

Features

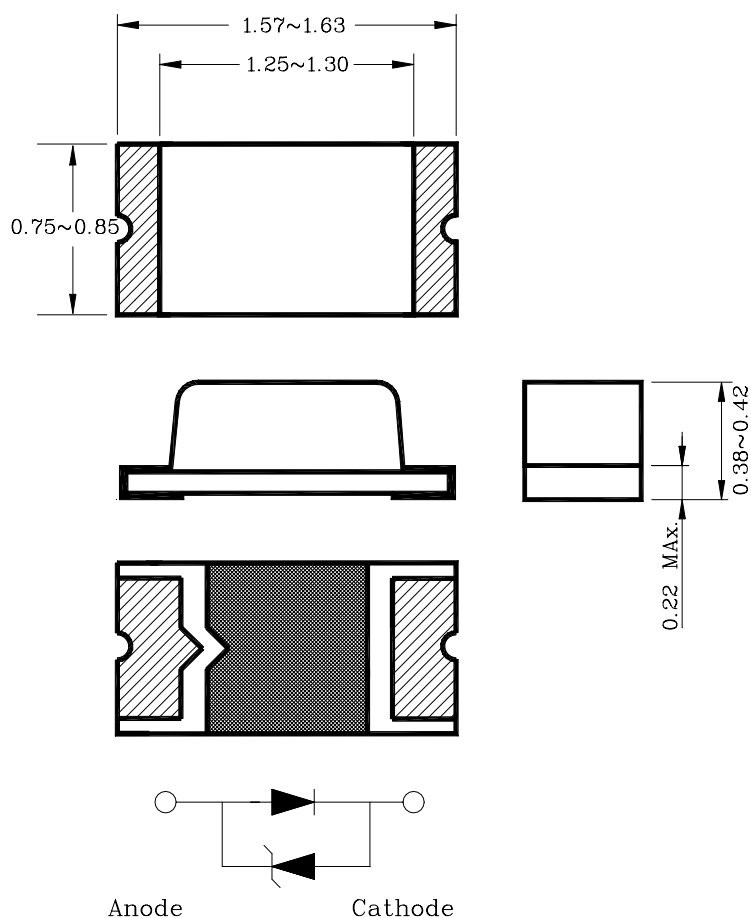
- 1.6mm(L)×0.8mm small size surface mount type
- Thin package of 0.4mm(H) thickness
- Transparent clear lens optic
- Low power consumption type chip LED
- **E ; ESD Protected ($\pm 2.0\text{kV}$, 3 times @100pF, 1.5k Ω)**

Applications

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

Outline Dimensions

unit : mm



Absolute Maximum Ratings

(Ta=25°C)

