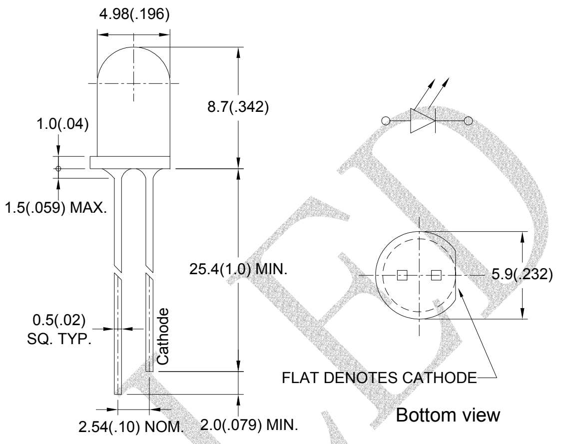
● Features:

1. Chip material: AlInGaN
2. Emitted color : White
3. Lens Appearance : Water Clear
4. Low power consumption.
5. High efficiency.
6. Versatile mounting on P.C. Board or panel.
7. Low current requirement.
8. 5mm diameter package.
9. This product don’t contained restriction substance, compliance RoHS standard.

● Applications:

1. TV set
2. Monitor
3. Telephone
4. Computer
5. Circuit board

● Package Dimensions:



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25mm (0.01”) unless otherwise specified.
3. Lead spacing is measured where the leads emerge from the package.
4. Specifications are subject to change without notice.

● Absolute maximum ratings(Ta=25℃)

Parameter	Symbol	Rating	Unit
Power Dissipation	Pd	120	mW
Forward Current	I_F	30	mA
Peak Forward Current*[1]	I_{FP}	150	mA
Reverse Voltage	V_R	5	V
Operating Temperature	Topr	-40℃~85℃	
Storage Temperature	Tstg	-40℃~100℃	
Soldering Temperature	Tsol	260℃max (for 5 seconds)	
Hand Soldering Temperature	Tsol	350℃max(for 3 seconds)	

*[1] Condition for I_{FP} is pulse of 1/10 duty and 0.1msec width.

● Electrical and optical characteristics(Ta=25℃)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	I_F=20mA	-	2.9	3.6	V
Luminous Intensity	Iv	I_F=20mA	-	6800	-	mcd
Reverse Current	I_R	V_R=5V	-	-	100	μA
Chromatically Coordinates(note 4)	X	I_F=20mA	-	0.32	-	-
	Y	I_F=20mA	-	0.31	-	-
Viewing Angle	$2\theta_{1/2}$	I_F=20mA	-	30	-	deg

