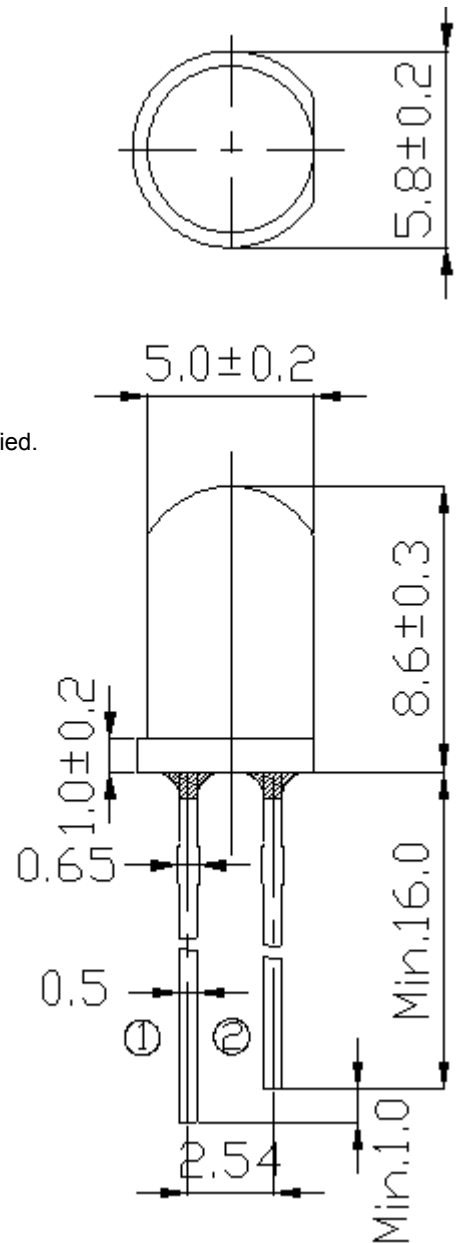


Note:

1. All dimensions are in millimeters, and tolerance is 0.25mm except being specified.
2. Lead spacing is measured where the lead emerges from the package.
3. Protruded resin under flange is 1.5mm Max. LED.



Features

- Popular T-1 3/4 round package
- High luminous power
- Typical chromaticity coordinates $x=0.26$, $y=0.27$ according to CIE1931
- Bulk, available taped on reel.
- ESD-withstand voltage: up to 4KV
- The product itself will remain within RoHS compliant version

Description

- The series is designed for application required high luminous intensity.
- The phosphor filled in the reflector converts the blue emission of InGaN chip to ideal white.

Applications

- Message panels
- Optical Indicators
- Backlighting
- Marker Lights



Device Selection Guide

Chip Materials	Emitted Color	Resin Color
InGaN	White	Water Clear

Absolute Maximum Ratings (Ta=25 °C)

Parameter	Symbol	Rating	Unit
Continuous Forward Current	I_F	30	mA
Peak Forward Current (Duty 1/10 @ 1KHZ)	I_{FP}	100	mA
Reverse Voltage	V_R	5	V
Power Dissipation	P_d	110	mW
Operating Temperature	T_{opr}	-40 ~ +85	
Storage Temperature	T_{stg}	-40 ~ +100	
ESD	ESD_{HBM}	4K	V
Zener Reverse Current	I_z	100	mA
Soldering Temperature	T_{sol}	260 for 5 sec.	

