

Features

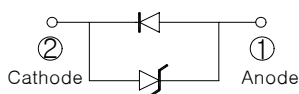
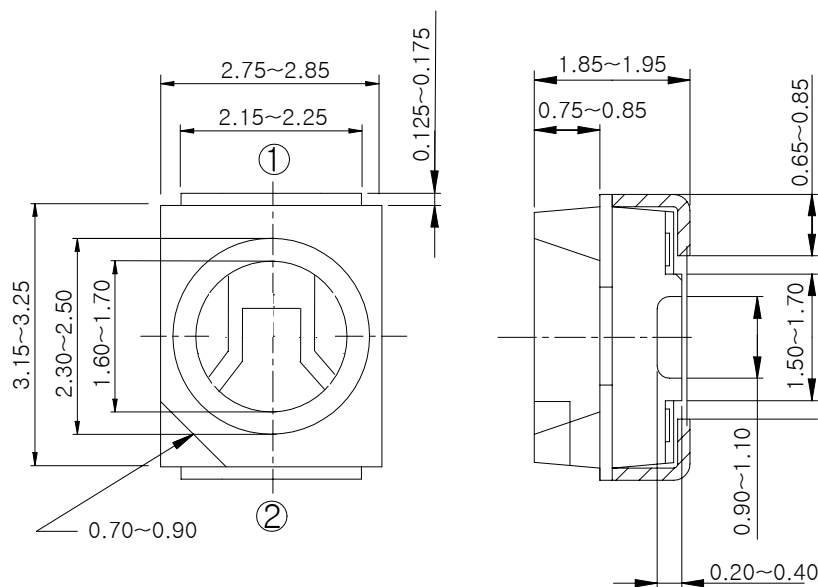
- Colorless transparency lens type
- Using a package with high heat dissipation properties, it can be driven with a large current
- Wide viewing angle
- External dimensions : 3.5(L)×2.8(W)×1.9mm(T) surface mount type
- **E ; ESD Protected ($\pm 2.0KV$, 3 Times @100pF, 1.5K Ω)**

Applications

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

Outline Dimensions

unit : mm



PIN Connections

1. Anode
2. Cathode

Absolute Maximum Ratings

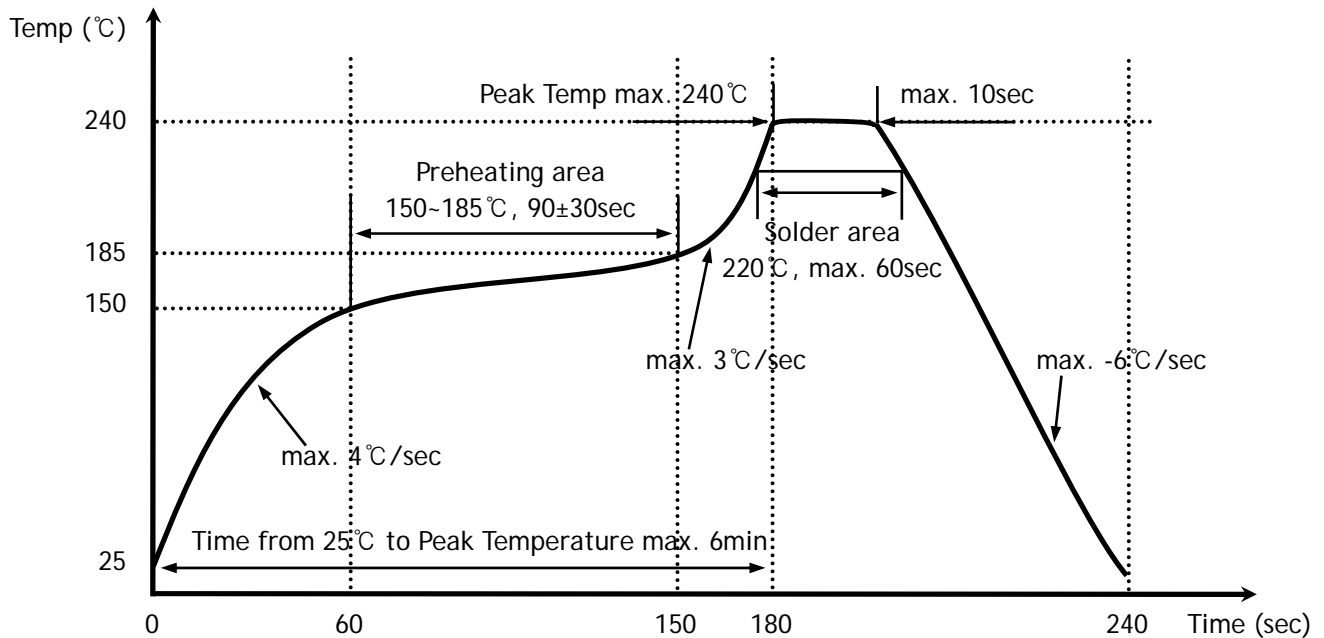
(Ta=25°C)

