

**Features**

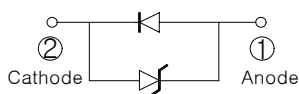
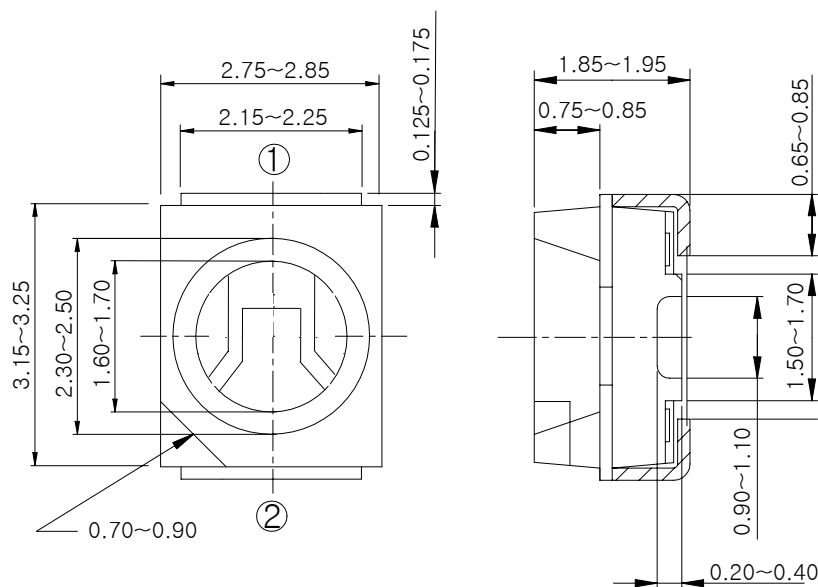
- Colorless transparency lens type
- Using a package with high heat dissipation properties, it can be driven with a large current
- Wide viewing angle
- External dimensions : 3.5(L)×2.8(W)×1.9mm(T) surface mount type
- **E ; ESD Protected ( $\pm 2.0KV$ , 3 Times @100pF, 1.5K $\Omega$ )**

**Applications**

- Backlighting
- Signal indicator
- Symbol backlighting
- Front panel indicator

**Outline Dimensions**

unit : mm



**PIN Connections**

1. Anode
2. Cathode

## Absolute Maximum Ratings

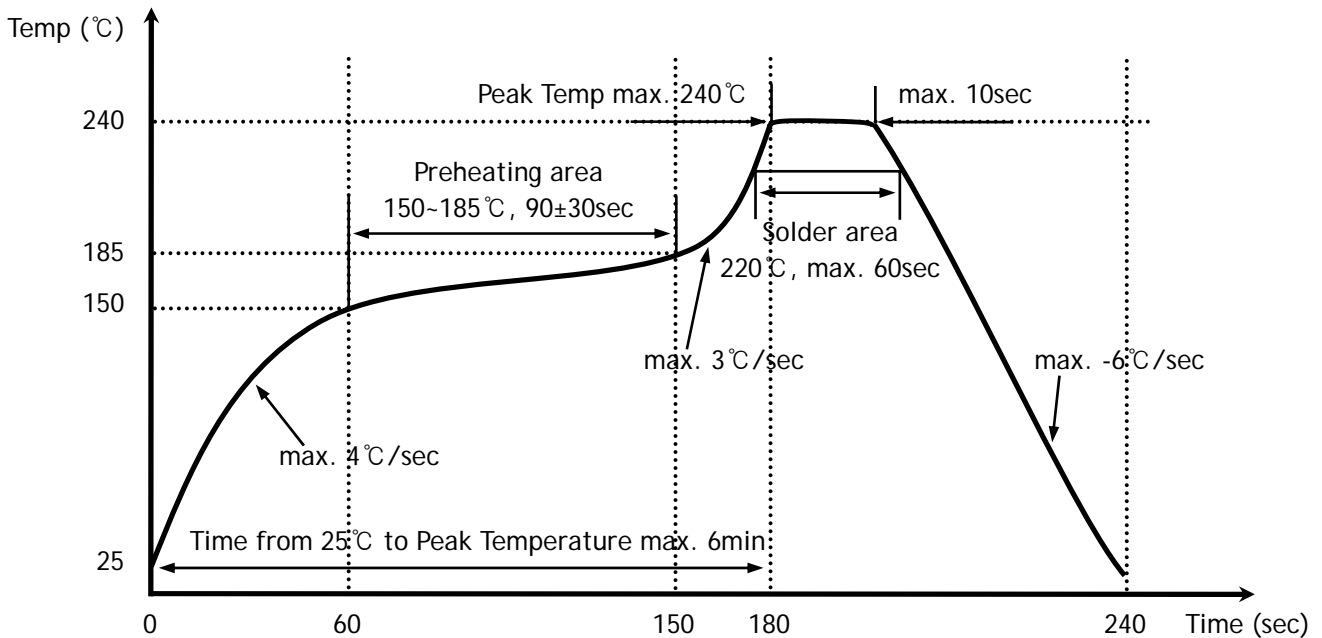
(Ta=25°C)

