

SHENZHEN ATFU ELECTRONICS TECHNOLOGY CO.,LTD

SPECIFICATION FOR APPROVAL

客户名称 (Customer Name) :	
客户料号 (Customer NO.) :	
产品名称 (Product Name) :	020 Side View White SMD LED
产品型号 (Product No.) :	AT-020W85-01W
制定日期 (Date Prepared) :	2012-12-25

CUSTOMER CONFIRMATION			



SUPPLIER CONFIRMATION	
Designed by	
Check by	
Approval by	
Date	

SHENZHEN ATFU ELECTRONICS TECHNOLOGY CO.,LIMITED

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◆ **Features:**

1. White SMT package.
2. Package: 3.8*1.0*0.6mm.
3. Side view white LED.
4. Wide viewing angle.
5. Low Power Dissipation.
6. Lead frame package with individual 2 pins.
7. Compatible with automatic placement equipment.
8. Compatible with infrared and vapor phase reflow solder process.
9. The product itself will remain within RoHS & REACH compliant Version.



◆ **Applications:**

1. Automotive: Backlighting in dashboard and switch.
2. Telecommunication: Indicator and backlighting in telephone and fax.
3. Flat backlight for keyboard, switch and symbol.
4. Indoor signboard use.
5. LCD Backlight.
6. Indicators.
7. Mobile phones.
8. General use.

◆ **Absolute Maximum Ratings at Ta=25°C**

Parameters	Symbol	Max.	Unit
Power Dissipation	P _D	95	mW
Peak Forward Current	I _{FP}	100	mA
Forward Current	I _F	25	mA
Reverse Voltage	V _R	5	V
Electrostatic Discharge (HBM)	ESD	1000	V
Operating Temperature Range	T _{opr}	-40°C to +80°C	
Storage Temperature Range	T _{stg}	-40°C to +85°C	
Soldering Temperature	T _{slid}	Reflow Soldering: 260°C for 5 Seconds Hand Soldering: 350°C for 3 Seconds	