Electro-Optical Characteristics (Ta=25 °C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage	V_F	2.8	-----	3.6	V	$I_F=20mA$
Zener Reverse Voltage	V_Z	5.2	-----	-----	V	$I_z=5mA$
Reverse Current	I_R	-----	-----	50	μA	$V_R=5V$
Luminous Intensity	I_v	2850	--	7150	mcd	$I_F=20mA$
Viewing Angle	2 θ 1/2	----	50	----	deg	$I_F=20mA$
Chromaticity Coordinates	x	----	0.26	----	----	$I_F=20mA$
	y	----	0.27	----	----	



Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
P	2850	3600	mcd	$I_F = 20\text{mA}$
Q	3600	4500		
R	4500	5650		
S	5650	7150		

Note:
Tolerance of Luminous Intensity: $\pm 10\%$

Forward Voltage Combination

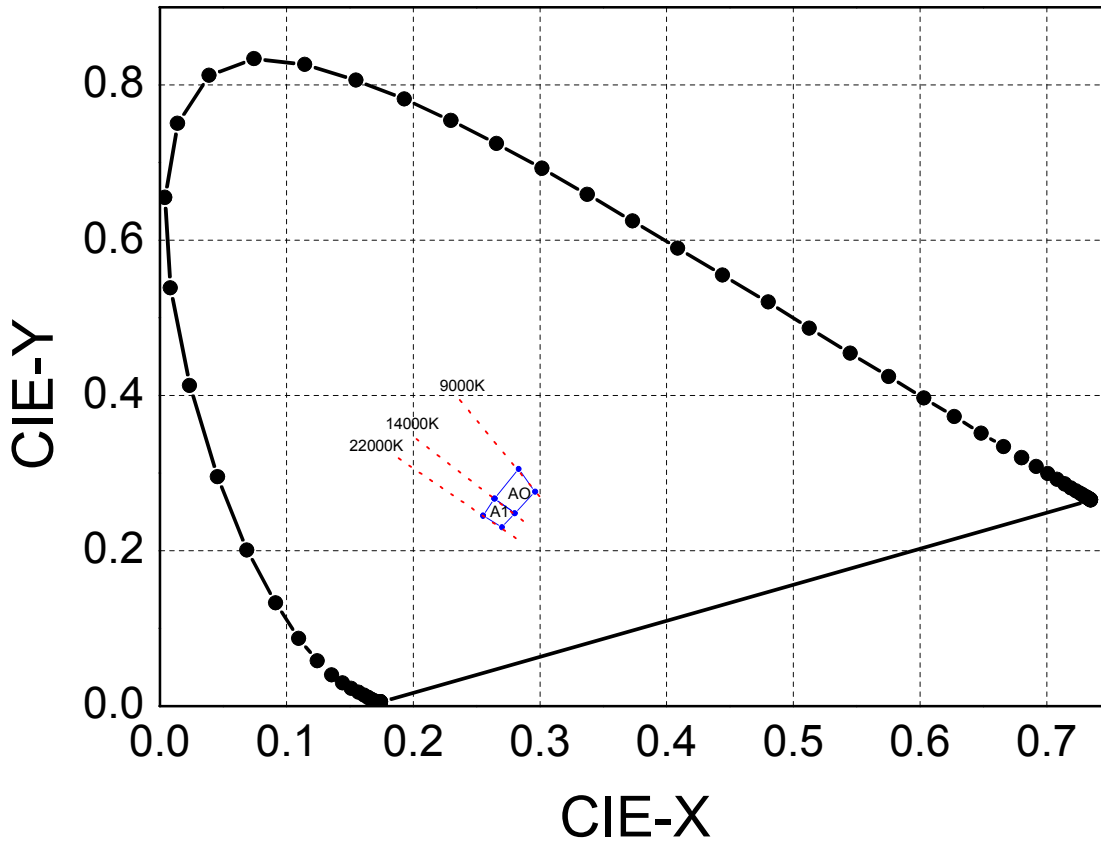
Bin Code	Min.	Max.	Unit	Condition
0	2.8	3.0	V	$I_F = 20\text{mA}$
1	3.0	3.2		
2	3.2	3.4		
3	3.4	3.6		

Note:
Measurement Uncertainty of Forward Voltage : $\pm 0.1\text{V}$

Color Combination (at 20mA)

