

**Features**

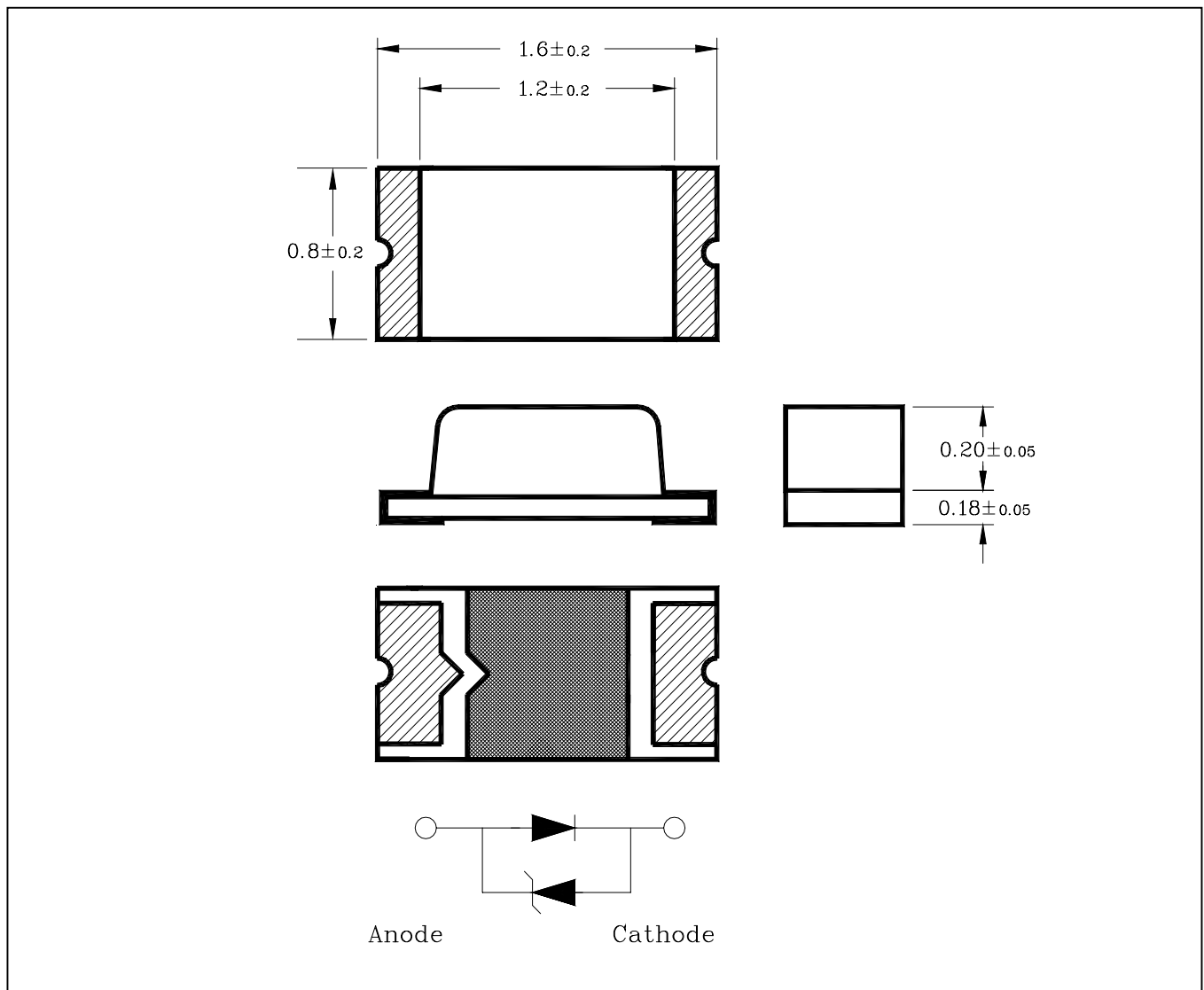
- 1.6mm(L)×0.8mm small size surface mount type
- Thin package of 0.4mm(H) thickness
- Transparent clear lens optic
- Low power consumption type chip LED
- **E ; ESD Protected ( ±2.0kv, 3 times @100pF, 1.5kΩ )**

