

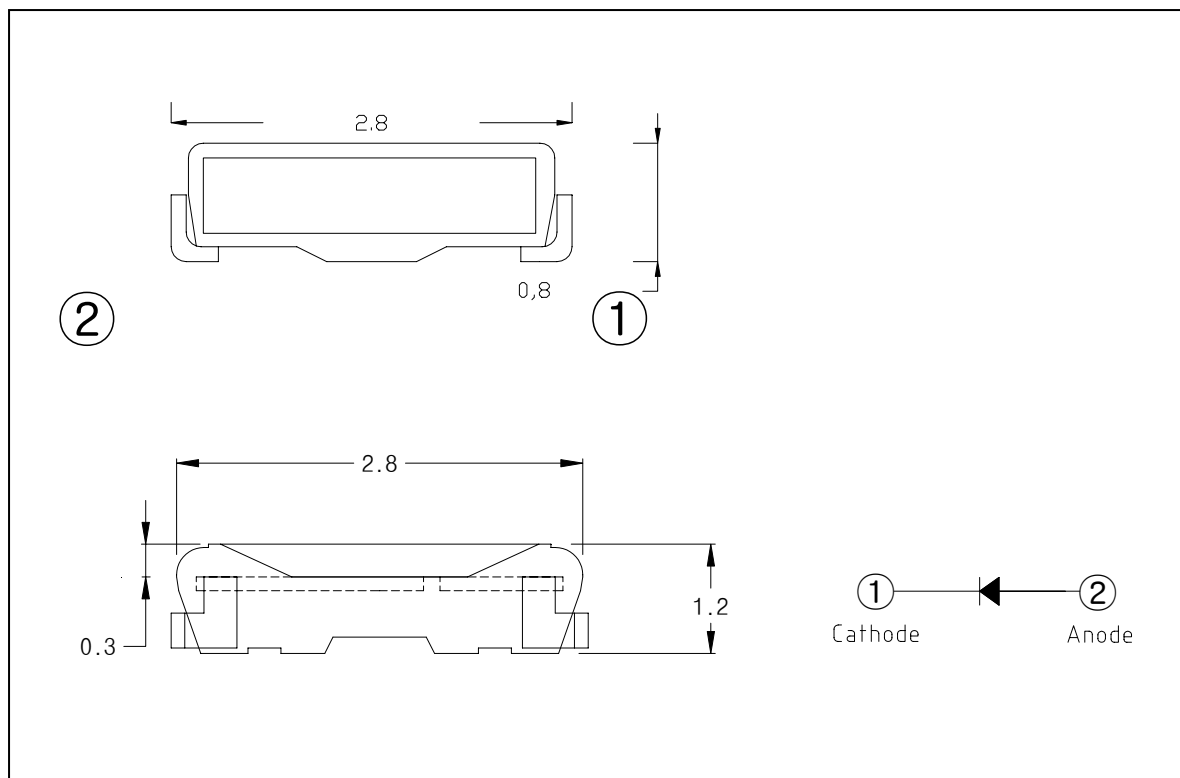
### 1. Features

- ◆ Small Footprint Surface Mount Package ( 2.8 L × 1.2 W × 0.8 H [mm<sup>3</sup>])
- ◆ Typical Forward Voltage(V<sub>F</sub>) : 3.1 V @ Forward Current(I<sub>F</sub>)=20mA
- ◆ Operation Temperature from -40℃ to +85℃
- ◆ Soldering methods : IR reflow soldering
- ◆ Taping : 8 mm conductive black carrier tape & antistatic clear cover tape

### 2. Applications

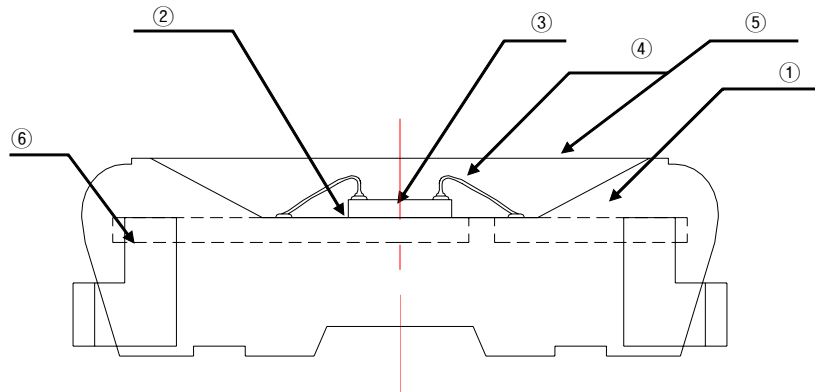
- ◆ Indicators, Illuminations
- ◆ BLU

### 3. Outline Dimensions and Material Descriptions



The contents of this data sheet are subject to change without advance notice for the purpose of improvement. When using this product, would you please refer to the latest specifications.

