

SPECIFICATION FOR APPROVAL

Customer _____

Product Name SMD 1608 Size White LED _____

Part No. HT19-21UWC/TR8 _____

Customer Part No. _____

Date 2007. 11. 28. _____

APPROVED SIGNATURES		

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HT19-21UWC/A5/TR8**FEATURES:**

- InGaN Ultra White LED
- $1.6\text{mm} \times 0.8\text{mm} \times 0.4\text{mm}$ SMD LED LAMP
- High luminous intensity, high reliability and long life
- With ROHS Compliant

APPLICATIONS:

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

ABSOLUTE MAXIMUM RATINGS (at $T_A=25^\circ\text{C}$):

Parameter	Symbol	Min.	Max.	Unit
Forward Current	I_F		25	mA
Pulse Forward Current	I_{FP}^*		100	mA
Reverse Voltage	V_R		5	V
Operating Temperature	$T_{opr.}$	-30	+85	$^\circ\text{C}$
Storage Temperature	$T_{stg.}$	-40	+85	$^\circ\text{C}$
Power Dissipation	P_D		120	mW

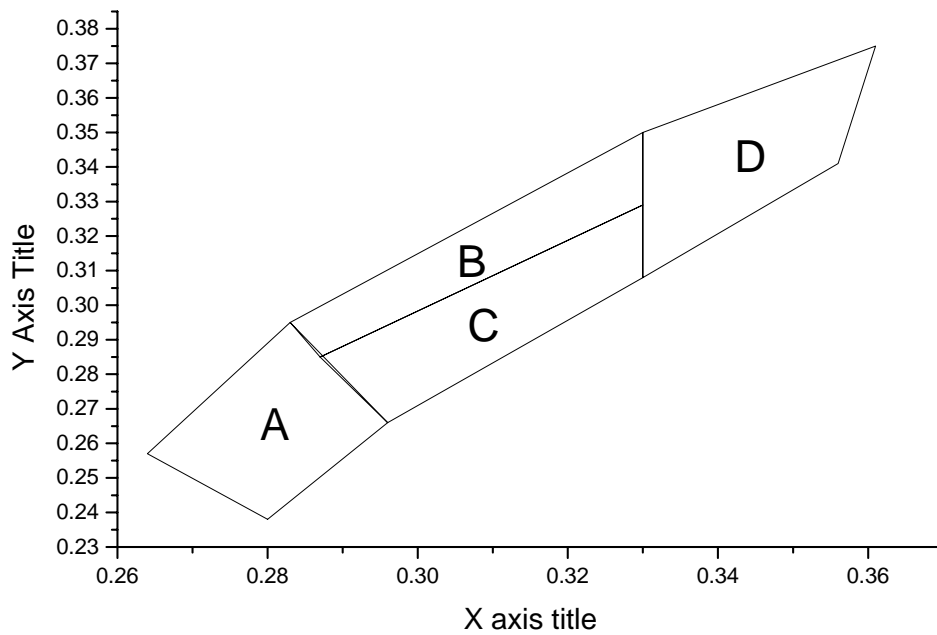
*Pulse width:Max.10ms, Duty ratio: Max 1/10

Electrical/Optical Characteristics (at $T_A=25^\circ\text{C}$):

Parameter	Condition	Unit	Min.	Typ.	Max.
Forward Voltage V_F	$I_F=20\text{mA}$	V	3.0	3.3	
Reverse Current I_R	$V_R=5\text{V}$	μA			50
Chromaticity Coordinates	$I_F=20\text{mA}$	nm		0.3	
				0.3	
Spectrum width of half value $\Delta\lambda$	$I_F=20\text{mA}$	nm		30	
Luminous Intensity I_V	$I_F=20\text{mA}$	mcd	300	400	500
Viewing Angle $2\theta_{1/2}$		($^\circ$)		120	

Parameter Classification

X,Y					
					Code
Bottom----Left-----Top-----Right					
X	0.28	0.264	0.283	0.296	A
Y	0.238	0.257	0.295	0.266	
X	0.2875	0.283	0.33	0.33	B
Y	0.285	0.295	0.35	0.329	
X	0.296	0.2875	0.33	0.33	C
Y	0.266	0.285	0.329	0.308	
X	0.33	0.33	0.365	0.361	D
Y	0.308	0.35	0.375	0.341	