**Applications**

- LCD backlighting
- Keypad backlighting
- Symbol backlighting
- Front panel indicator lamp

**Outline Dimensions**

unit : mm



## Absolute maximum ratings

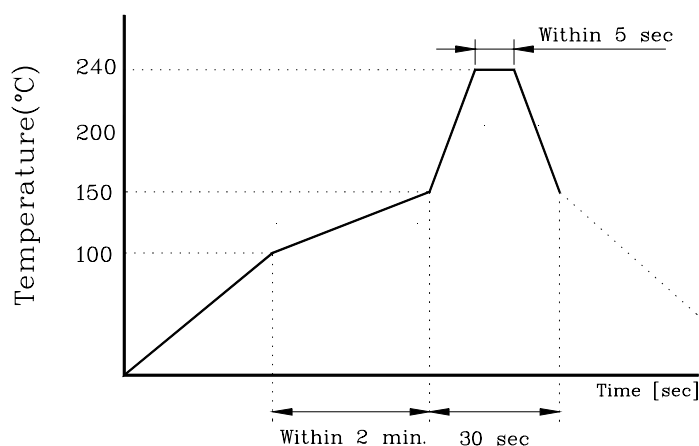
Characteristic	Symbol	Ratings	Unit
Power Dissipation	$P_D$	80	mW
Forward Current	$I_F$	20	mA
*1Peak Forward Current	$I_{FP}$	50	mA
Reverse Voltage	$V_R$	4	V
Operating Temperature	$T_{opr}$	-25~80	°C
Storage Temperature	$T_{stg}$	-30~100	°C
*2Soldering Temperature	$T_{sol}$	240°C for 5 seconds	

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

\*2. Recommended soldering Temperature Profile

2-1) Preheating 100°C to 150°C within 2 minutes Soldering 240°C within 5 seconds

Gradual cooling (Avoid quenching)



## Electrical Characteristics

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Forward Voltage	$V_F$	$I_F = 5\text{mA}$	-	3.1	3.4	V
*3Luminous Intensity	$I_V$	$I_F = 5\text{mA}$	15	40	65	mcd
*4Chromaticity Coordinates	X	$I_F = 5\text{mA}$	0.160	-	0.230	-
	Y		0.120	-	0.230	-
*5Half Angle	$\theta_{1/2}$	$I_F = 5\text{mA}$	-	$\pm 65$	-	deg
			-	$\pm 70$	-	

- \*3. Forward Voltage Maximum tolerance for  $\pm 0.1V$
- \*4. Luminous Intensity Maximum tolerance for each Grade Classification limit is  $\pm 18\%$   
(The test result of  $I_F=5mA$  is only for reference)
- \*5. CIE Coordinates bin limits will have  $\pm 0.02$  tolerance
- \*6.  $\theta_{1/2}$  is the off-axis angle where the luminous intensity is 1/2 the peak intensity

- **Iv / VF Grade Classification**

Test Condition @ $I_F=5mA$	
Luminous Intensity	Forward Voltage
A : 13~22	0 : 2.6~2.8
B : 22~38	1 : 2.8~3.0
C : 38~65	2 : 3.0~3.2
	3 : 3.2~3.4