## ◆ Material Descriptions



No.	ITEM	Material
①	Frame Resine	Polymer
②	Paste	Clear Epoxy
③	Blue LED Chip	InGaN/Al <sub>2</sub> O <sub>3</sub>
④	Wire	Au
⑤	Encapsulant	Phosphor Epoxy
⑥	Electrode	Ag Plated Cu

## 4. Absolute Maximum

Item	Symbol	Min.	Max.	Unit	Conditions
Forward Current	I <sub>F</sub>	-	20	mA	
Peak Forward Current <sup>*1</sup>	I <sub>FP</sub>	-	40	mA	per die
Power Dissipation	P <sub>D</sub>	-	80	mW	
Reverse Voltage	V <sub>R</sub>	-	5	V	per die
Operating Temperature	T <sub>OP</sub>	-40	85	°C	
Storage Temperature	T <sub>S</sub>	-40	100	°C	
Soldering Temperature <sup>*2</sup>	T <sub>sol</sub>	-	260	°C	

\*1. I<sub>FP</sub> was measured at T<sub>w</sub> ≤ 1 msec of pulse width and D ≤ 1/10 of duty ratio.

\*2. Soldering time : 5 Sec

## 5. Electrical / Optical Characteristics

(T<sub>a</sub>=25°C)

Item	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage <sup>*3</sup>	V <sub>F</sub>	2.8	-	3.4	V	I <sub>F</sub> =20mA
Reverse current	V <sub>R</sub>	-	-	5	V	I <sub>R</sub> =10uA
Luminous intensity <sup>*1,3</sup>	I <sub>v</sub>	1800	-	2400	mcd	I <sub>F</sub> =20mA
Half angle <sup>*2</sup>	2θ <sub>1/2</sub>	-	120	-	deg	I <sub>F</sub> =20mA

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- \*1. The luminous intensity  $I_V$  was measured at the peak of the spatial pattern which may not be aligned with the mechanical axis of the LED package.
- \*2.  $2\theta_{1/2}$  is the off-axis where the luminous intensity is 1/2 of the peak intensity.
- \*3. Measuring Tolerance  
 -  $V_F$  :  $\pm 0.1$  V,  $I_V$  :  $\pm 10\%$ ,  $R_a$  :  $\pm 3$ , X,Y :  $\pm 0.01$

## 6. Ranks

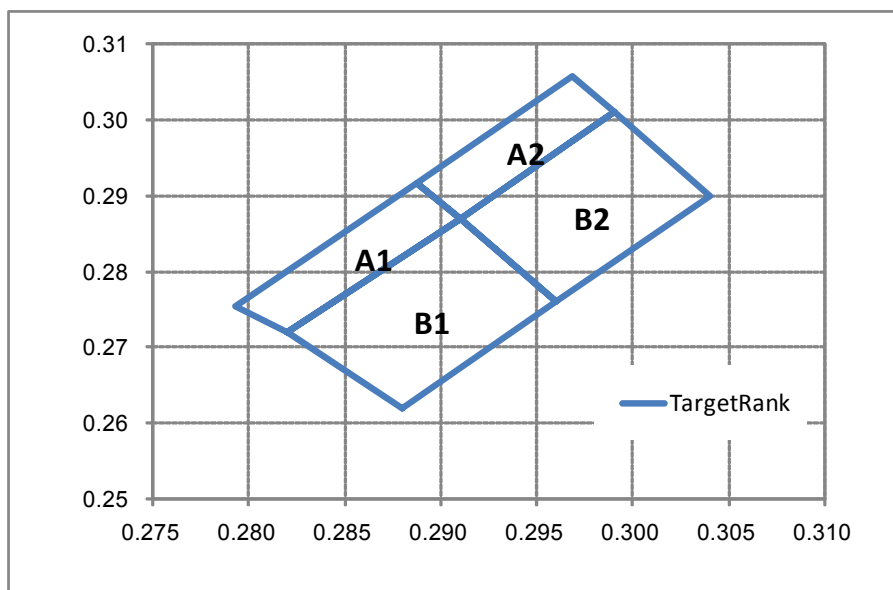
### ◆ $V_F$ , $I_V$ , Color Rank @ $I_F = 20$ mA

Luminous Intensity Range[mcd]		
Forward Voltage [V]	Luminous Intensity [mcd]	Chromaticity
1 : 2.8 ~ 3.0	A : 1800 ~ 2000	B7
2 : 3.0 ~ 3.2	B : 2000 ~ 2200	C7
3 : 3.2 ~ 3.4	C : 2200 ~ 2400	B8
		C8

