

# SPECIFICATION

Customer		Product	Chip LED
Customer Type		Type	IE-2012W-ST-D
Customer No.		Version NO	B



Research & Development Center			Customer ( Stamp )
DRAW	CHECK	APPROVE	CONFIRM
(Release Date): 2016-05-25			

# IE-2012W-ST-D

# Chip Light Emitting Diode


## Technical Data Sheet

This product is generally used as indicator and luminance for surface mounted electronic equipment, such as household appliance, communication equipment, and dashboard.

**Features:**

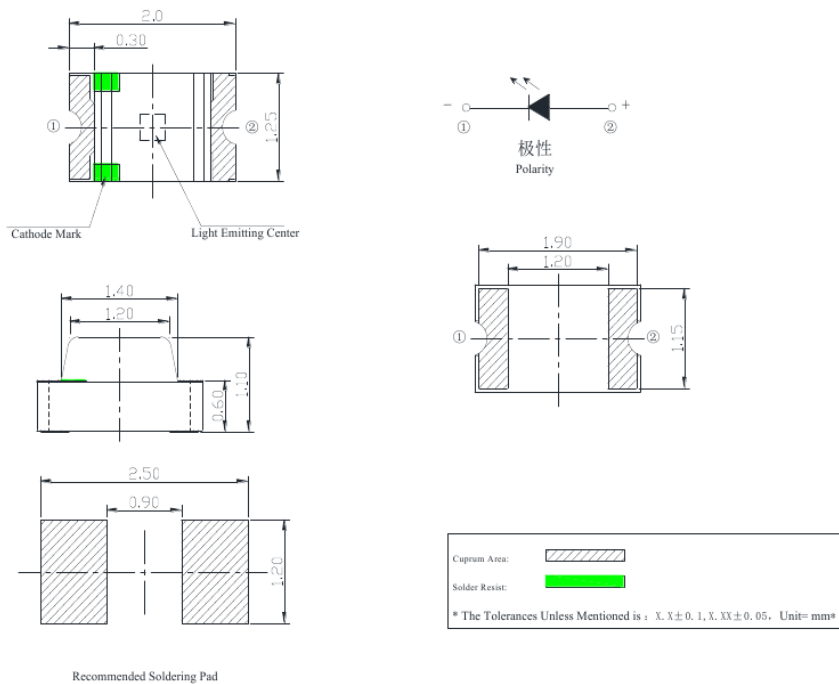
- Material: InGaN
- Encapsulation: Epoxy Resin
- Soldering methods: Pb-Free reflow soldering
- High Luminous Intensity ,Low Power Dissipation, Good Reliability and Long Lifespan
- Complied With ROHS Directive

Emitting Color: White



\* The specifications of the product may be modified for improvement without notice.

## Outline Dimension



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## Electro-Optical Characteristics(1)

✧ Absolute Maximum Ratings (Temperature=25°C)

Parameter	Symbol	Rating	Unit
Forward Current	$I_F$	20	mA
Pulse Forward Current*	$I_{FP}$	50	mA
Reverse Voltage	$V_R$	5	V
Operating Temperature	$T_{OPR}$	-30 ~ +85	°C
Storage Temperature	$T_{stg}$	-40 ~ +100	°C
Power Dissipation	$P_D$	72	mW

\* Note: Pulse Width  $\leq 0.1ms$ , Duty  $\leq 1/10$

✧ Electro-Optical Characteristics (Temperature=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse Current	$I_R$	$V_R=5V$	-	-	10	$\mu A$
View Angle	$2\theta_{1/2}$	-	-	130	-	deg.
Forward Voltage	$V_F$	$I_F=5mA$	2.6	2.8	3.6	V
Luminous Intensity	$I_V$		200	260	330	mcd
Chromaticity Coordinates	CIE-X		-	0.26	-	-
	CIE-Y		-	0.23	-	-

\* Note1: Tolerance on each Luminous Intensity bin is  $\pm 15\%$ ; Tolerance on each Forward Voltage bin is  $\pm 0.1V$ ; Tolerance on each Hue(X,Y) bin is  $\pm 0.01$ ; Tolerance of Dominant Wavelength  $\pm 1nm$ .

\* Note2: The parameters above are only for your reference. In case of any discrepancy, please adhere to the label of our actual products. All parameters are tested by the standard testing system.