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

Characteristic Diagrams

Fig. 1  $I_F - V_F$

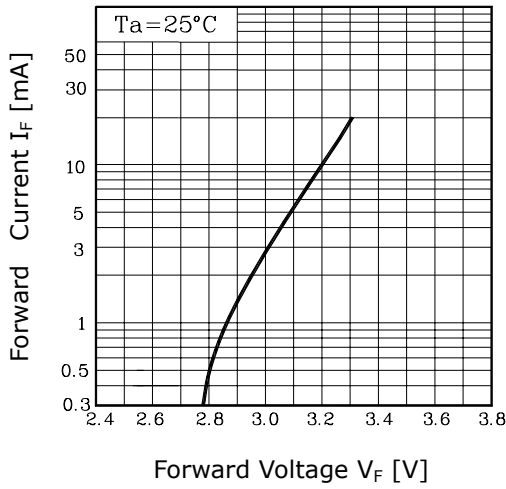


Fig. 2  $I_V - I_F$

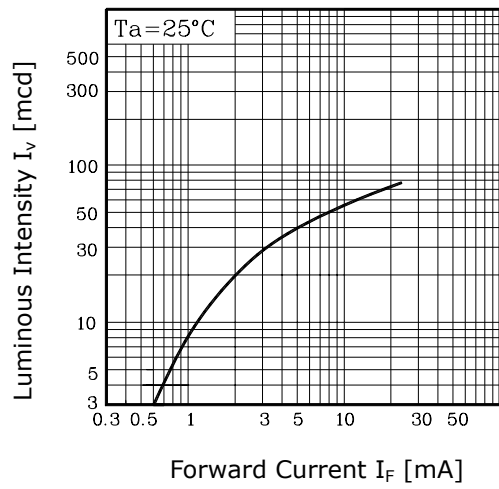


Fig. 3  $I_F - T_a$

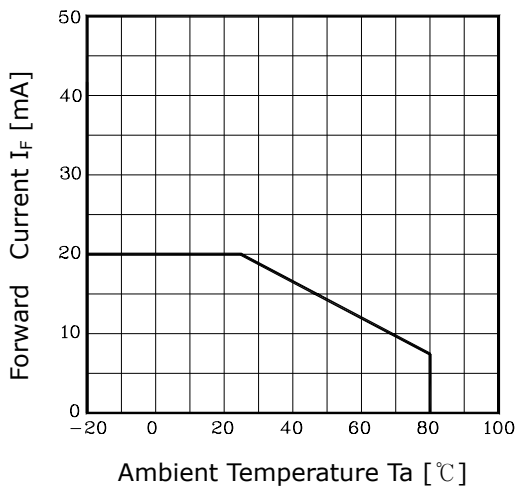


Fig. 4 Spectrum Distribution

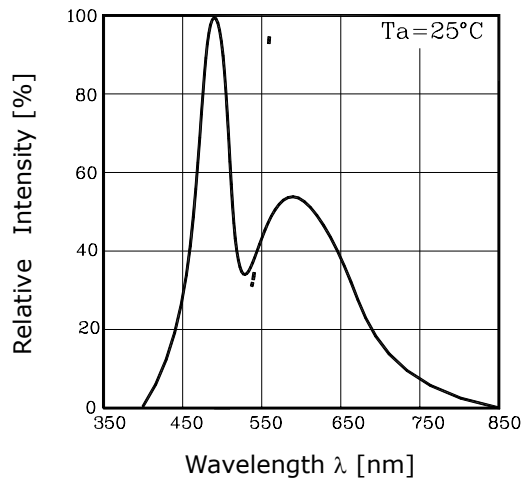


Fig. 5-1 Radiation Diagram(X)