Characteristic	Symbol	Rating	Unit
Power dissipation	$P_D$	110	mW
Forward current	$I_F$	30	mA
*1 Peak forward current	$I_{FP}$	50	mA
Operating temperature range	$T_{opr}$	-40 ~ 100	°C
Storage temperature range	$T_{stg}$	-40 ~ 110	°C
*2 Soldering temperature	$T_{sol}$	240°C for 10 seconds	

\*1. Duty ratio = 1/16, Pulse width = 0.1ms

\*2. Recommended reflow soldering temperature profile

- Preheating 150°C to 185°C within 120 seconds soldering 240°C within 10 seconds
- Gradual cooling (Avoid quenching)



## Electrical / Optical Characteristics

(Ta=25°C)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Forward voltage	$V_F$	$I_F = 20\text{mA}$	2.95	-	3.6	V
*3 Luminous intensity	$I_V$	$I_F = 20\text{mA}$	170	-	420	mcd
*4 Chromaticity Coordinates	X	$I_F = 20\text{mA}$	0.14	-	0.16	-
	Y		0.045	-	0.115	-
*4 Half angle	$\theta_{1/2}$	$I_F = 20\text{mA}$	-	±60	-	deg

- \*3. Luminous intensity maximum tolerance for each grade classification limit is  $\pm 18\%$   
(The test result of  $I_F=20\text{mA}$  is only for reference)
  - \*4. The chromaticity coordinates are derived from the CIE 1931 Chromaticity Diagram and represent the perceived color of the device.
  - \*5.  $\theta_{1/2}$  is the off-axis angle where the luminous intensity is 1/2 the peak intensity
- $V_F / I_V$  Grade Classification ( $T_a=25^\circ\text{C}$ )

Test Condition @ $I_F=20\text{mA}$	
Forward Voltage [V]	Luminous Intensity [mcd]
1 : 2.95~3.2	M : 170~230
2 : 3.2~3.4	N : 230~310
3 : 3.4~3.6	O : 310~420

(Do not use to combine grade classification. It must be used separately grade classification)