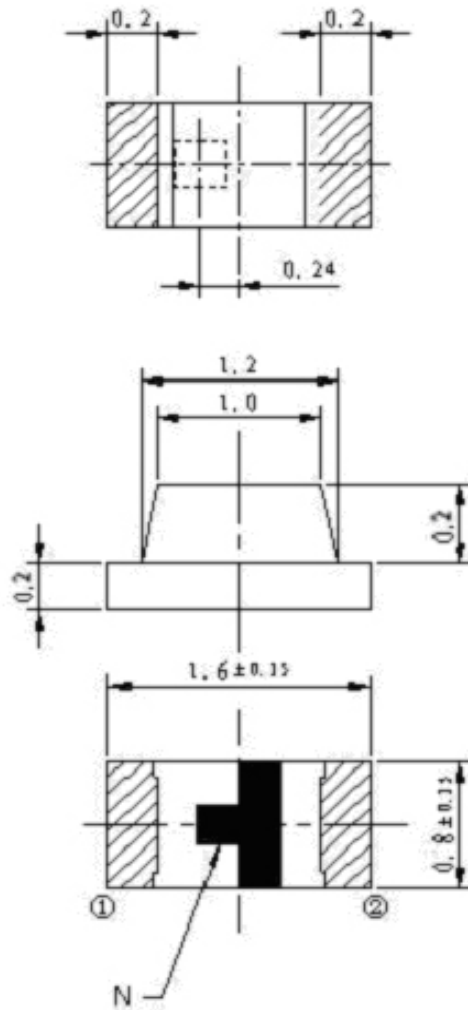


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Products: LED LAMP

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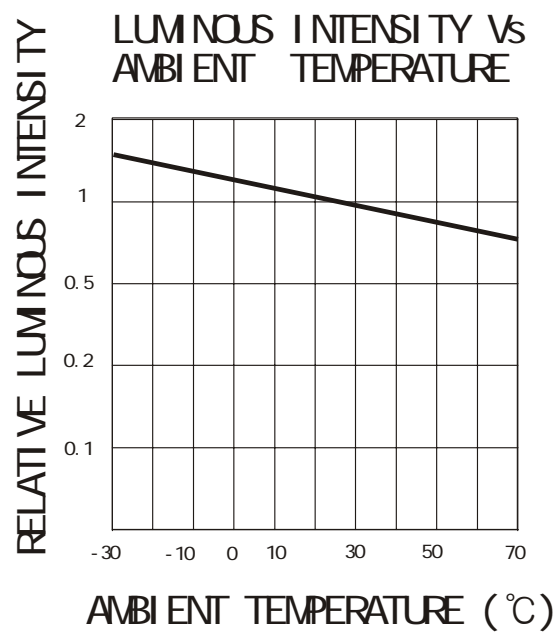
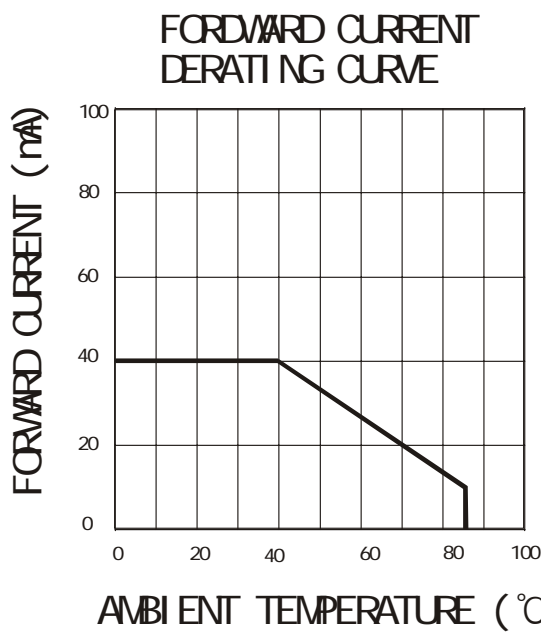
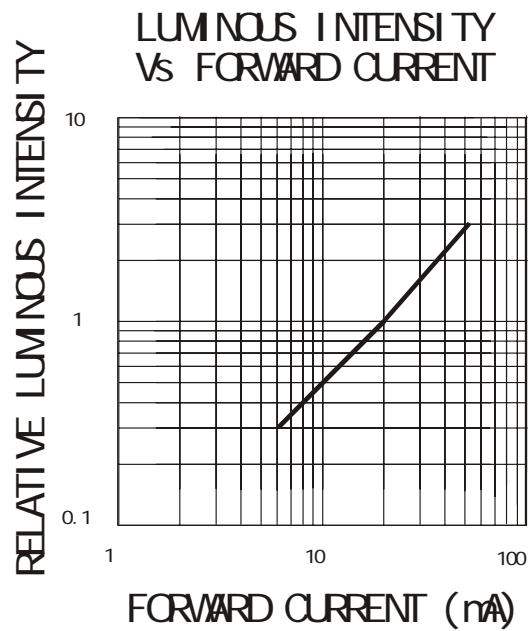
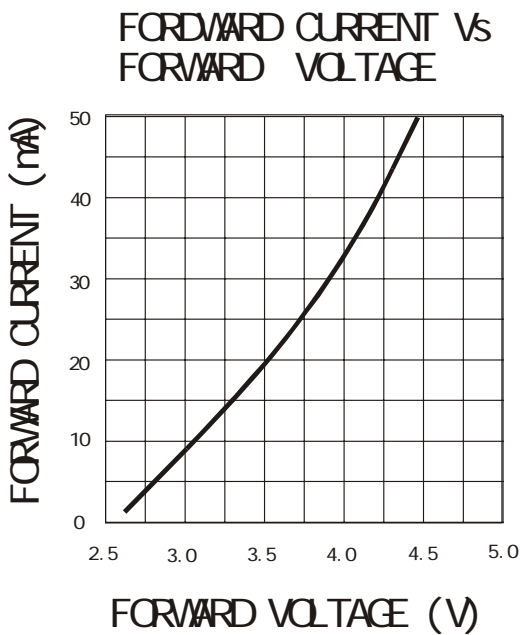
Package Dimensions:



☆ All dimensions are millimeters.

☆ Tolerance is 0.2mm unless otherwise noted.

CHARACTERISTIC CURVES:



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RELIABILITY TEST ITEM AND CONDITION:

No	Item	Test Condition	Result	Criteria for Judging
1	Soldering Test	$T=300^{\circ}\text{C}$ $t=3.5\pm0.5\text{sec.}$	0/15	Area of Soldering: $\geq 95\%$
2	Rapid change of temperature followed by: damp heat, cyclic	$T_A: -40^{\circ}\text{C}$ 10min \updownarrow (2~3) min $T_B: +85^{\circ}\text{C}$ 10min 5cycle $T=(25\sim 55)^{\circ}\text{C}$ $\text{RH}: (90\sim 95)\%$ 2cycle 48h recovery time 2h	0/18	*1
3	Soldering Heat	Reflow Soldering (Fig.3)	0/15	*1
4	Electrical endurance	$I_F=25\text{mA}$ $t=1000\text{h}$	0/15	*1
5	High Temperature Storage	$T=+85^{\circ}\text{C}$ $t=1000\text{h}$	0/15	*1
6	Damp heat, cyclic	$T=25\sim 55^{\circ}\text{C}$ $\text{RH}=90\sim 95\%$ 6Cycle 144h 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	$I_F=20\text{mA}$	Over $U \times 1.1$
Reverse current	I_R	$V_R=5\text{V}$	Over $U \times 2$
Luminous intensity	I_V	$I_F=20\text{mA}$	Below $S \times 0.7$

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

PACKAGING:

- 1) Packing material: Reel (Fig.1)
- 2) Indication: PASS
- 3) Details of SMD LED loaded tape

(END)		(START)
	Mounted with SMD LED	
Un loaded tape		Un loaded tape 160 ~ 200mm Leading part

- 4) Loaded quantity per 4,000/reel, 50reels/box.

APPLICATION NOTES:

1)Soldering:

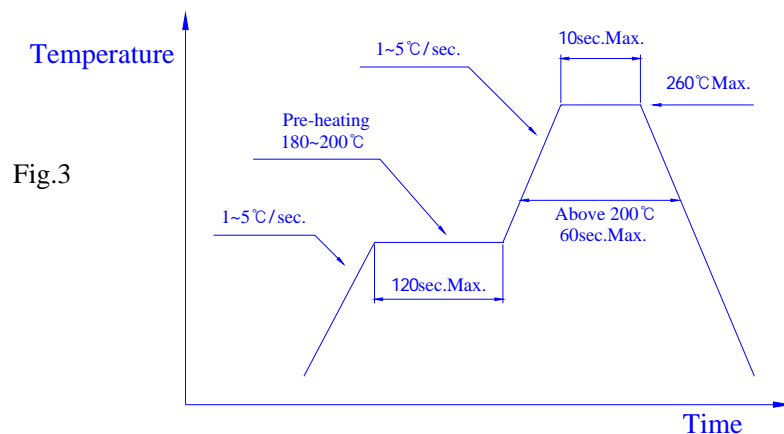
①Manual soldering by soldering iron:

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°C.

②Reflow soldering:

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

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



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°C Max. for 30 seconds or

30°C Max. for 3 minutes

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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 rub the epoxy 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.
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