● Typical electro-optical characteristics curves

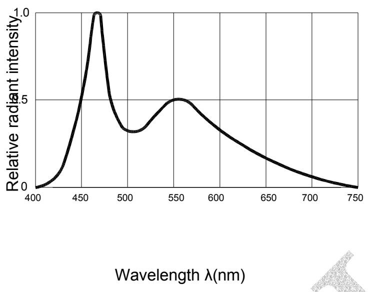


Fig.1 Relative intensity vs. Wavelength

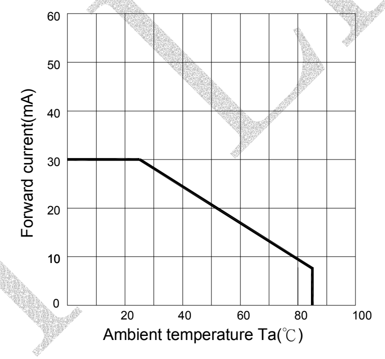


Fig.2 Forward current derating curve vs. Ambient temperature

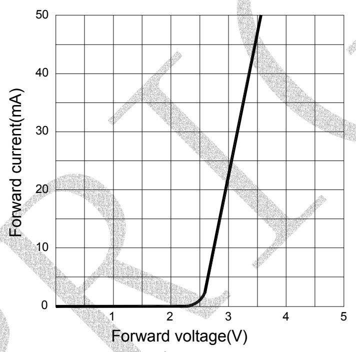


Fig.3 Forward current vs. Forward voltage

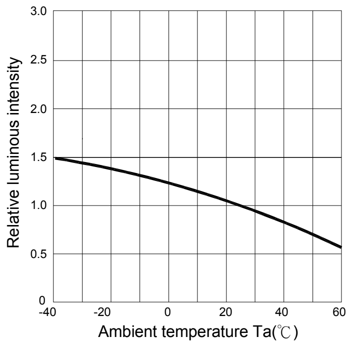


Fig.4 Relative luminous intensity vs. Ambient temperature

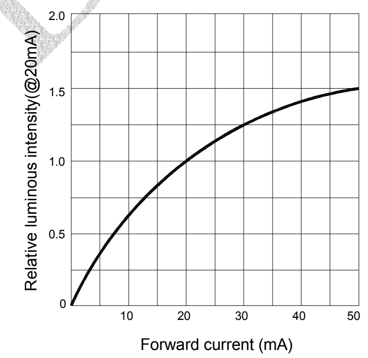


Fig.5 Relative luminous intensity vs. Forward current

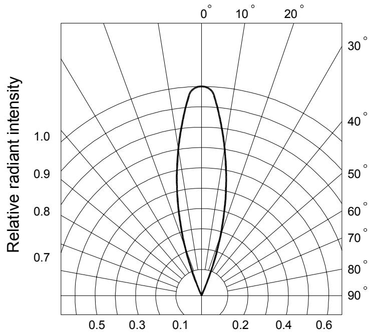


Fig.6 Radiation diagram

- **Bin Limits**

1. Intensity bin limits (At I_F= 20mA)

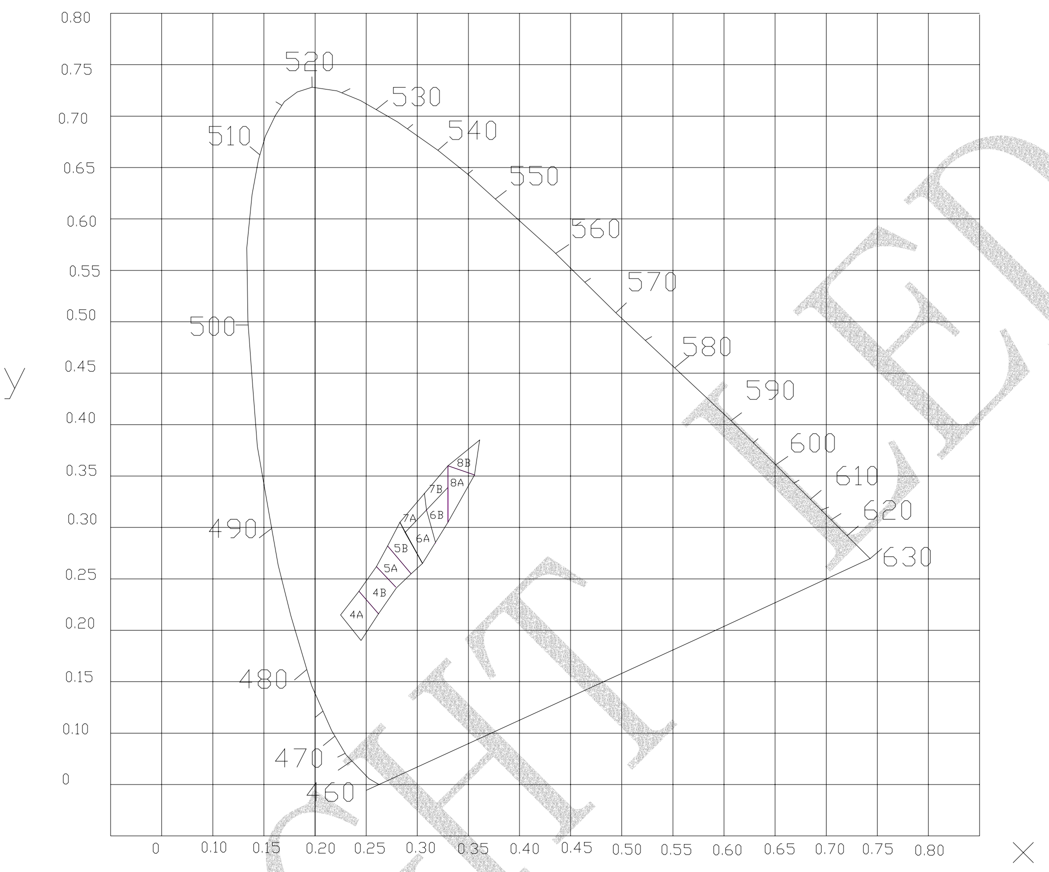
Bin Code	Min. (mcd)	Max. (mcd)
Y	2400	3700
Z	3700	5550
ZA	5550	8325
ZB	8325	12488
ZC	12488	18731