## Electro-Optical Characteristics(2)



**Luminous Intensity** (Ta=25°C,IF=5mA)

Luminous Classification Range	
200-225	mcd
225-250	mcd
250-275	mcd
275-300	mcd
300-330	mcd

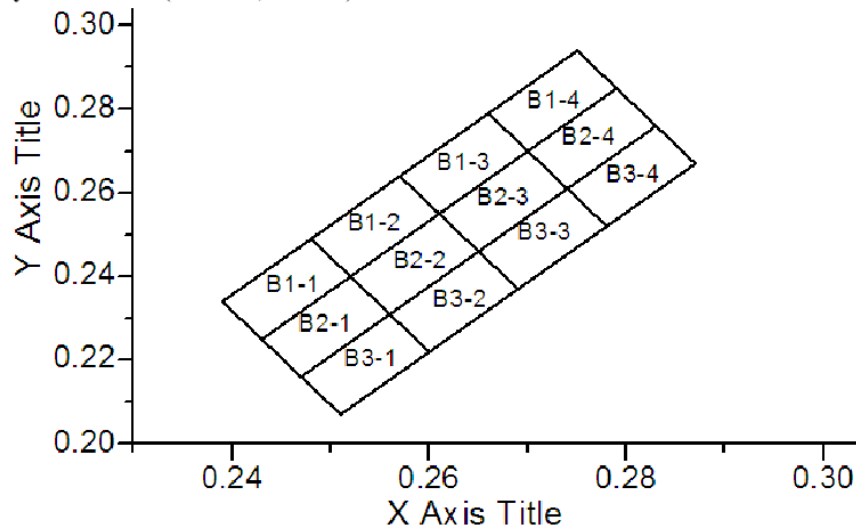


**Forward Voltage** (Ta=25°C,IF=5mA)

Voltage Classification Range	
2.6-2.7	V
2.7-2.8	V
2.8-2.9	V
2.9-3.0	V

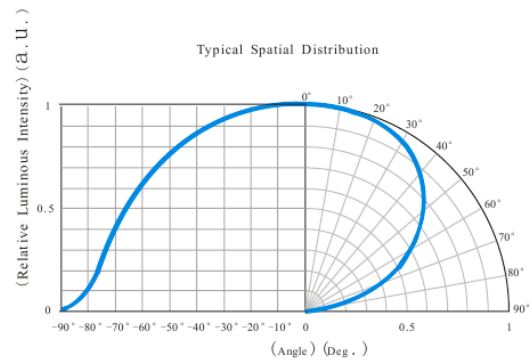
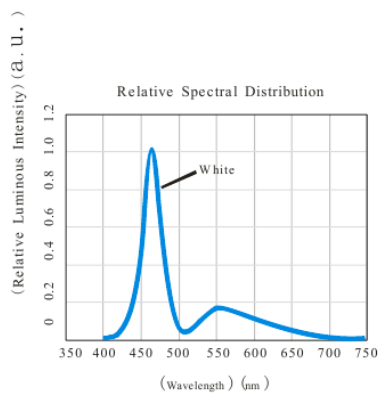
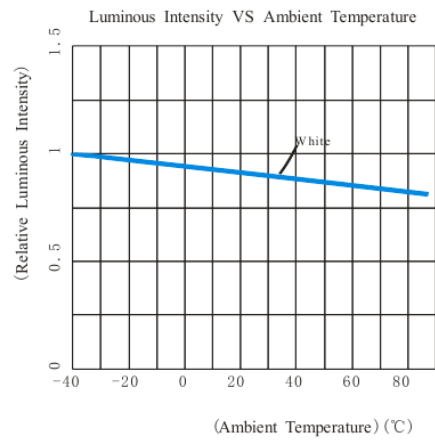
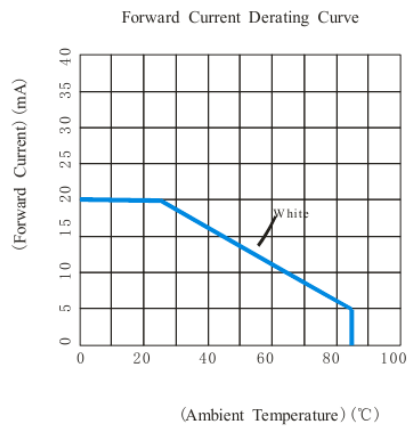
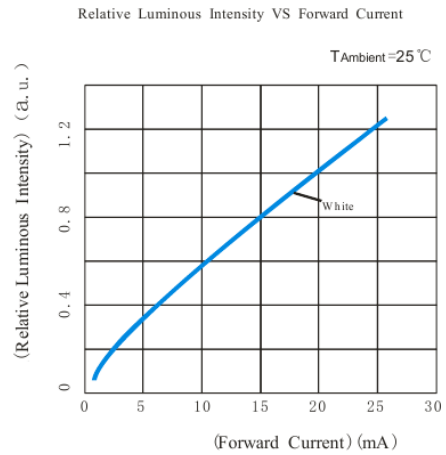
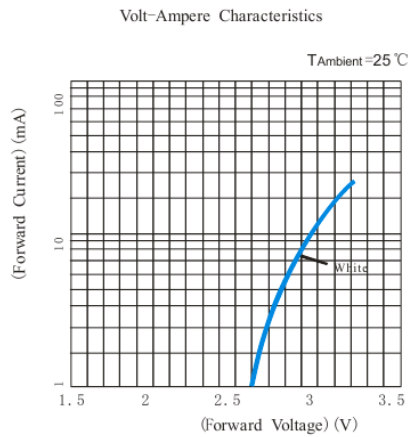


