SPECIFICATION FOR APPROVAL

Customer	
Product Name	SMD 2012 Size Super Blue LED
Part No.	HT17-21UBC/C470/TR8
Customer Part No.	
Date	2006. 10. 19.

APPROVED SIGNATURES		

MIKWANG ELECTRONICS CO., LTD.

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SPECIFICATION

Products: LED LAMP
Part No.: HT17-21UBC/C470/TR8

HT17-21UBC/C470/TR8

FEATURES:

- Super Blue LED
- 2.0mm×1.2mm×1.1mm SMD LED LAMP
- High luminous intensity, high reliability and long life

APPLICATIONS:

- Mobile telephones, LCD Backlight, Instruction Lighting on Car instrument and the electronic products used surface mounted construction.

ABSOLUTE MAXIMUM RATINGS (at T_A=25℃):

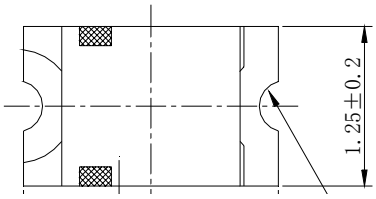
Parameter	Symbol	Min.	Max.	Unit
Forward Current	I_F		20	mA
Pulse Forward Current	I_{FP}*		100	mA
Reverse Voltage	V_R		5	V
Operating Temperature	Topr.	-30	+85	℃
Storage Temperature	Tstg.	-40	+85	℃
Power Dissipation	P_D			mW

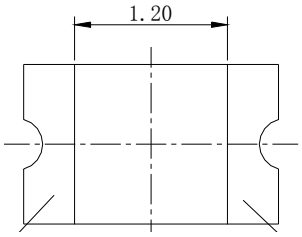
*Pulse width:Max.10ms, Duty ratio: Max 1/10

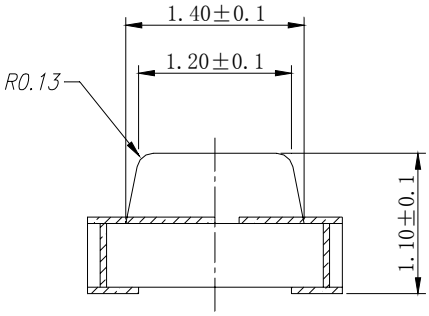
Electrical/Optical Characteristics (at T_A=25℃):

Parameter	Condition	Unit	Min.	Typ.	Max.
Forward Voltage V_F	I_F=20mA	V	3.2	3.4	3.6
Reverse Current I_R	V_R=5V	μA			10
Peak Wavelength λ_p	I_F=20mA	nm	465	468	470
Spectrum width of half value△λ	I_F=20mA	nm		130	
Luminous Intensity I_V	I_F=20mA	mcd	70	90	110

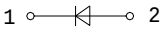
Package Dimensions：







1 Cathode
2 Anode



- All dimensions are millimeters.
- Tolerance is 0.15mm unless otherwise noted.