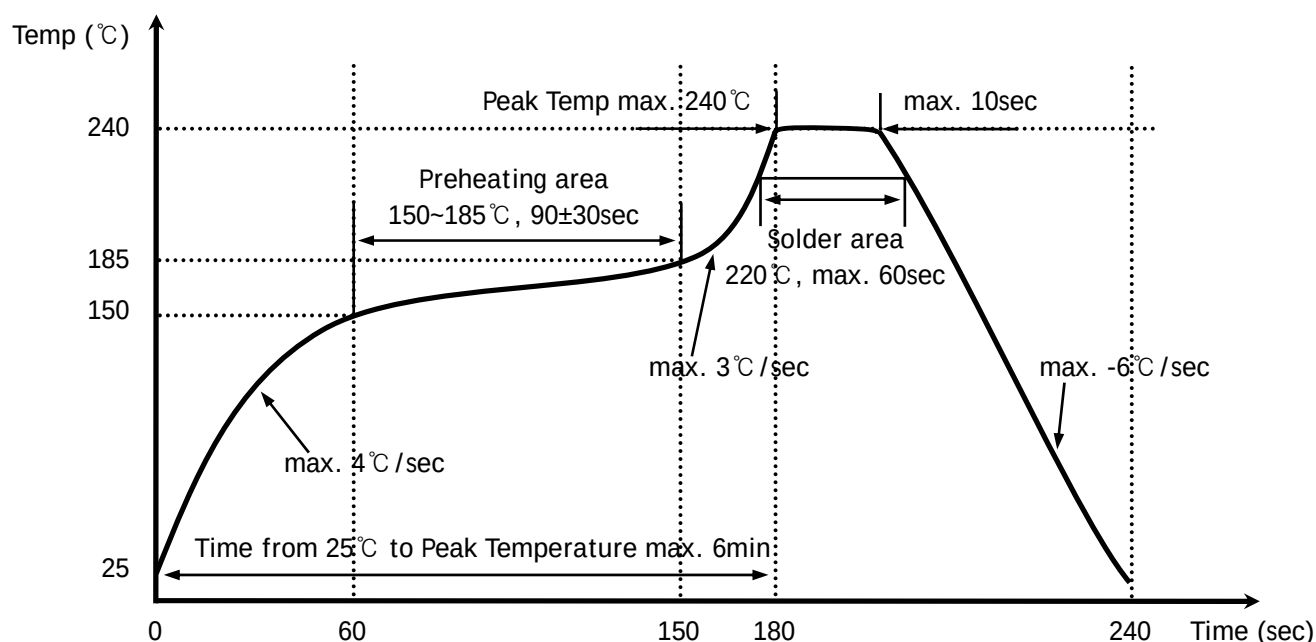
Characteristic	Symbol	Rating	Unit
Power dissipation	P_D	80	mW
Forward current	I_F	20	mA
* ¹ Peak forward current	I_{FP}	50	mA
Operating temperature range	T_{opr}	-25 ~ 80	°C
Storage temperature range	T_{stg}	-30 ~ 100	°C
* ² Soldering temperature	T_{sol}	240°C for 10 seconds	

*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	$I_F = 5\text{mA}$	2.6	-	3.4	V
* ³ Luminous intensity	I_V	$I_F = 5\text{mA}$	15	-	75	mcd
* ⁴ Chromaticity coordinates	X	$I_F = 5\text{mA}$	0.21	-	0.33	-
	Y		0.18	-	0.36	-
* ⁵ Half angle	$\theta_{1/2}$	$I_F = 5\text{mA}$	-	±65	-	deg
			-	±70	-	

*4. Luminous intensity maximum tolerance for each grade classification limit is $\pm 18\%$

(The test result of $I_F=5\text{mA}$ is only for reference)

*5. CIE Coordinates bin limits will have ± 0.02 tolerance

*6. $\theta_{1/2}$ 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 @ $I_F = 5\text{mA}$	
Forward Voltage [V]	Luminous Intensity [mcd]
1 : 2.6~2.8	A : 15~22
2 : 2.8~3.0	B : 22~33
3 : 3.0~3.2	C : 33~50
4 : 3.2~3.4	D : 50~75