**Chromaticity Coordinates** (Ta=25°C,IF=5mA)



		Bottom	Left	Top	Right			Bottom	Left	Top	Right
<b>B1-1</b>	<b>X</b>	0.243	0.239	0.248	0.252	<b>B2-1</b>	<b>X</b>	0.247	0.243	0.252	0.256
	<b>Y</b>	0.225	0.234	0.249	0.24		<b>Y</b>	0.216	0.225	0.24	0.231
<b>B1-2</b>	<b>X</b>	0.252	0.248	0.257	0.261	<b>B2-2</b>	<b>X</b>	0.256	0.252	0.261	0.265
	<b>Y</b>	0.240	0.249	0.264	0.255		<b>Y</b>	0.231	0.240	0.255	0.246
<b>B1-3</b>	<b>X</b>	0.261	0.257	0.266	0.27	<b>B2-3</b>	<b>X</b>	0.265	0.261	0.27	0.274
	<b>Y</b>	0.255	0.264	0.279	0.27		<b>Y</b>	0.246	0.255	0.27	0.261
<b>B1-4</b>	<b>X</b>	0.27	0.266	0.275	0.279	<b>B2-4</b>	<b>X</b>	0.274	0.27	0.279	0.283
	<b>Y</b>	0.27	0.279	0.294	0.285		<b>Y</b>	0.261	0.27	0.285	0.276
<b>B3-1</b>	<b>X</b>	0.251	0.247	0.256	0.26	<b>B3-3</b>	<b>X</b>	0.269	0.265	0.274	0.278
	<b>Y</b>	0.207	0.216	0.231	0.222		<b>Y</b>	0.237	0.246	0.261	0.252
<b>B3-2</b>	<b>X</b>	0.26	0.256	0.265	0.269	<b>B3-4</b>	<b>X</b>	0.278	0.274	0.283	0.287
	<b>Y</b>	0.222	0.231	0.246	0.237		<b>Y</b>	0.252	0.261	0.276	0.267

## Typical Characteristics Curves



## Reliability Test Items And Conditions

Test Items	Reference	Test Conditions	Time	Quantity	Criterion
Thermal Shock	MIL-STD-202G	-40°C (15min)←→100°C (15min)	200 cycles	22	0/22
Temperature And Humidity Cyclic	JEITA ED-4701 200 203	(-10~65)°C , (0~90)%RH 24hrs./1cycle	10 cycles	22	0/22
High Temperature Storage	JEITA ED-4701 200 201	Ta=100°C	1000h	22	0/22
Low Temperature Storage	JEITA ED-4701 200 202	Ta=-40°C	1000h	22	0/22
Lifespan Test	JESD22-A108D	Ta=25°C If =10mA	1000h	22	0/22
Resistance to Soldering Heat	GB/T 4937, II ,2.2&2.3	Tsol*=(260±5)°C 10secs.	2 times	22	0/22

## Criteria For Judging Damage

Test Items	Symbol	Test Conditions	Criteria For Judging Damage
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = I <sub>FT</sub>	Initial Data±10%
Reverse Current	I <sub>R</sub>	V <sub>R</sub> = 5V	I <sub>R</sub> ≤10μA
Luminous Intensity	I <sub>V</sub>	I <sub>F</sub> = I <sub>FT</sub>	Average IV degradation≤30%; Single LED IV degradation≤50%
Resistance to Soldering Heat			Material without internal cracks, no material between stripped, no dead light .