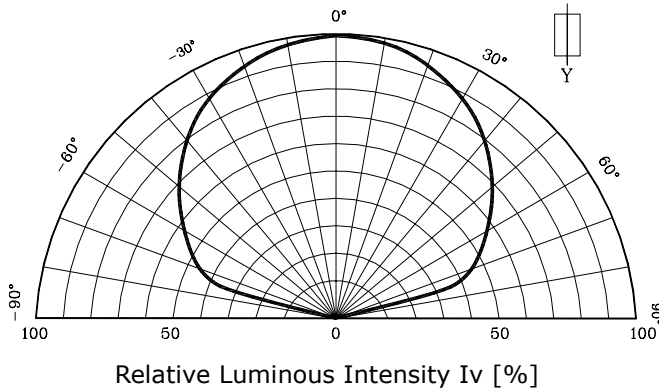
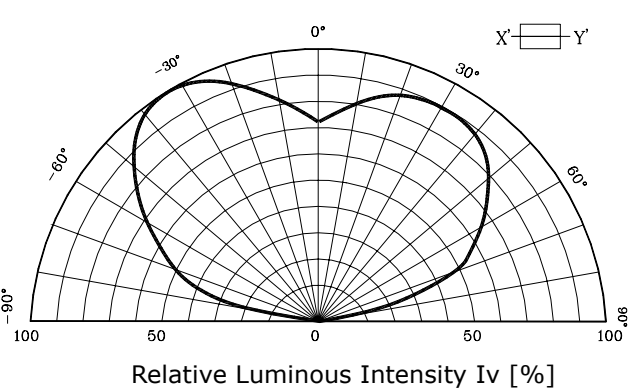
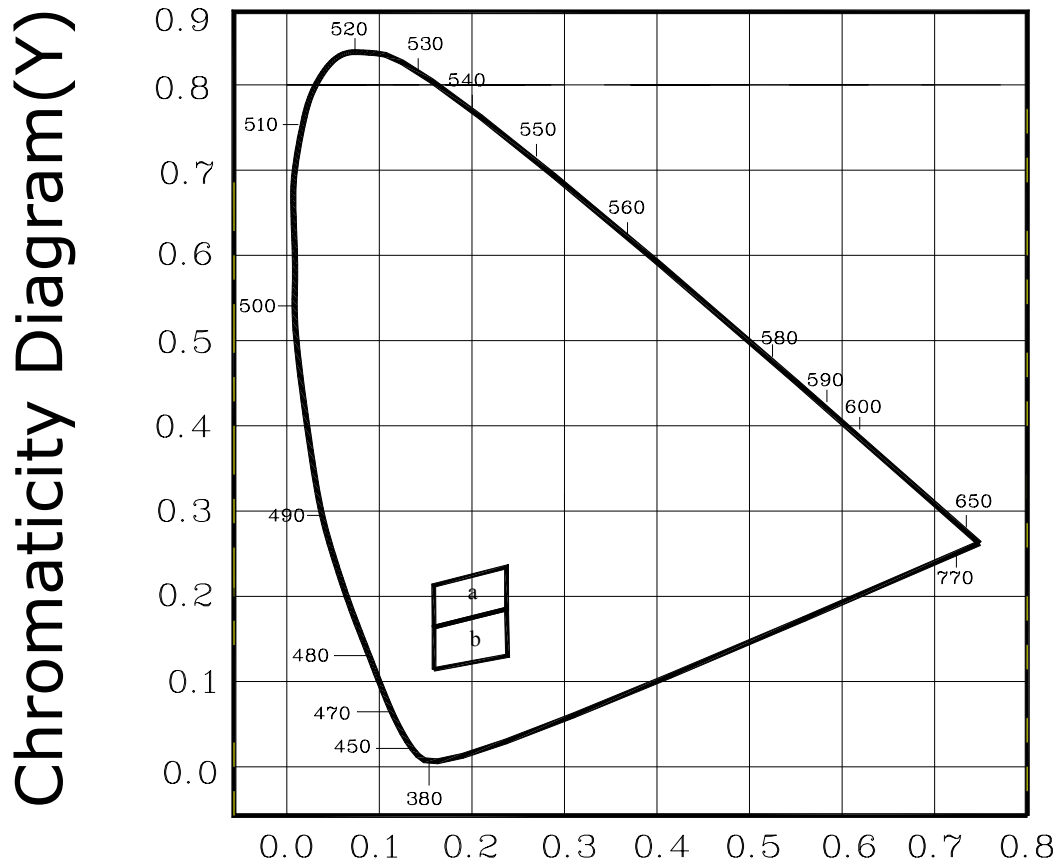


Fig. 5-2 Radiation Diagram(Y)



◆ CIE 1931 UCS Diagram



Chromaticity Diagram(Y)

● CIE Coordinates Grade Classification

Color Bin	CIE Coordinates		Color Bin	CIE Coordinates	
	X	Y		X	Y
a	0.160	0.210	b	0.160	0.165
	0.160	0.165		0.160	0.120
	0.230	0.185		0.230	0.140
	0.230	0.230		0.230	0.185

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