

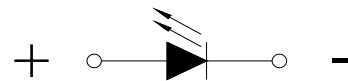
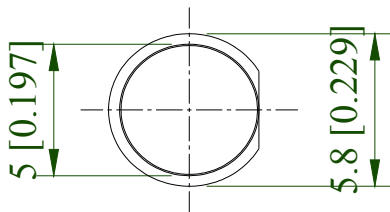
## Features:

- Low power consumption.
- General purpose leads.
- High efficiency.
- Versatile mounting on p.c. board or panel.
- I.C. compatible/low current requirement.

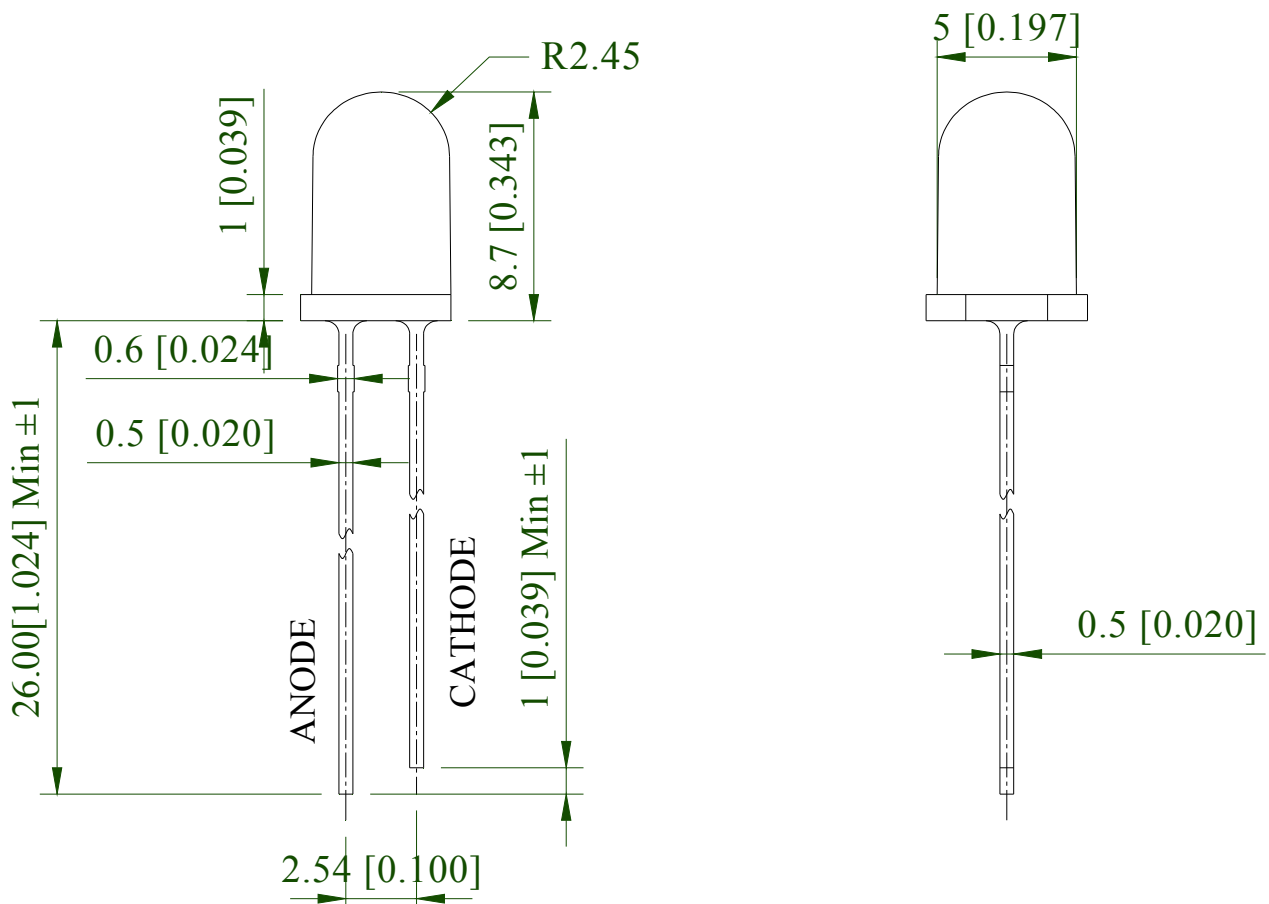
## Applications:

- Message panels.
- Optical Indicators.
- Backlighting.
- Marker Lights.
- Home appliance.