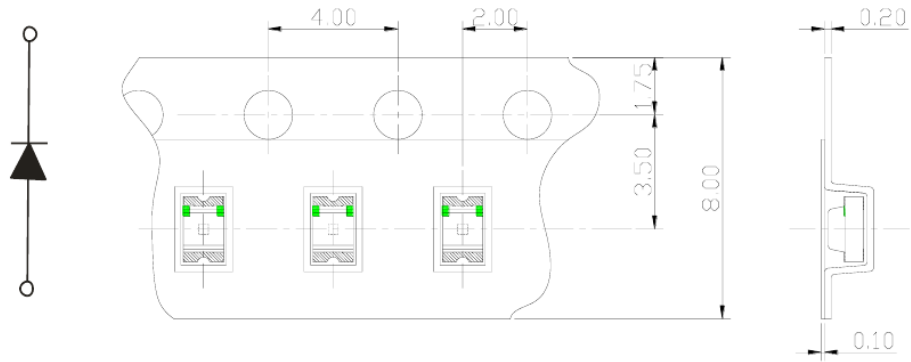
\* Note: Tsol-Temperature of tin liquid; I<sub>FT</sub>: Typical current.

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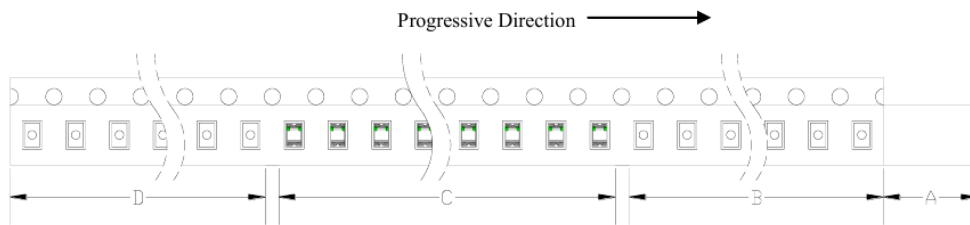
## Packaging (1)

### ◇ Carrier Tape



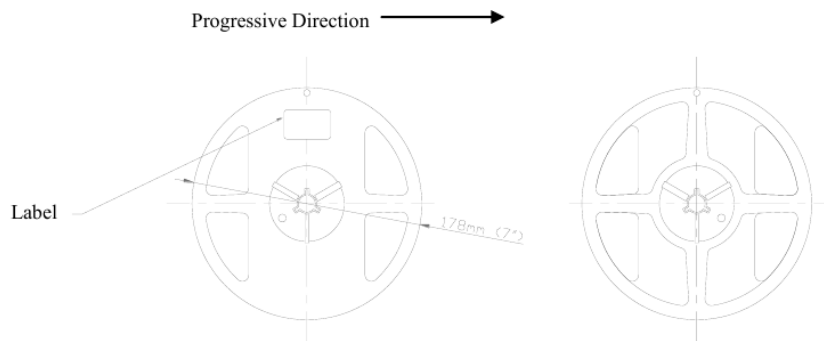
All dimensions in mm, tolerances unless mentioned is  $\pm 0.1$  mm.

### ◇ Details Of Carrier Tape



A: Top Cover Tape, 200mm; B: Leader, Empty, 100mm; C: 3000 Lamps Loaded; D: Trailer, Empty, 100mm.

### ◇ Reel Dimension



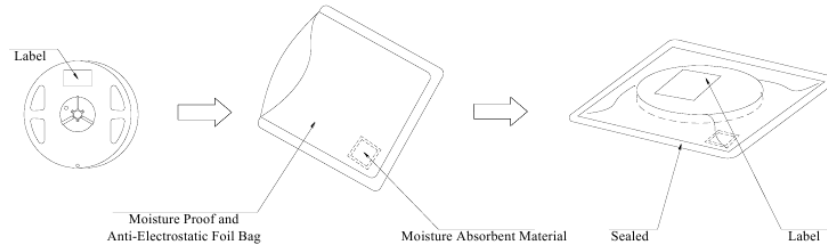
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## Packaging( 2)



### Moisture Proof and Anti-Electrostatic Foil Bag



### Cardboard Box