Group	Bins
2	A1+A0

CIE Chromaticity Diagram



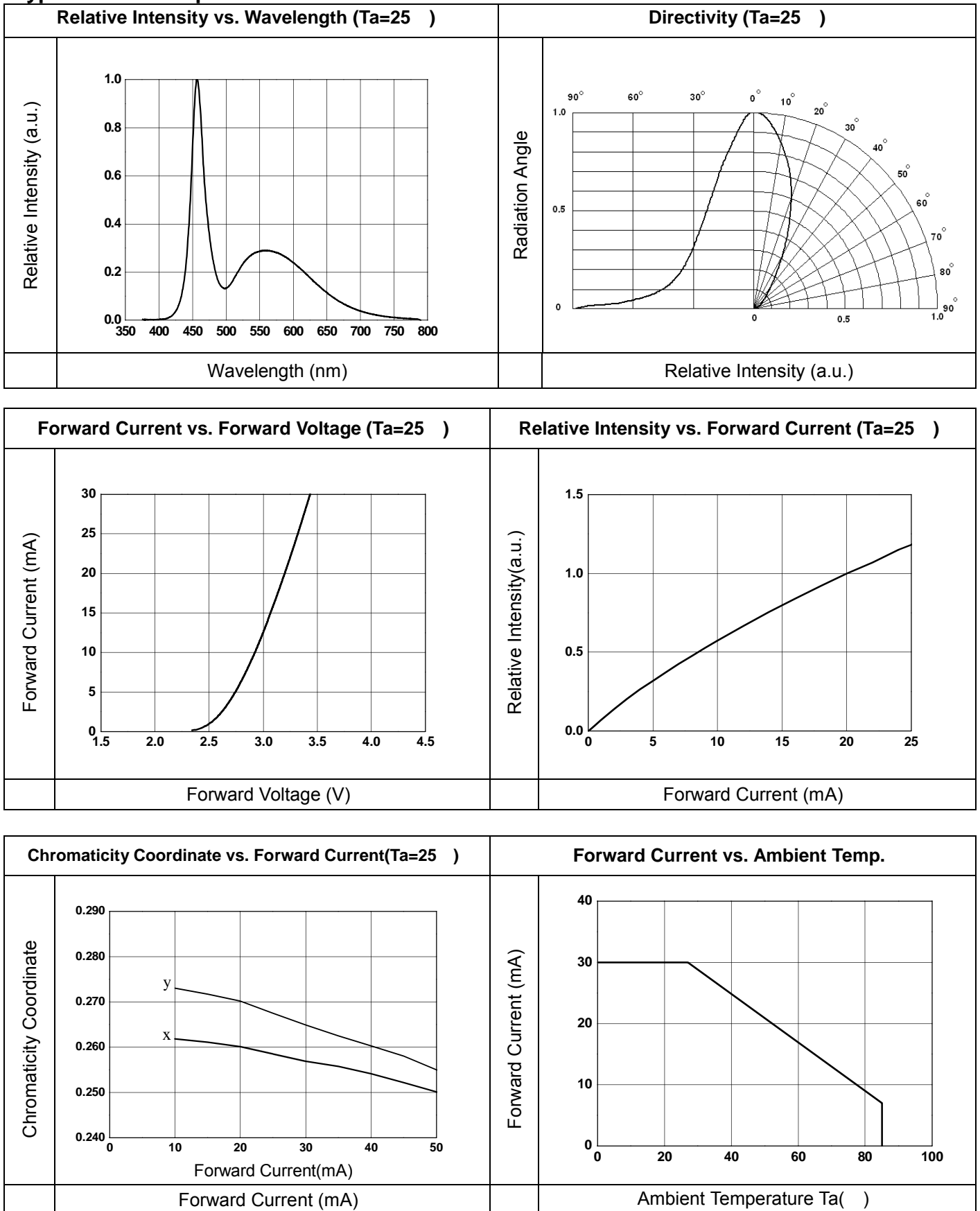
Color Ranks ($I_F=20\text{mA}$, $T_a=25$)