◆ **Electrical Optical Characteristics at Ta=25°C**

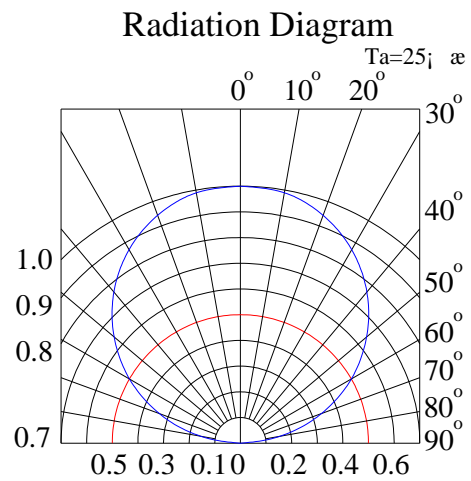
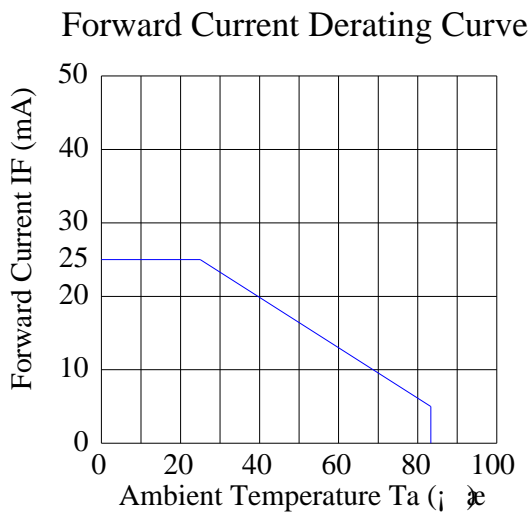
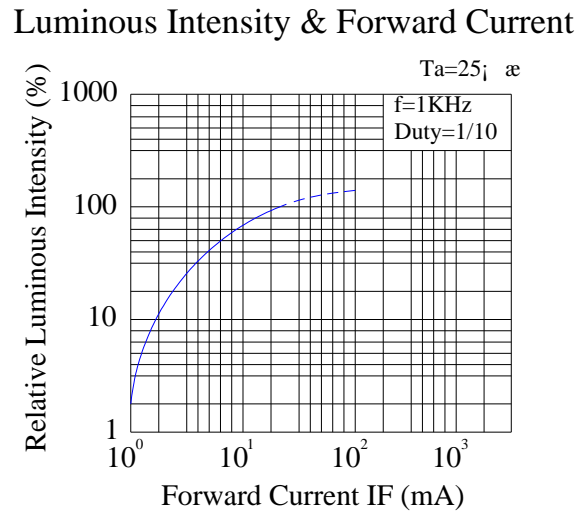
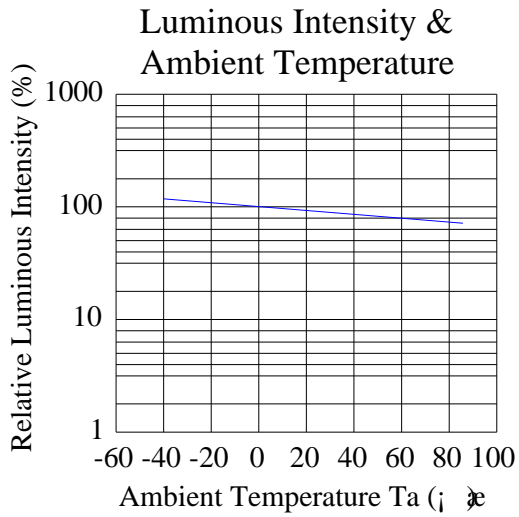
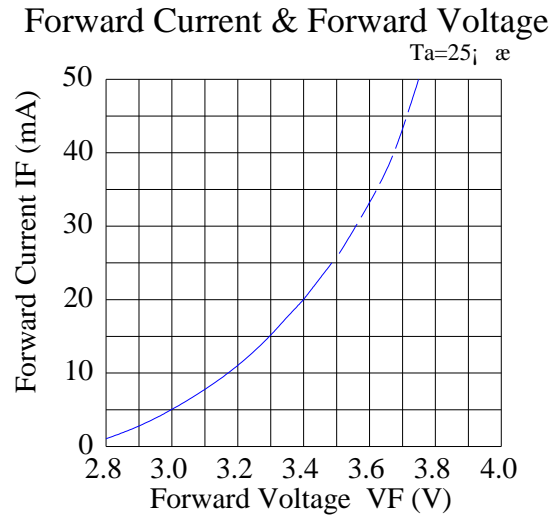
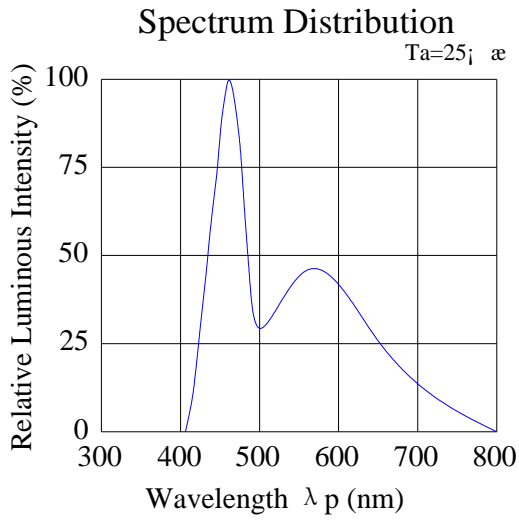
Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity *	I _v	2600	---	3700	mcd	I _F =20mA (Note 1)
Viewing Angle *	2θ _{1/2}	---	120	---	Deg	I _F =20mA (Note 2)
Chromaticity Coordinates	x	---	0.30	---		I _F =20mA (Note 3)
	y	---	0.31	---		
Forward Voltage	V _F	2.80	3.20	3.40	V	I _F =20mA
Reverse Current	I _R	---	---	10	μA	V _R =5V

Notes:

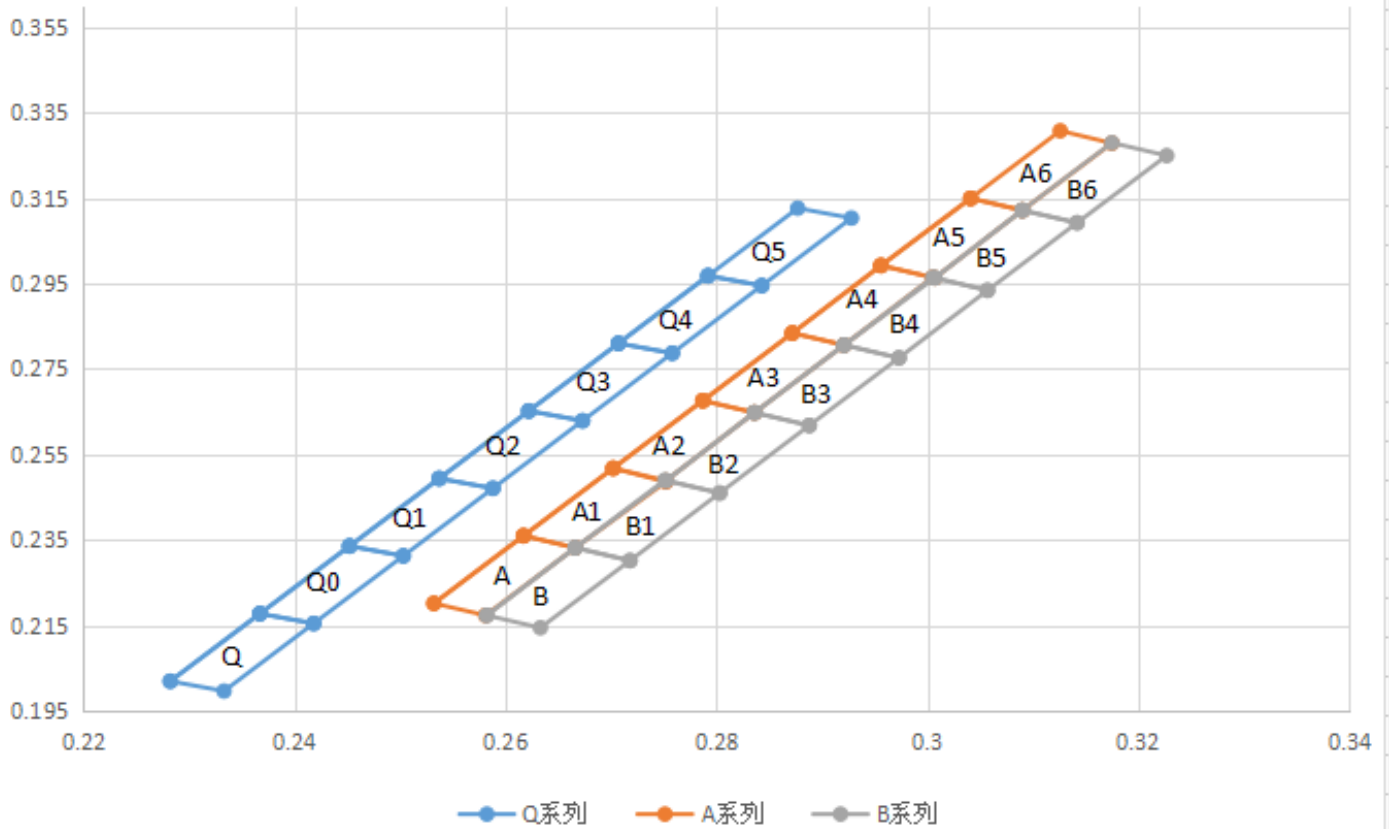
1. Luminous Intensity Measurement allowance is ± 10%.
2. θ_{1/2} is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
3. It use many parameters that correspond to the CIE 1931 2°. X, Y, and Z are CIE 1931 2° values of Red, Green and Blue content of the measurement.

◆ **Typical Electrical / Optical Characteristics Curves**

(25°C Ambient Temperature Unless Otherwise Noted)



◆ CIE Chromaticity Diagram:



◆ Chromaticity Coordinates Specifications for Bin Rank:(1)

BIN Code	X	Y	BIN Code	X	Y	BIN Code	X	Y
A5	0.2956	0.2992	A6	0.3041	0.3149	B	0.2582	0.2174
	0.3041	0.3149		0.3126	0.3307		0.2666	0.2332
	0.309	0.3121		0.3175	0.3278		0.2718	0.2302
	0.3007	0.2963		0.309	0.3121		0.2633	0.2145
B1	0.2666	0.2332	B2	0.2752	0.2489	B3	0.2836	0.2648
	0.2751	0.249		0.2836	0.2648		0.2921	0.2806
	0.2803	0.246		0.2888	0.2618		0.2973	0.2776
	0.2718	0.2302		0.2803	0.246		0.2888	0.2618
B4	0.2921	0.2806	B5	0.3007	0.2963	B6	0.309	0.3121
	0.3005	0.2964		0.309	0.3121		0.3175	0.3279
	0.3057	0.2934		0.3142	0.3092		0.3227	0.3249
	0.2973	0.2776		0.3057	0.2934		0.3142	0.3092