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	$I_F = 20\text{mA}$	520	-	1050	mcd
*4 Chromaticity Coordinates	X	$I_F = 20\text{mA}$	0.264	-	0.361	-
	Y		0.248	-	0.385	-
*5 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	P : 520~780
2 : 3.2~3.4	
3 : 3.4~3.6	Q : 780~1050

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

Characteristic Diagrams

Fig. 1 $I_F - V_F$

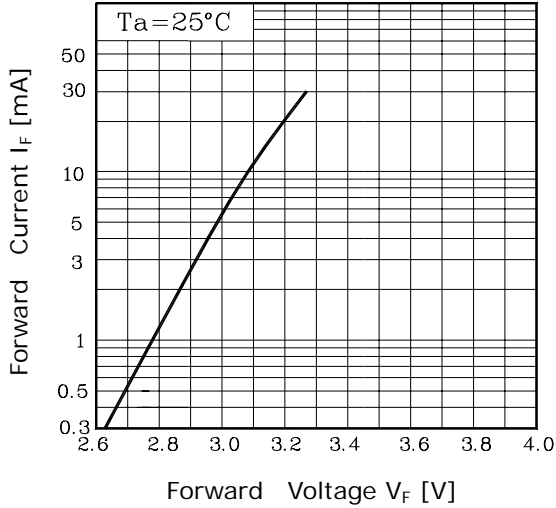


Fig. 2 $I_V - I_F$

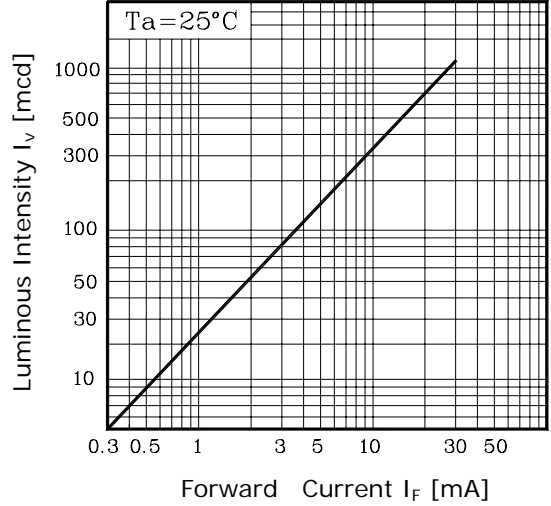


Fig. 3 $I_F - T_a$

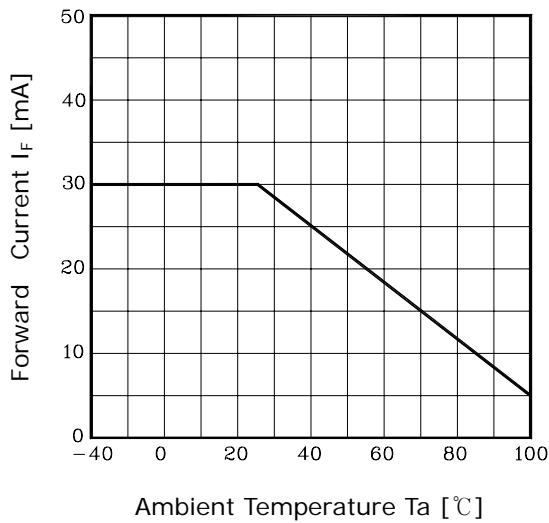


Fig. 4 Spectrum Distribution

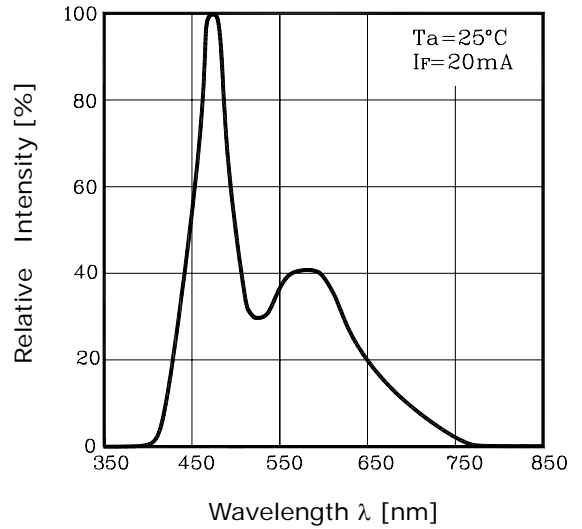
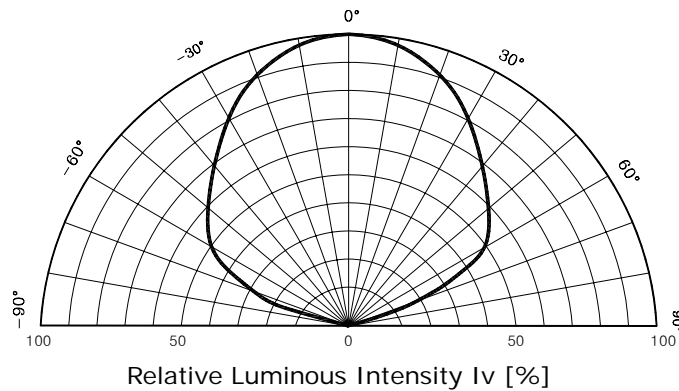
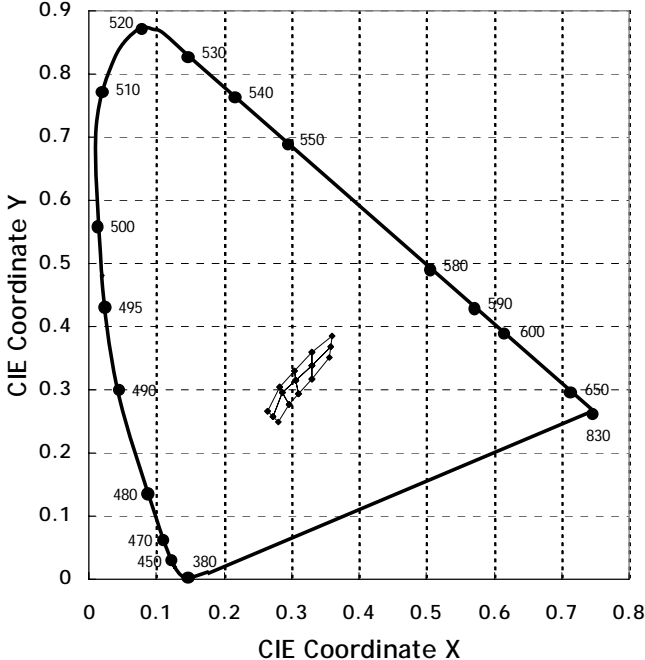
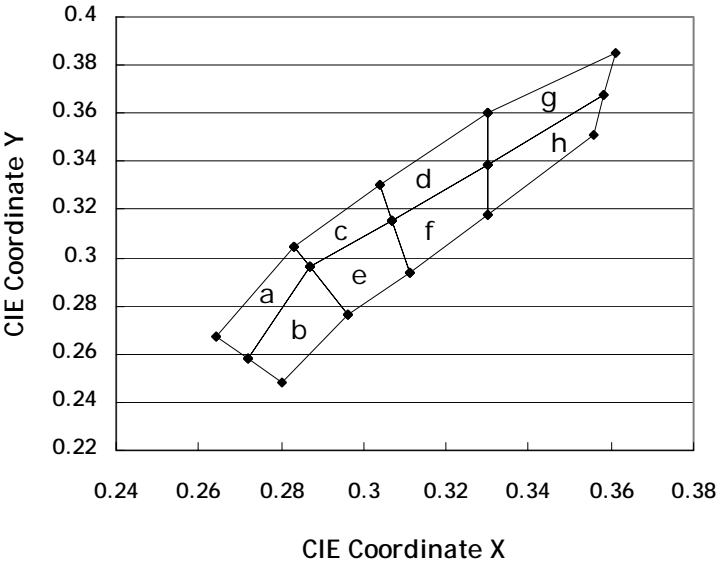


Fig. 5 Radiation Diagram



◆ CIE 1931 UCS Diagram



● CIE Coordinates Grade Classification (Ta=25°C, If=20mA)

Color Bin.	CIE Coordinates		Color Bin.	CIE Coordinates		Color Bin.	CIE Coordinates		Color Bin.	CIE Coordinates	
	X	Y		X	Y		X	Y		X	Y
a	0.264	0.267	b	0.272	0.258	c	0.283	0.305	d	0.307	0.315
	0.272	0.258		0.280	0.248		0.287	0.296		0.330	0.339
	0.287	0.296		0.296	0.276		0.307	0.315		0.330	0.360
	0.283	0.305		0.287	0.296		0.304	0.33		0.304	0.330
e	0.296	0.276	f	0.311	0.294	g	0.330	0.360	h	0.330	0.318
	0.311	0.294		0.330	0.318		0.330	0.339		0.330	0.339
	0.307	0.315		0.330	0.339		0.358	0.368		0.358	0.368
	0.287	0.296		0.307	0.315		0.361	0.385		0.356	0.351

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