### ◆ Color Coordinate Rank

A1		A2		B1		B2	
x	y	x	y	x	y	x	y
0.2820	0.2720	0.2910	0.2870	0.2880	0.2620	0.2960	0.2760
0.2793	0.2755	0.2887	0.2916	0.2820	0.2720	0.2910	0.2870
0.2887	0.2916	0.2968	0.3058	0.2910	0.2870	0.2990	0.3010
0.2910	0.2870	0.2990	0.3010	0.2960	0.2760	0.3040	0.2900

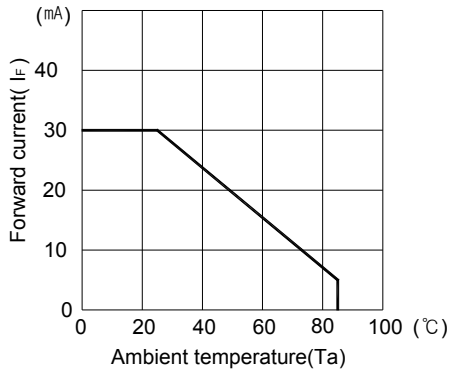
### ◆ The CIE(x, y) Chromaticity Diagram



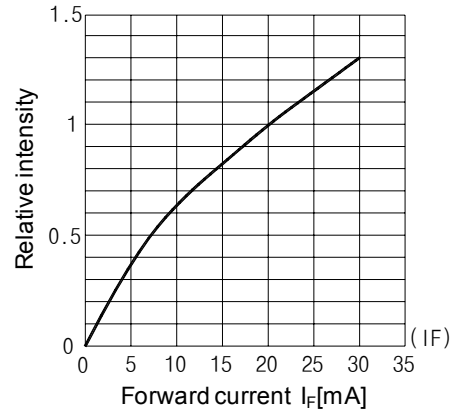
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7. Characteristic Graphs

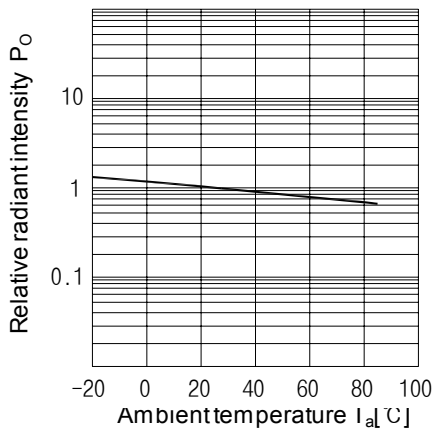
**Forward current vs. Ambient temperature**



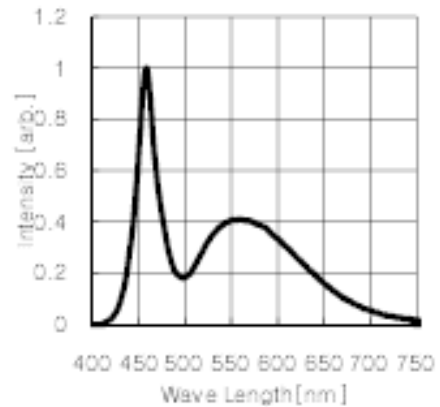
**Luminous vs. Forward current**



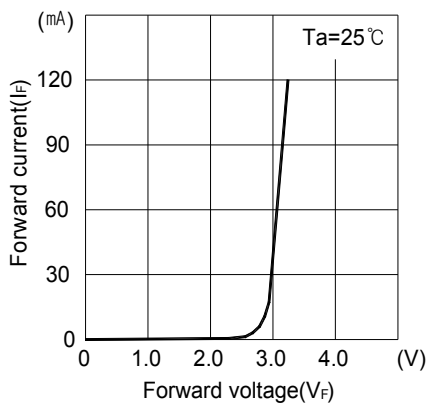
**Relative luminous intensity vs. Ambient temperature**



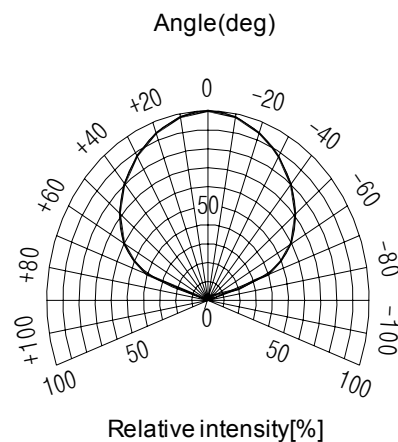
**Relative intensity vs. Wavelength**



**Forward current vs. Forward voltage**



**Luminous Pattern**



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