Characteristic Diagrams

Fig. 1  $I_F - V_F$

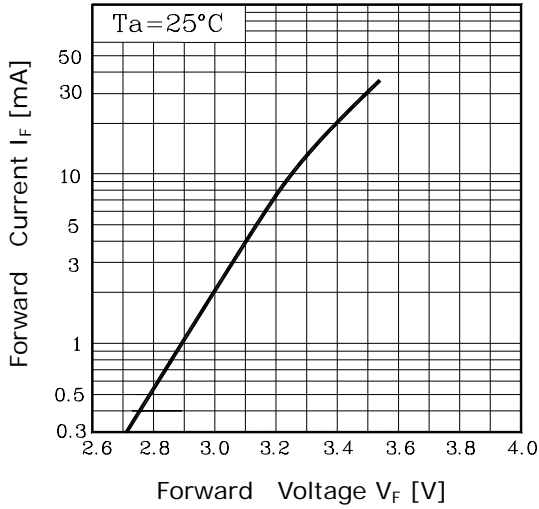


Fig. 2  $I_V - I_F$

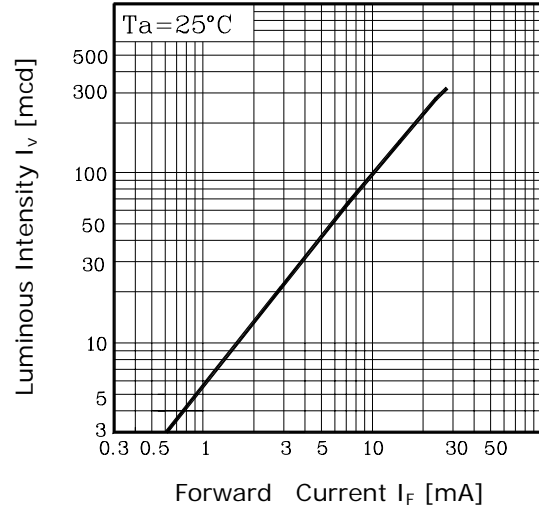


Fig. 3  $I_F - T_a$

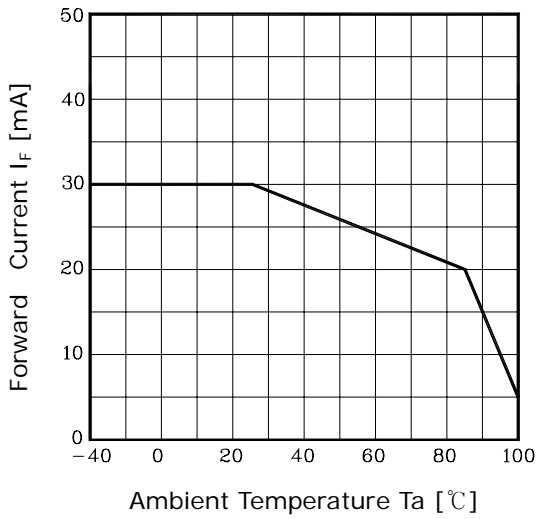


Fig. 4 Spectrum Distribution

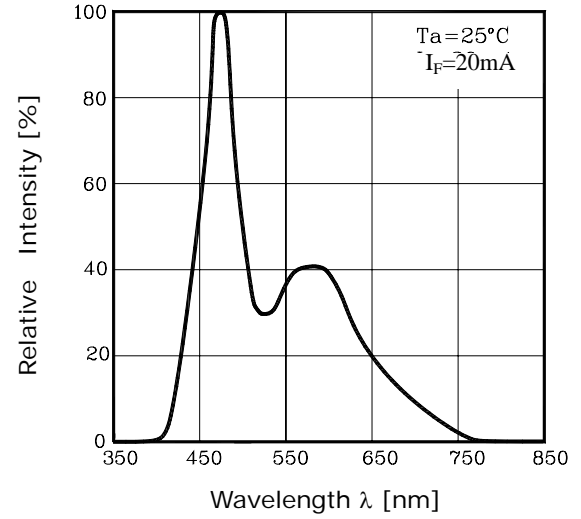
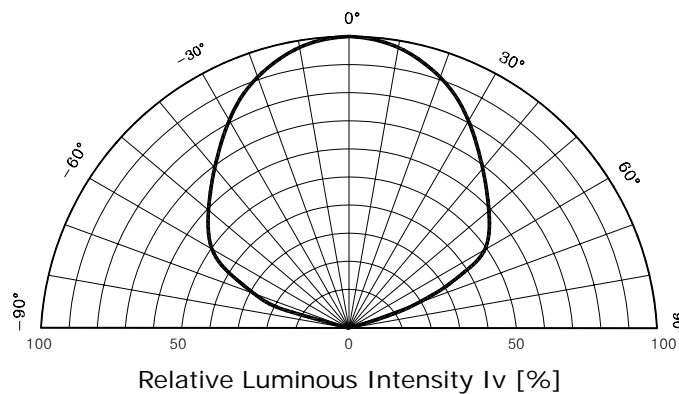
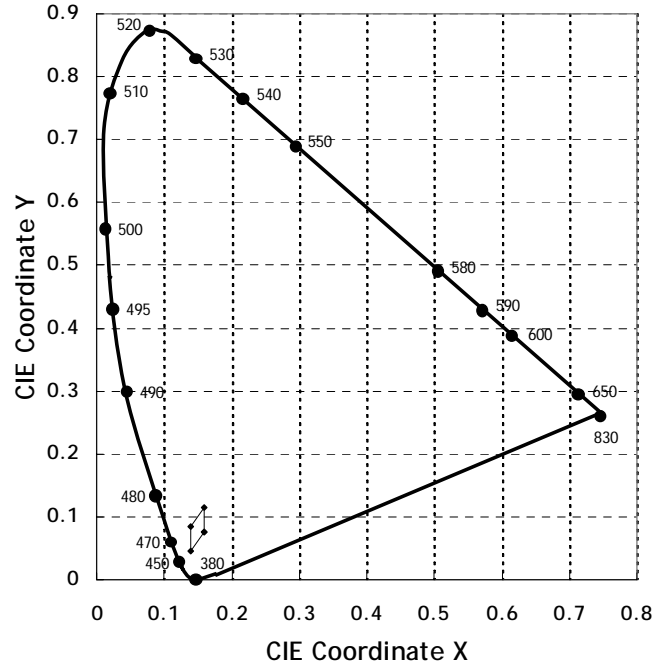
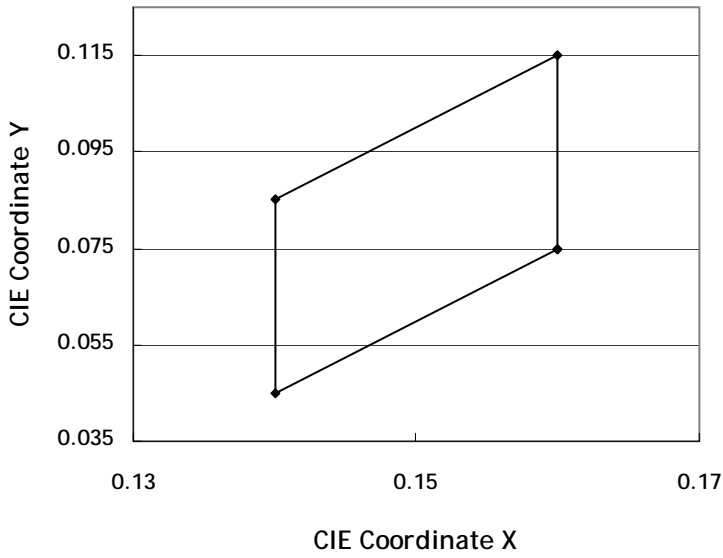


Fig. 5 Radiation Diagram



# ◆ CIE 1931 UCS Diagram



## ● CIE Coordinates Grade Classification ( $T_a=25^\circ\text{C}$ , $I_f=20\text{mA}$ )

CIE Coordinates	
X	Y
0.16	0.075
0.14	0.045
0.14	0.085
0.16	0.115

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