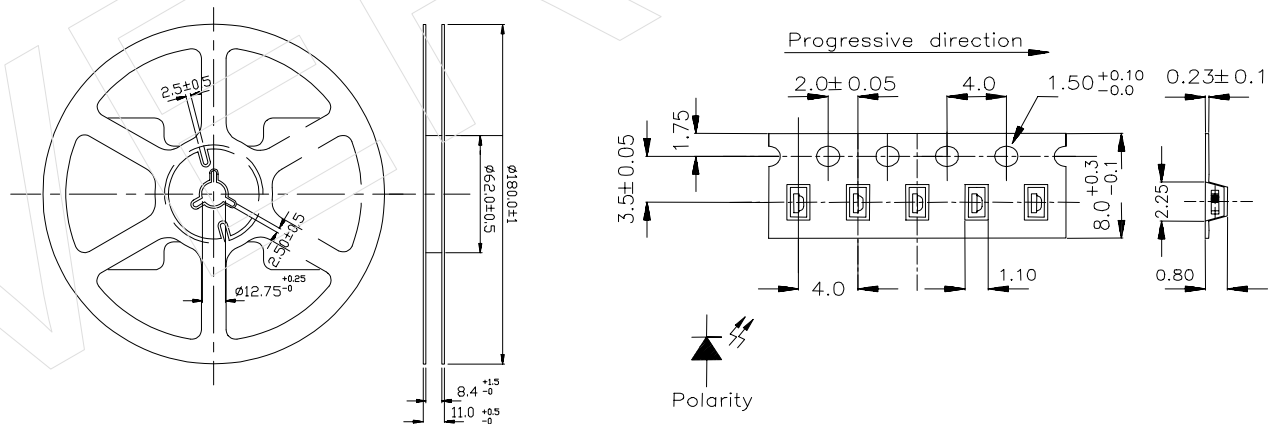
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	50	-----	160	mcd	IF=20mA
Viewing Angle	2θ 1/2	-----	140	-----	deg	IF=20mA
Forward Voltage	VF	-----	3.5	4.3	V	IF=20mA
Reverse Current	IR	-----	-----	10	μA	VR=5V
Chromaticity* Coordinates	x	-----	0.29	-----	-----	IF=20mA
	y	-----	0.30	-----	-----	

*The C.I.E. 1931 chromaticity diagram.

*The products are sensitive to static electricity and care must be fully taken when handling products.