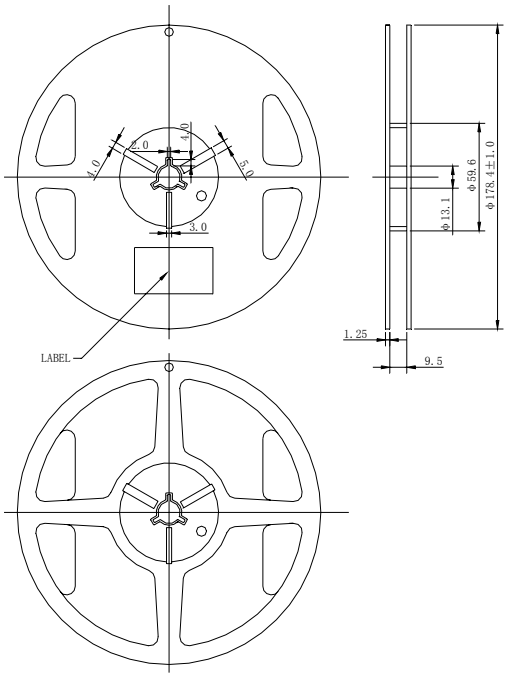


Fig.1

〈Unit: mm〉

Progressive direction

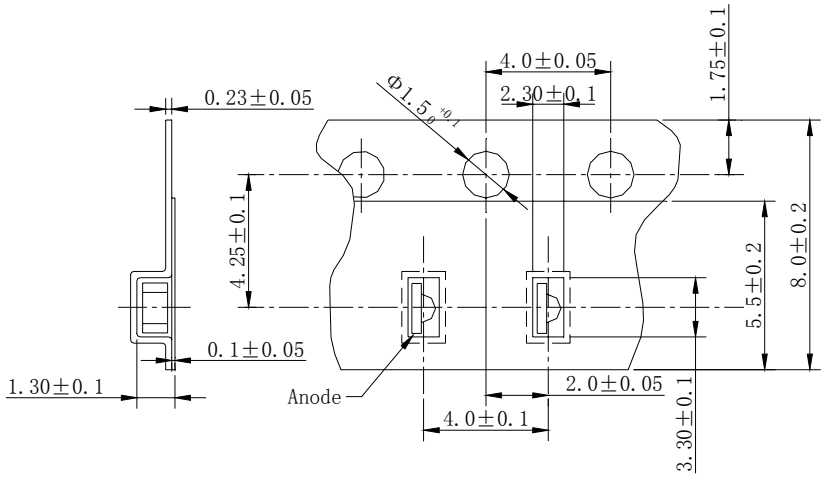
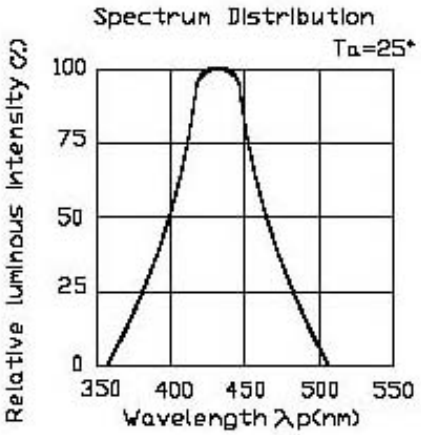
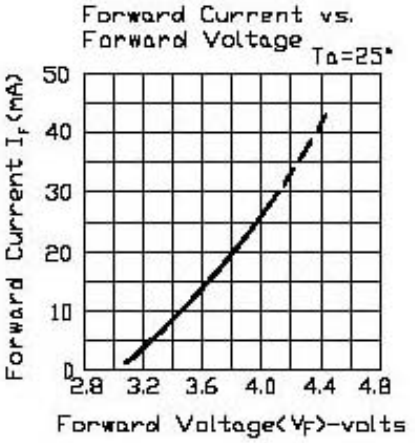
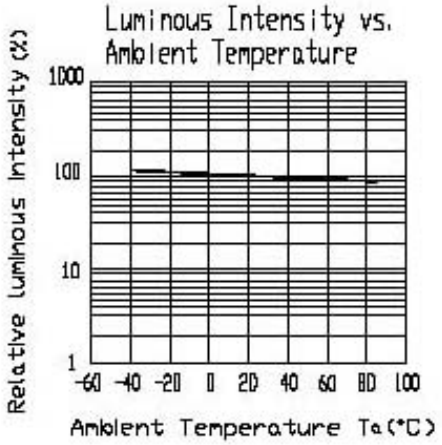


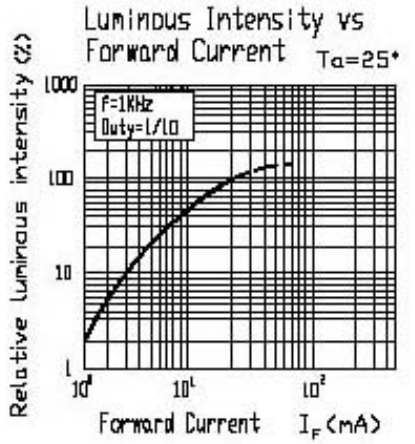
Fig.2

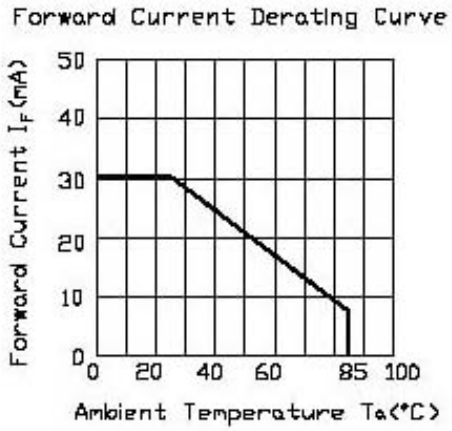
CHARACTERISTIC CURVES:

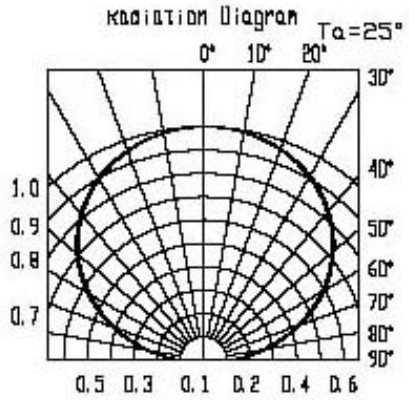












```RELIABILITY TEST ITEM AND CONDITION:

No	Item	Test Condition	Result	Criteria for Judging
1	Soldering Test	T=300℃ t =3.5±0.5sec.	0/15	Area of Soldering: ≥95%
2	Rapid change of temperature followed by: damp heat, cyclic	T_A: -40℃ 10min ↕ (2~3) min T_B: +85℃ 10min 5cycle T=(25~55)℃ RH:(90~95)% 2cycle 48h recovery time 2h	0/18	*1
3	Soldering Heat	Reflow Soldering (Fig.3)	0/15	*1
4	Electrical endurance	I_F=25mA t =1000h	0/15	*1
5	High Temperature Storage	T=+85℃ t=1000h	0/15	*1
6	Damp heat, cyclic	T=25~55℃ RH=90~95% 6Cycle144h recovery time 2h	0/20	*1

*1 Criteria For Judging the Damage

Measuring items	Symbol	Measuring conditions	Judgement criteria for failure
Forward Voltage	V_F	I_F=20mA	Over U×1.1
Reverse current	I_R	V_R=5V	Over U×2
Luminous intensity	I_V	I_F=20mA	Below S×0.7

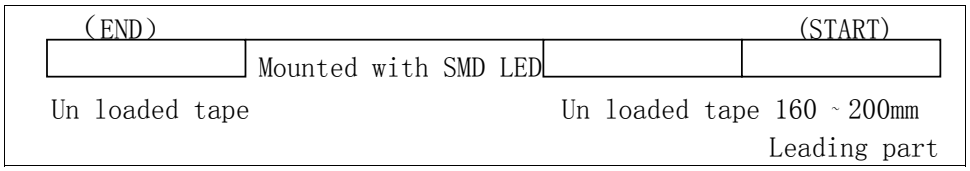
U means the upper limit of specified charateristics. S means initial value.

PACKAGING:

1) Packing material: Reel(Fig.1)

2) Indication:PASS

3) Details of SMD LED loaded tape



4) Loaded quantity per reel: 3, 000pcs (Fig.2)

APPLICATION NOTES:

1)Soldering:

①Manual soldering by soldering iron:

The use of a soldering iron of less than 25W is recommended and the temperature of the iron must be kept at no higher than 300℃.

②Reflow soldering:

a. The temperature profile as shown in Fig.3 is recommended for soldering SMD LED by the reflow furance.

b. Care must be taken that the products be handled after their temperature has dropped down to the normal room temperature after soldering.

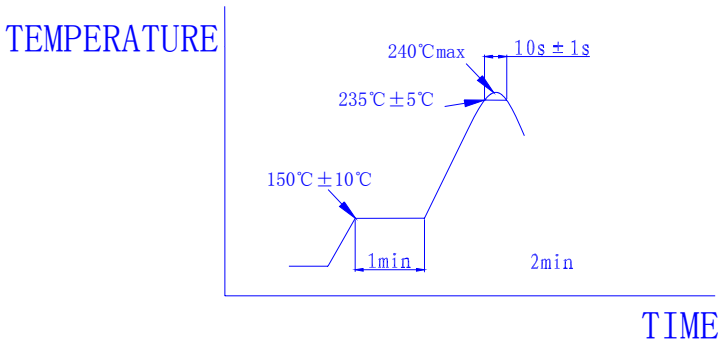


Fig.3

2)Post solder cleaning:

When cleaning after soldering is needed, the following conditions must be adhered to.

①Cleaning solvents: Freon TF or equivalent or alcohol.

②Temperature: 50℃ Max.for 30 seconds or
30℃Max.for 3 minutes

③Ultrasonic: 300W Max.

3) OTHERS:

a. Care must be taken not to cause stress to the epoxy resin portion of SMD LED while it is exposed to the high temperature.

b. Care must be taken not to the rub the eposy resin portion of SMD LED with a hard or sharp edged article such as the sand blast and the metal hook as the epoxy resin is rather soft and liable to be damaged.