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

Characteristic Diagrams

Fig. 1 $I_F - V_F$

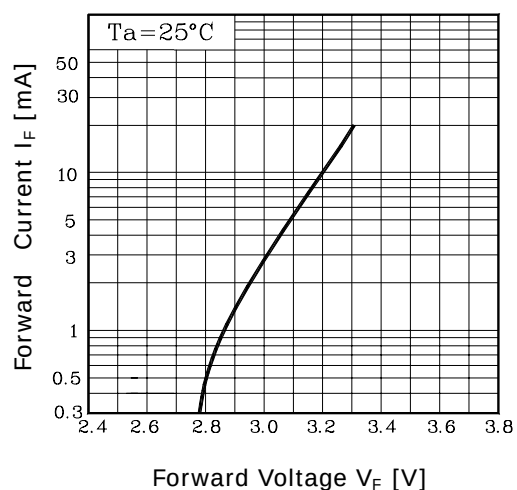


Fig. 2 $I_V - I_F$

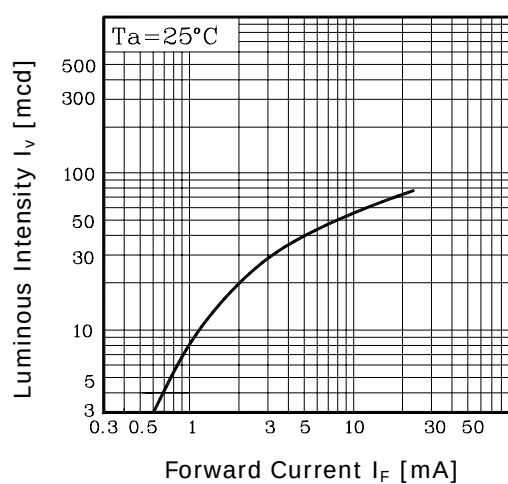


Fig. 3 $I_F - T_a$

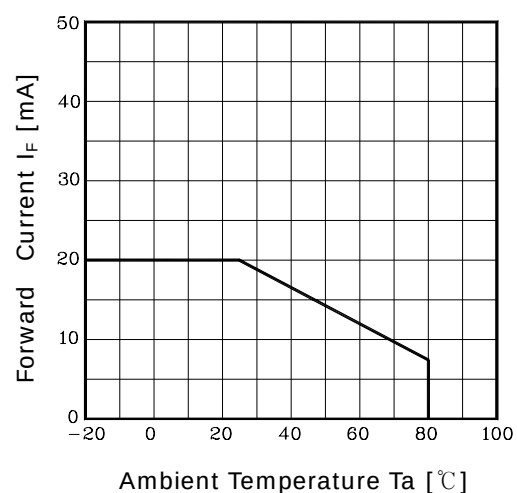


Fig.4 Spectrum Distribution

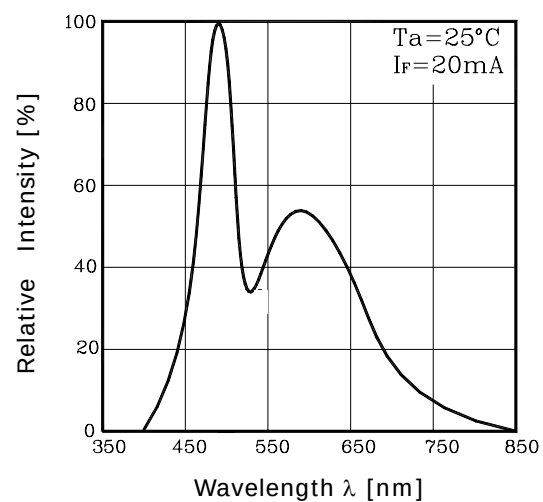


Fig. 5-1 Radiation Diagram(X)