Reel & Carrier Tape Dimensions

Loaded quantity per reel 3000 PCS/reel

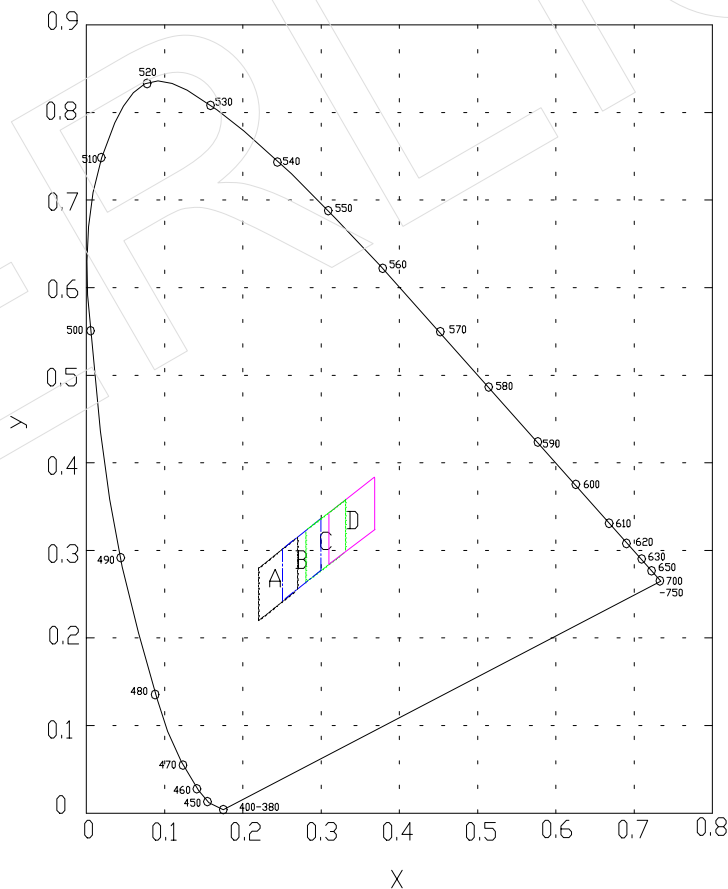


Notes: Tolerances Unless Dimension $\pm 0.1\text{mm}$, Angle $\pm 0.5^\circ$,Unit = mm .

Chromaticity Coordinates Specifications for Bin Grading

Color grading		CIE_x		CIE_y	
		Min	Max	Min	Max
A		0.220	0.270	0.215	0.315
B	B1	0.250	0.285	0.245	0.325
	B2	0.265	0.300	0.255	0.335
C	C1	0.280	0.315	0.265	0.345
	C2	0.295	0.330	0.275	0.355
D		0.310	0.370	0.285	0.385

■ CIE Chromaticity Diagram





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Bin Range Of Luminous Intensity IF= 20mA