- Bin : x

Intensity bin code

NOTES:1.Tolerance of measurement of luminous intensity. :±15%

2. Color Bin Limits (nm at 20mA)



白光細分座標値

BIN 座標	4A	4B	5A	5B	6A	6B	7A	7B	8A	8B
X1	0.245	0.262	0.279	0.294	0.305	0.318	0.287	0.309	0.33	0.356
Y1	0.19	0.216	0.242	0.255	0.265	0.285	0.296	0.317	0.305	0.351
X2	0.225	0.243	0.26	0.271	0.288	0.309	0.283	0.307	0.33	0.33
Y2	0.215	0.238	0.262	0.282	0.295	0.317	0.305	0.333	0.36	0.36
X3	0.243	0.26	0.271	0.283	0.309	0.33	0.307	0.33	0.33	0.361
Y3	0.238	0.262	0.282	0.305	0.317	0.339	0.333	0.36	0.36	0.385
X4	0.262	0.279	0.294	0.305	0.318	0.33	0.309	0.33	0.356	0.356
Y4	0.216	0.242	0.255	0.265	0.285	0.305	0.317	0.339	0.351	0.351

Reliability Test

Classification	Test Item	Reference Standard	Test Conditions	Result
Endurance Test	Operation Life	MIL-STD-750:1026 MIL-STD-883:1005 JIS-C-7021 :B-1	I_F=20mA Ta=+25℃±5℃ Test time=1,000hrs	0/32
	High Temperature High Humidity Storage	MIL-STD-202:103B JIS-C-7021 :B-11	Ta=+85℃±5℃ RH=90%-95% Test time=240hrs	0/32
	High Temperature Storage	MIL-STD-883:1008 JIS-C-7021 :B-10	High Ta=+85℃±5℃ Test time=1,000hrs	0/32
	Low Temperature Storage	JIS-C-7021 :B-12	Low Ta=-45℃±5℃ Test time=1,000hrs	0/32
Environmental Test	Temperature Cycling	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 JIS-C-7021 :A-4	Ta： +85℃（30min）~ +25℃（5min） ~ -45℃（30min）~ +25℃（5min） Test Time ： 70min/ctcle 10cycle	0/32
	Thermal Shock	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1011	-45℃±5℃ ~+85℃±5℃ 20min 20min Test Time=10cycle	0/32
	Solder Resistance	MIL-STD-202:201A MIL-STD-750:2031 JIS-C-7021 :A-1	Preheating： 120℃,within 120-180 sec. Operation heating： 255℃±5℃within 5 sec.260℃ (Max)	0/32
	Solderability	MIL-STD-202F:208D MIL-STD-750D:2026 MIL-STD-883D:2003 JIS C 7021:A-2	T.sol=230±5℃ Dwell Time=5±1secs	0/32

Judgment criteria of failure for the reliability

Measuring items	Symbol	Measuring conditions	Judgment criteria for failure
Forward voltage	V_F (V)	I_F=20mA	Over U^1x1.2
Reverse current	I_R (uA)	V_R=5V	Over U^1x2
Luminous intensity	Iv (mcd)	I_F=20mA	Below S^1X0.5

Note: 1. U means the upper limit of specified characteristics. S means initial value.

2. Measurment shall be taken between 2 hours and after the test pieces have been returned to normal ambient conditions after completion of each test.

●Lead Frame Dipping

The LED Lead Frame are dipped by Sn in order to protect the rust. Also the dipping thickness is Max 5 ㎛. When soldering, leave 2.0mm of minimum clearance between the resin and the soldering point.

●DIP soldering (Wave Soldering)

Preheating : 120℃,within 120~180 sec.
Operation heating : 255℃±5℃ within 5 sec.260℃ (Max)
Gradual Cooling (Avoid quenching).