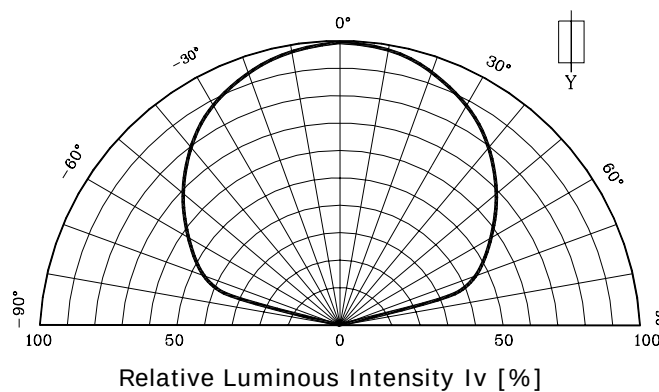
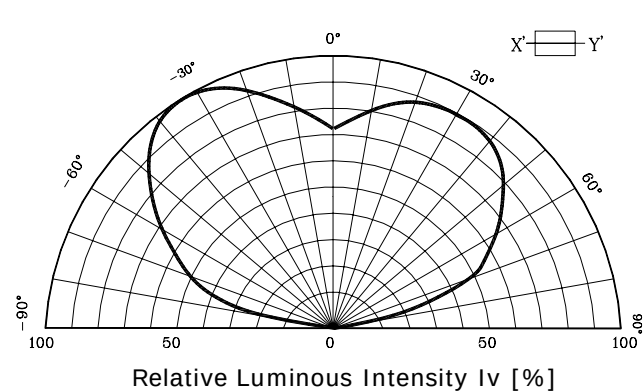
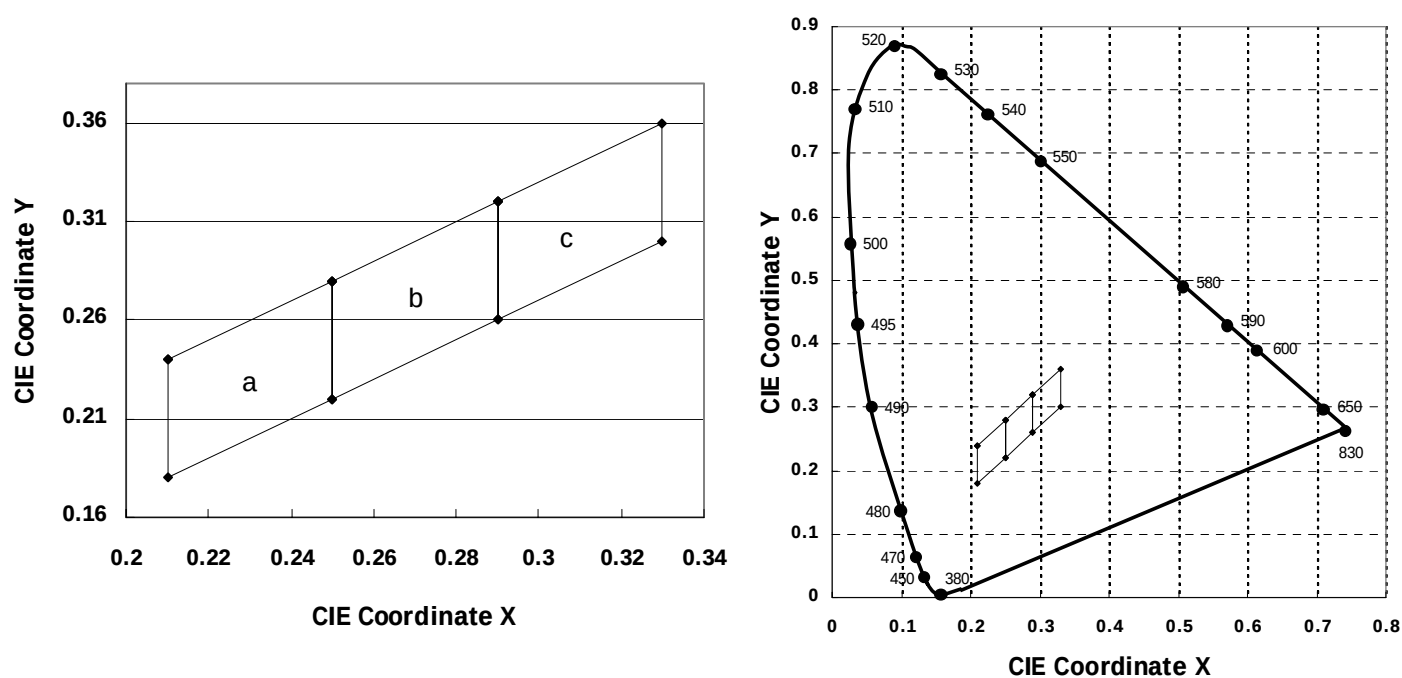


Fig. 5-2 Radiation Diagram(Y)



◆ CIE 1931 UCS Diagram



● CIE Coordinates Grade Classification ($T_a=25^{\circ}\text{C}$, $I_F=5\text{mA}$)

Color Bin	CIE Coordinates		Color Bin	CIE Coordinates		Color Bin	CIE Coordinates	
	X	Y		X	Y		X	Y
a	0.21	0.24	b	0.25	0.28	c	0.29	0.32
	0.21	0.18		0.25	0.22		0.29	0.26
	0.25	0.22		0.29	0.26		0.33	0.30
	0.25	0.28		0.29	0.32		0.33	0.36

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