Bin	Min	Max	Unit
P2	50	80	mcd
Q1	63	100	mcd
Q2	80	125	mcd
R1	100	160	mcd

Label explanation

CAT: Luminous Intensity (mcd) HUE: Chromaticity Coordinates

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CPN :
P/N: XXXXXXXXXXXX



XX-XXXXXXXX
QTY: XXXX



LOT NO: XXXXXXXXXXX



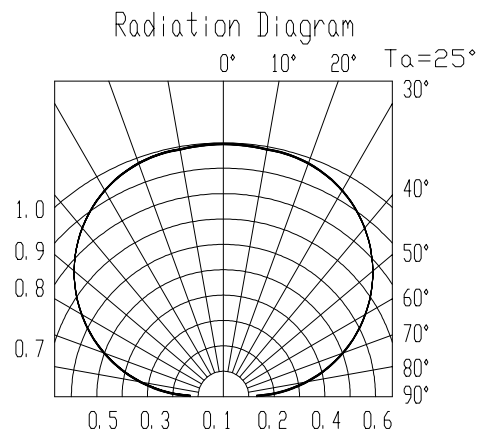
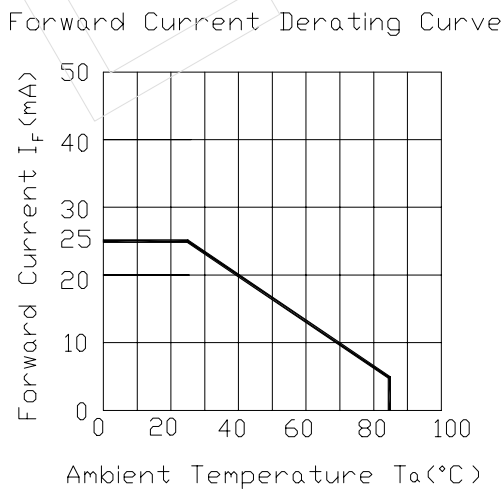
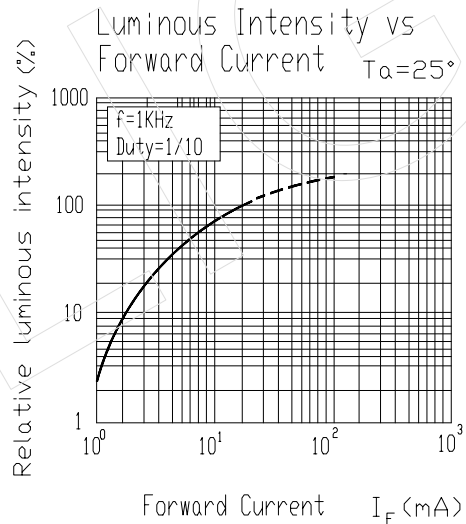
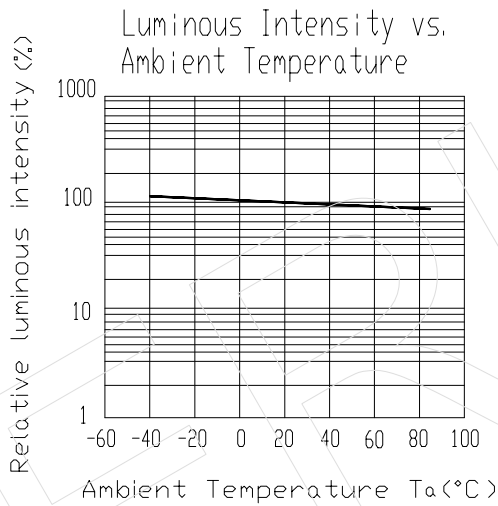
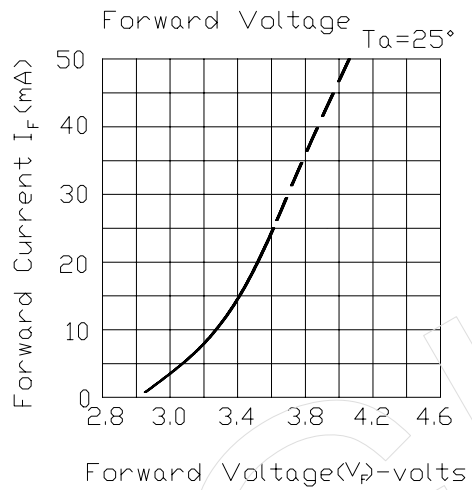
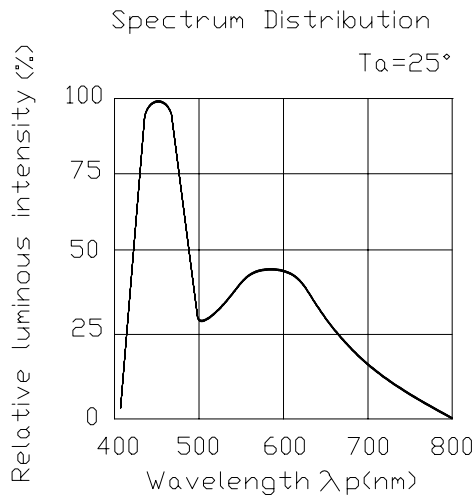
CAT:
HUE:
REF:

Chromaticity Coordinates

MADE IN TAIWAN

12-215/W1D-P2R1/TR8

Typical Electro-Optical Characteristics Curves



12-215/W1D-P2R1/TR8
Reliability Test Items And Conditions

The reliability of products shall be satisfied with items listed below.

Confidence level : 90 %

LTPD : 10 %

No.	Items	Test Condition	Test Hours/Cycles	Sample Size	Failure Judgement Criteria	Ac/Rc
1	Reflow	Temp. : 240°C ± 5°C Min. 5 sec.	6 min.	22 Pcs.	$I_R \geq U \times 1$ $I_V \geq L \times 0.5$ $V_F \geq U \times 1.2$ U: Upper Specification Limit L: Lower Specification Limit	0/1
2	Temperature Cycle	H : +85°C 30min. ∫ 5 min. L : -55°C 30min.	50 Cycles	22 Pcs.		0/1
3	Thermal Shock	H : +100°C 5min. ∫ 10 sec. L : -10°C 5min.	50 Cycles	22 Pcs.		0/1
4	High Temperature Storage	Temp. : 100°C	1000 Hrs.	22 Pcs.		0/1
5	Low Temperature Storage	Temp. : -55°C	1000 Hrs.	22 Pcs.		0/1
6	DC Operating Life	$I_F = 20 \text{ mA}$	1000 Hrs.	22 Pcs.		0/1
7	High Temperature / High Humidity	85°C/R.H85%	1000 Hrs.	22 Pcs.		0/1