Color Ranks		CIE			
A1	X	0.255	0.264	0.280	0.270
	Y	0.245	0.267	0.248	0.230
A0	X	0.264	0.283	0.296	0.280
	Y	0.267	0.305	0.267	0.248

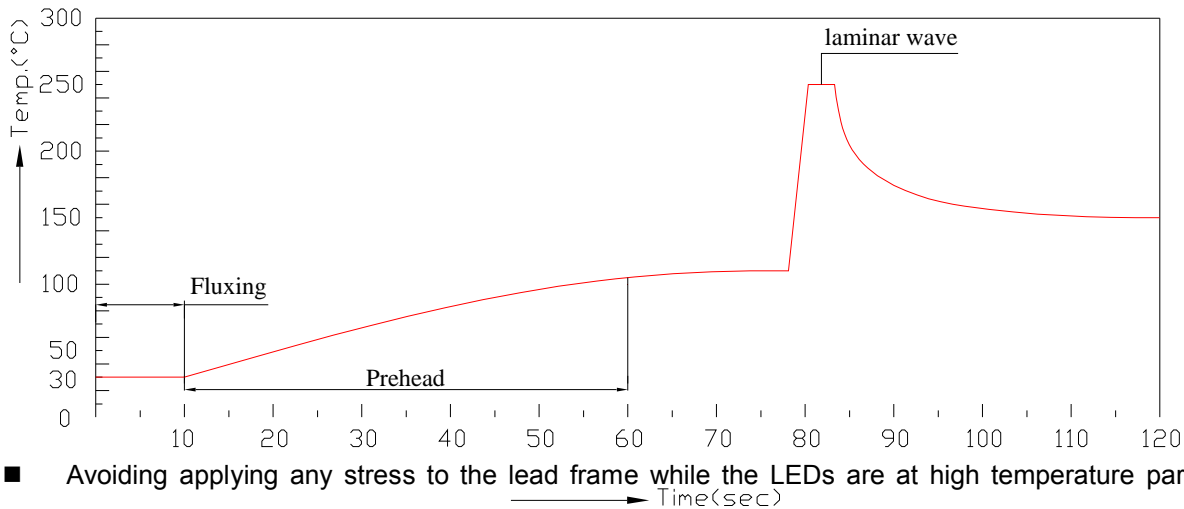
Note:
Measurement uncertainty of the color coordinates : ± 0.01



Typical Electro-Optical Characteristics Curves



Recommended soldering profile



- Avoiding applying any stress to the lead frame while the LEDs are at high temperature particularly when soldering.
- Dip and hand soldering should not be done more than one time
- After soldering the LEDs, the epoxy bulb should be protected from mechanical shock or vibration until the LEDs return to room temperature.
- A rapid-rate process is not recommended for cooling the LEDs down from the peak temperature.
- Although the recommended soldering conditions are specified in the above table, dip or handsoldering at the lowest possible temperature is desirable for the LEDs.
- Wave soldering parameter must be set and maintain according to recommended temperature and dwell time in the solder wave.

4. Cleaning

- When necessary, cleaning should occur only with isopropyl alcohol at room temperature for a duration of no more than one minute. Dry at room temperature before use.
- Do not clean the LEDs by the ultrasonic. When it is absolutely necessary, the influence of ultrasonic cleaning on the LEDs depends on factors such as ultrasonic power and the assembled condition. Ultrasonic cleaning shall be pre-qualified to ensure this will not cause damage to the LED

5. Circuit Protection

- Below the zener reference voltage V_z , all the current flows through LED and as the voltage rises to V_z , the zener diode "breakdown." If the voltage tries to rise above V_z current flows through the zener branch to keep the voltage at exactly V_z .
- When the LED is connected using serial circuit, if either piece of LED is no light up but current can't flow through causing others to light down. In new design, the LED is parallel with zener diode. if either piece of LED is no light up but current can flow through causing others to light up.