◆ Chromaticity Coordinates Specifications for Bin Rank:(2)

BIN CODE	Min (mcd)	Max (mcd)	Min (Lm)	Max (Lm)	Test Condition
26	2600	2700	7.6	7.9	If=20mA
27	2700	2800	7.9	8.2	
28	2800	2900	8.2	8.5	
29	2900	3000	8.5	8.8	
30	3000	3100	8.8	9.1	
31	3100	3200	9.1	9.4	
32	3200	3300	9.4	9.7	
33	3300	3400	9.7	10	
34	3400	3500	10	10.3	
35	3500	3600	10.3	10.6	
36	3600	3700	10.6	10.9	

◆ Chromaticity Coordinates Specifications for Bin Rank:(3)

BIN CODE	Min	Max	Unit	Test Condition
V28	2.8	2.9	V	If=20mA
V29	2.9	3.0		
V30	3.0	3.1		
V31	3.1	3.2		
V32	3.2	3.3		
V33	3.3	3.4		

◆ **Reliability Test Items And Conditions:**

The reliability of products shall be satisfied with items listed below:

Confidence level: 90%.

LTPD: 10%.

1) Test Items and Results:

No.	Test Item	Test Hours/Cycles	Test Conditions	Sample Size	Ac/Re
1	Resistance for Soldering Heat	2 times	Tsld=260±5℃, Min. 5sec	25pcs	0/25
2	Thermal Shock	300 Cycles	H: +100℃ 5min ~10 sec L: -10℃ 5min	25pcs	0/25
3	Temperature Cycle	300 Cycles	H: +100℃ 15min ~5min L: -40℃ 15min	25pcs	0/25
4	DC Operating Life	1000Hrs.	Ta=25℃ IF=20mA	25pcs	0/25
5	High Temperature Storage	1000Hrs.	Temp: 100℃	25pcs	0/25
6	Low Temperature Storage	1000Hrs.	Temp: -40℃	25pcs	0/25
7	High Temperature/ High Humidity	1000Hrs.	85℃/85%RH	25pcs	0/25

2) Criteria for Judging the Damage:

Item	Symbol	Test Conditions	Criteria for Judgment	
			Min	Max
Forward Voltage	VF	IF=20mA	---	F.V.*)×1.1
Reverse Current	IR	VR=5V	---	F.V.*)×2.0
Luminous Intensity	IV	IF=20mA	F.V.*)×0.7	---

*) F.V.: First Value.

◆ Please read the following notes before using the product:

1. Over-current-proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

2.1 Do not open moisture proof bag before the products are ready to use.

2.2 Before opening the package, the LEDs should be kept at 30°C or less and 90%RH or less.

2.3 The LEDs should be used within a year.

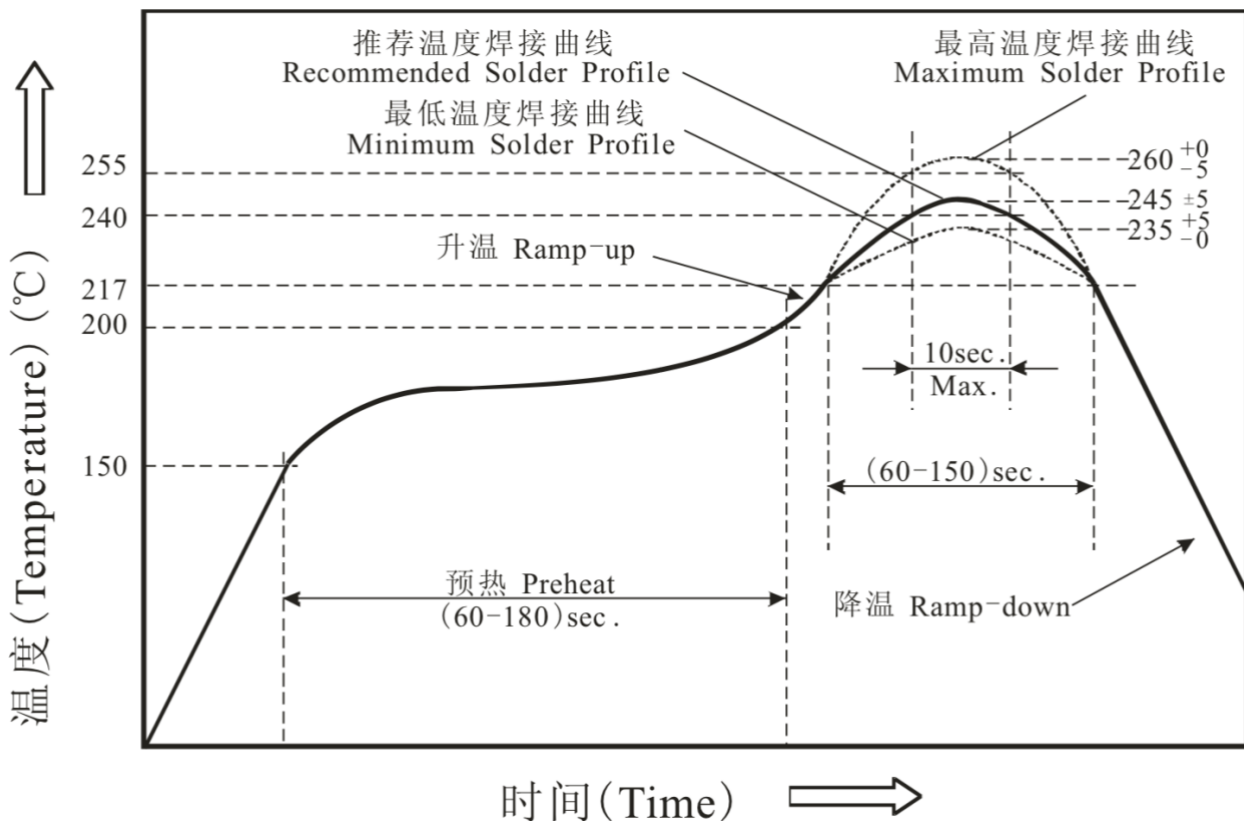
2.4 After opening the package, the LEDs should be kept at 30°C or less and 70%RH or less.

2.5 The LEDs should be used within 168 hours (7 days) after opening the package.

2.6 If the moisture adsorbent material (silica gel) has fabled away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions. Baking treatment: 60±5°C for 24 hours.

3. Soldering Condition

3.1 Pb-free solder temperature profile.



3.2 Reflow soldering should not be done more than two times.

3.3 When soldering, do not put stress on the LEDs during heating.

3.4 After soldering, do not warp the circuit board.

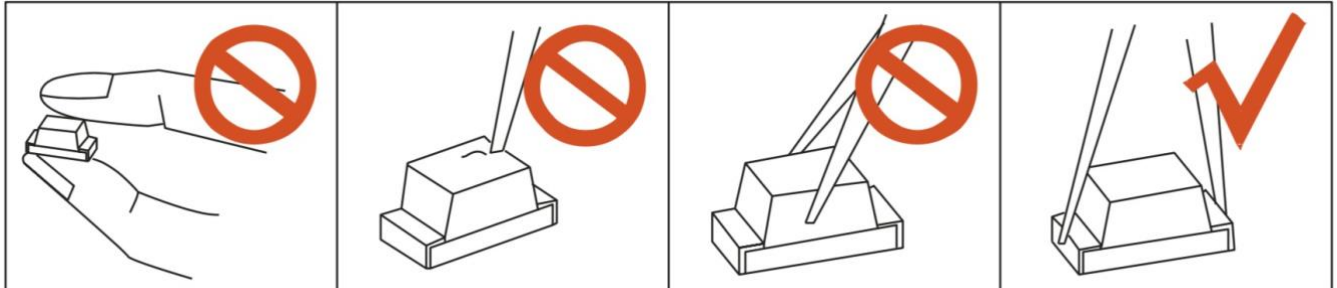
4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 260°C for 5 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each

terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5. Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.



6. Caution in ESD

Static Electricity and surge damages the LED. It is recommended to use a wrist band or anti-electrostatic glove when handling the LED. All devices, equipment and machinery must be properly grounded.