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 time

2.1 The operation of Temperature and RH are : $5^{\circ}\text{C}\sim 35^{\circ}\text{C}$, RH60%.

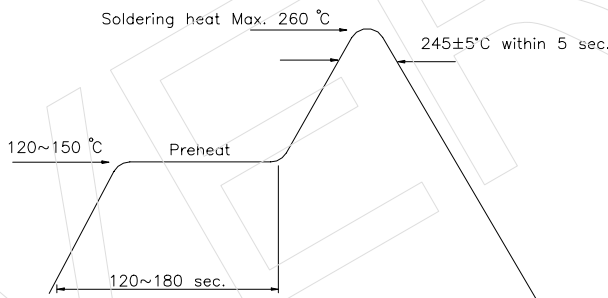
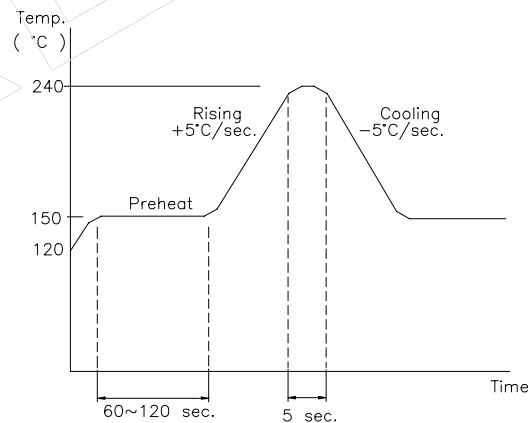
2.2 Once the package is opened, the products should be used within a week.

Otherwise, they should be kept in a damp proof box with desiccating agent.

Considering the tape life , we suggest our customers to use our products within a year(from production date).

2.3 If opened more than one week in an atmosphere $5^{\circ}\text{C}\sim 35^{\circ}\text{C}$, RH 60%, they should be treated at $60^{\circ}\text{C}\pm 5^{\circ}\text{C}$ for 15hrs.

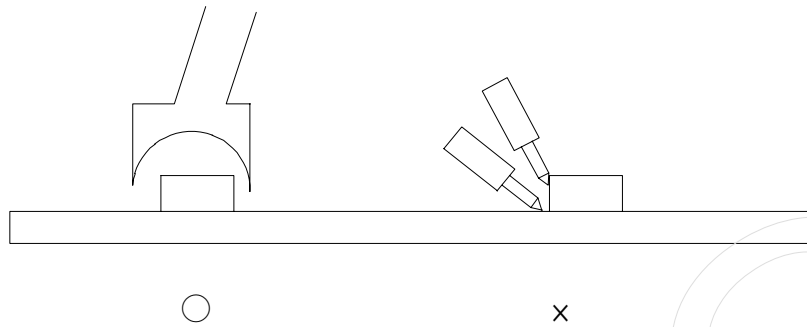
2.4 When you discover that the desiccant in the package has a pink color (Normal = blue) , you should treat them in the same conditions as 2.3.

Soldering heat reliability (DIP)**Reflow Temp / Time****Soldering Iron**

Basic spec is ≤ 5 sec when 260°C . If temperature is higher, time should be shorter ($+10^{\circ}\text{C} \rightarrow -1$ sec). Power dissipation of Iron should be smaller than 15 W , and temperature should be controllable. Surface temperature of the device should be under 230°C .

12-215/W1D-P2R1/TR8**Rework**

1. Customer must finish rework within 5 sec under 245°C.
2. The head of iron can not touch copper foil.
3. Twin-head type is preferred.

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Tucheng, Taipei 236, Taiwan, R.O.C**Tel: 886-2-2267-2000, 2267-9936**Fax: 886-2267-6244, 2267-6189, 2267-6306**<http://www.everlight.com>*