Part No.	Emitting Color	Lens Color(LED)
RND 135-00123	Warm White	Water Clear



**Polarity**



### Absolute Maximum Ratings at Ta=25°C

Parameters	Symbol	Max.	Unit
Power Dissipation	$P_d$	85	mW
Peak Forward Current <sup>(a)</sup>	$I_{FP}$	100	mA
DC Forward Current <sup>(b)</sup>	$I_F$	25	mA
Reverse Voltage <sup>(c)</sup>	$V_R$	5	V
Operating Temperature Range	$T_{opr}$	-40°C to +80°C	
Storage Temperature Range	$T_{stg}$	-40°C to +85°C	
Soldering Temperature	$T_{sld}$	260°C for 5 Seconds	

Notes:

- Derate linearly as shown in derating curve.
- Duty Factor = 10%, Frequency = 1 kHz.
- Reverse voltage ( $V_R$ ) condition is applied for IR test only. The device is not designed for reverse operation.

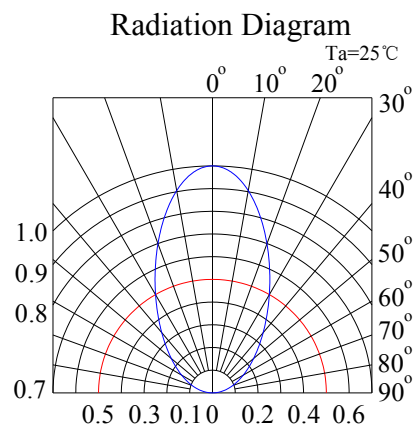
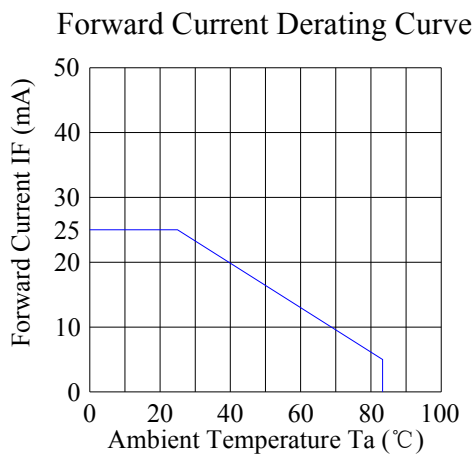
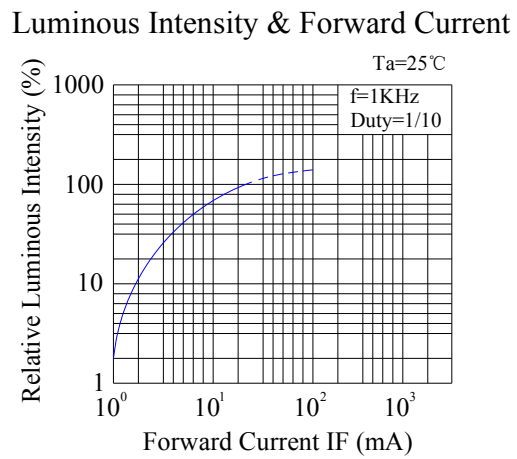
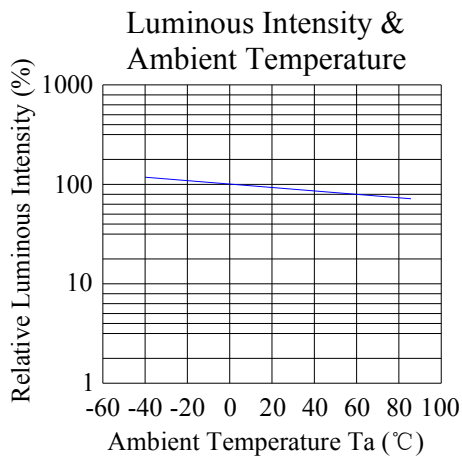
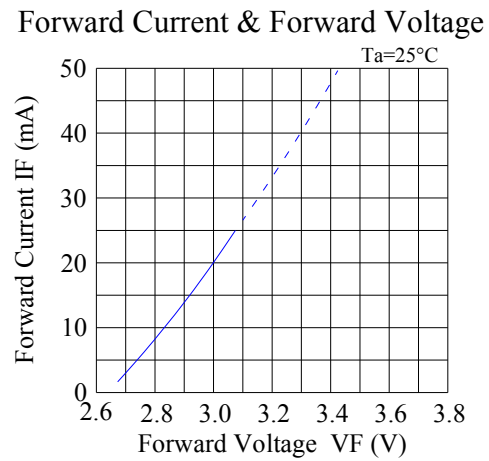
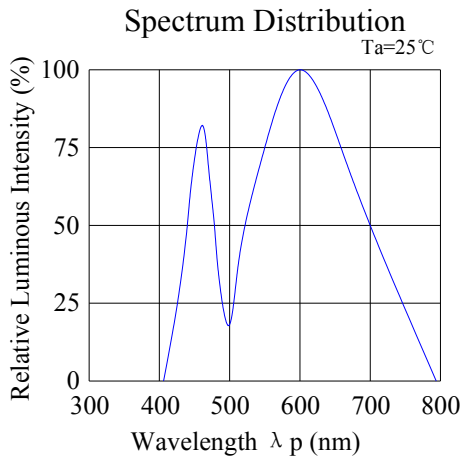
### Electrical Optical Characteristics at Ta=25°C

Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity <sup>(a)</sup>	$I_v$	2900	5000	---	mcd	IF=20mA
Viewing Angle <sup>(b)</sup>	$2\theta_{1/2}$	---	60	---	deg.	IF=20mA
Chromaticity Coordinates <sup>(c)</sup>	x	---	0.43	---		IF=20mA
	y	---	0.40	---		IF=20mA
Color Temperature	CCT	---	3000	---	K	IF=20mA
Color Rendering Index	CRI	---	80	---	Ra	IF=20mA
Forward Voltage	VF	2.60	3.00	3.40	V	IF=20mA
Reverse Current <sup>(d)</sup>	IR	---	---	10	μA	VR=5V

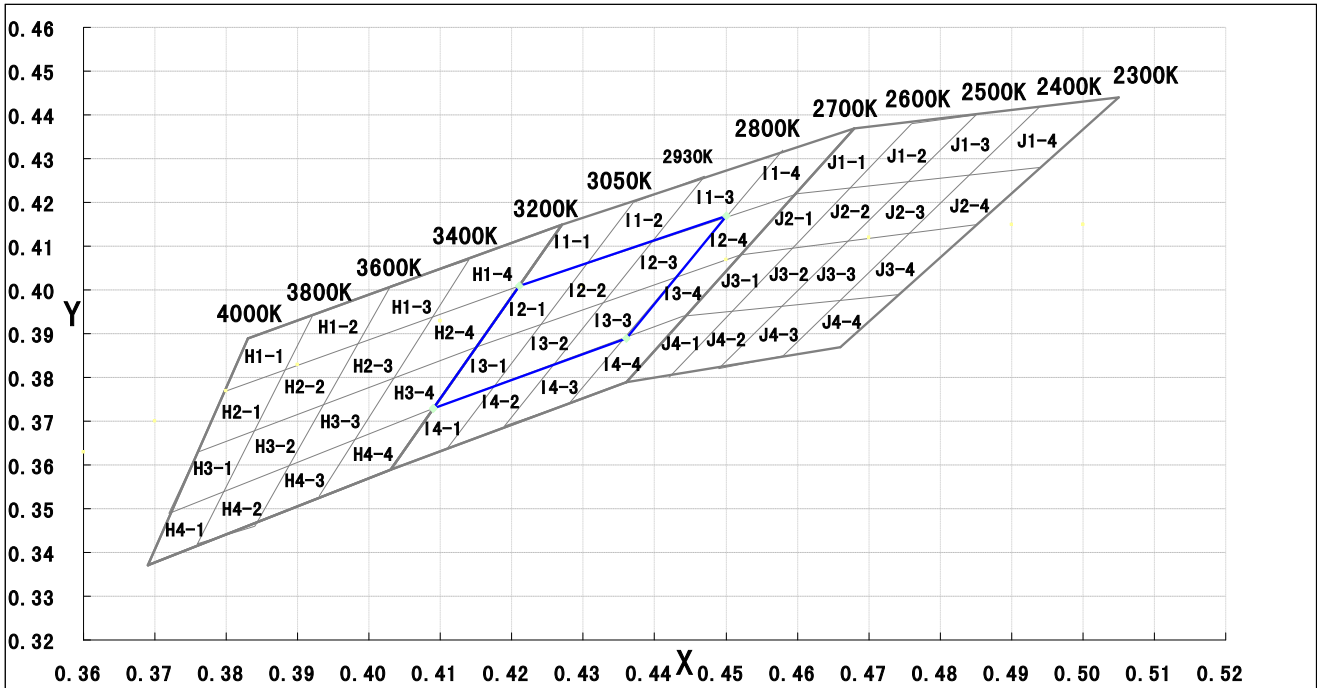
Notes:

- Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve. The  $I_v$  guarantee must be included with  $\pm 15\%$  testing tolerance.
- $2\theta_{1/2}$  is the o -axis angle where the luminous intensity is 1/2 the peak intensity.
- The chromaticity coordinates (x, y) is derived from the 1931 CIE chromaticity diagram.
- Reverse current (IR) condition is applied for VR test only. The device is not designed for reverse operation.

## Typical Electrical / Optical Characteristics Curves (25°C Ambient Temperature Unless Otherwise Noted)



## CIE Chromaticity Diagram:



## Chromaticity Coordinates Specifications for Bin Rank:

Bin Code	Left x	Left y	Top x	Top y	Right x	Right y	Bottom x	Bottom y
I2-1	0.415	0.387	0.424	0.392	0.431	0.406	0.421	0.401
I3-1	0.409	0.373	0.418	0.378	0.424	0.392	0.415	0.387
I2-2	0.424	0.392	0.433	0.397	0.44	0.411	0.431	0.406
I3-2	0.418	0.378	0.426	0.383	0.433	0.397	0.424	0.392
I2-3	0.433	0.397	0.443	0.403	0.45	0.417	0.44	0.411
I3-3	0.426	0.383	0.436	0.389	0.443	0.403	0.433	0.397

Note: Color Coordinates Measurement allowance is  $\pm 0.01$ .

## Bin Table Specification:

### Luminous Intensity $I_v$ (mcd) $IF@20mA$

Bin Code	Min	Max.
22	2900	3800
23	3800	5000
24	5000	6500
25	6500	8500

Note: Tolerance of each bin limit is  $\pm 15\%$ .

### Forward Voltage $V_F$ (V) $IF@20mA$

Bin Code	Min	Max.
B	2.6	2.8
C	2.8	3.0
D	3.0	3.2
E	3.2	3.4

Note: Forward Voltage Measurement allowance is  $\pm 0.2V$ .

### Chromaticity Coordinates, CC (x, y), $IF@20mA$

Bin Code	Chromaticity Coordinates, $IF@20mA$				
I2-1	x	0.415	0.424	0.431	0.421
	y	0.387	0.392	0.406	0.401
I3-1	x	0.409	0.418	0.424	0.415
	y	0.373	0.378	0.392	0.387
I2-2	x	0.424	0.433	0.44	0.431
	y	0.392	0.397	0.411	0.406
I3-2	x	0.418	0.426	0.433	0.424
	y	0.378	0.383	0.397	0.392
I2-3	x	0.433	0.443	0.45	0.44
	y	0.397	0.403	0.417	0.411
I3-3	x	0.426	0.436	0.443	0.433
	y	0.383	0.389	0.403	0.397

Note: Color Coordinates Measurement allowance is  $\pm 0.01$ .