

# ST-AF20 COB

ST01-CXX80WXXX-AF20XXXX



## Product Brief

### Features And Benefits

- 3W-10W
- High Efficacy, High Lumen
- Beam Angle: 120°
- Aluminum Base, Flip Technology
- Suitable For Manual Welding

### Application

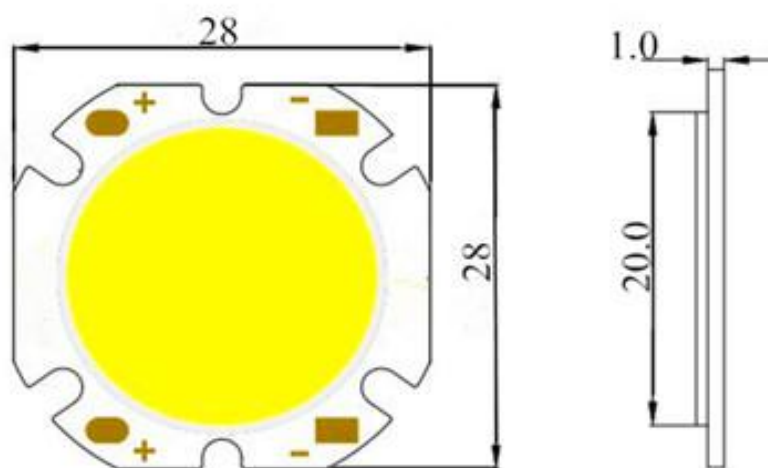
- Spot Light & Bulb
- Down Light
- Track Light
- Par Light
- Indoor Lighting & Commercial Lighting

## 1.Part Number Nomenclature

Part numbers For ST-AF20 COB Follow The Convention Below:



## 2.Outline Dimensions



Notes:

- 1.Drawings are not to scale.
- 2.All dimensions are in millimeters.
- 3.Tolerance:  $\pm 0.30\text{mm}$ .

### 3. Absolute Maximum Ratings

*Absolute Maximum Ratings For ST-AF20 3W.*

PARAMETER	SYMBOL	MAXIMUM PERFORMANCE
Power Dissipation	$P_D$	3.26W
Forward Current	$I_F$	320mA
Reverse Voltage	$V_R$	-15V
Junction Temperature	$T_j$	130°C
Operating Temperature Range	$T_{opr}$	-30 ~ +60°C
Storage Temperature Range	$T_{stg}$	-35 ~ +100°C
Thermal Resistance Junction	$R_{\theta J-B}$	4.2°C/W
ESD Sensitivity(HBM)	ESD	2000V
Hand Solder Temperature		350±20°C/3~5sec

*Absolute Maximum Ratings For ST-AF20 5W.*

PARAMETER	SYMBOL	MAXIMUM PERFORMANCE
Power Dissipation	$P_D$	5.44W
Forward Current	$I_F$	320mA
Reverse Voltage	$V_R$	-25V
Junction Temperature	$T_j$	130°C
Operating Temperature Range	$T_{opr}$	-30 ~ +60°C
Storage Temperature Range	$T_{stg}$	-35 ~ +100°C
Thermal Resistance Junction	$R_{\theta J-B}$	4.2°C/W
ESD Sensitivity(HBM)	ESD	2000V
Hand Solder Temperature		350±20°C/3~5sec

*Absolute Maximum Ratings For ST-AF20 7W.*

PARAMETER	SYMBOL	MAXIMUM PERFORMANCE
Power Dissipation	$P_D$	7.6W
Forward Current	$I_F$	320mA
Reverse Voltage	$V_R$	-35V
Junction Temperature	$T_j$	130°C
Operating Temperature Range	$T_{opr}$	-30 ~ +60°C
Storage Temperature Range	$T_{stg}$	-35 ~ +100°C
Thermal Resistance Junction	$R_{\theta J-B}$	2.8~2.9°C/W
ESD Sensitivity(HBM)	ESD	2000V
Hand Solder Temperature		350±20°C/3~5sec

*Absolute Maximum Ratings For ST-AF20 10W.*

PARAMETER	SYMBOL	MAXIMUM PERFORMANCE
Power Dissipation	$P_D$	10.88W
Forward Current	$I_F$	320mA
Reverse Voltage	$V_R$	-60V
Junction Temperature	$T_j$	130°C
Operating Temperature Range	$T_{opr}$	-30 ~ +60°C
Storage Temperature Range	$T_{stg}$	-35 ~ +100°C
Thermal Resistance Junction	$R_{\theta J-B}$	1.42~1.68°C/W
ESD Sensitivity(HBM)	ESD	2000V
Hand Solder Temperature		350±20°C/3~5sec

Note: \*Pulse width≤0.1msec    Duty ratio≤1/10

## 4. Electrical -Optical Characteristics (T<sub>A</sub>=25°C)

### (3W)

PARAMETER	CHIP	CONDITION	RA	MIN.	TYP.	MAX.	LM/W	UNIT
Forward Voltage	/	IF=320mA /Ta=25°C	/	9	9.75	10.2	/	V
Luminous Flux	Chinese Brand	CCT: 3000K 320mA	80	315	--	315	>105	LM (lm/w)
		CCT: 4000K 320mA		330	--	360	>110	
		CCT: 6000K 320mA		330	--	360	>110	
		CCT: 3000K 320mA	90	225	--	--	>75	
		CCT: 4000K 320mA		255	--	--	>85	
		CCT: 6000K 320mA		255	--	--	>85	

### (5W)

PARAMETER	CHIP	CONDITION	RA	MIN.	TYP.	MAX.	LM/W	UNIT
Forward Voltage	/	IF=320mA /Ta=25°C	/	15	16.25	17	/	V
Luminous Flux	Chinese Brand	CCT: 3000K 320mA	80	525	--	575	>105	LM (lm/w)
		CCT: 4000K 320mA		550	--	600	>110	
		CCT: 6000K 320mA		550	--	600	>110	
		CCT: 3000K 320mA	90	375	--	--	>75	
		CCT: 4000K 320mA		425	--	--	>85	
		CCT: 6000K 320mA		425	--	--	>85	

### (7W)

PARAMETER	CHIP	CONDITION	RA	MIN.	TYP.	MAX.	LM/W	UNIT
Forward Voltage	/	IF=320mA /Ta=25°C	/	21	22.75	23.8	/	V
Luminous Flux	Chinese Brand	CCT: 3000K 320mA	80	735	--	805	>105	LM (lm/w)
		CCT: 4000K 320mA		770	--	840	>110	
		CCT: 6000K 320mA		770	--	840	>110	
		CCT: 3000K 320mA	90	525	--	--	>75	
		CCT: 4000K 320mA		595	--	--	>85	
		CCT: 6000K 320mA		595	--	--	>85	

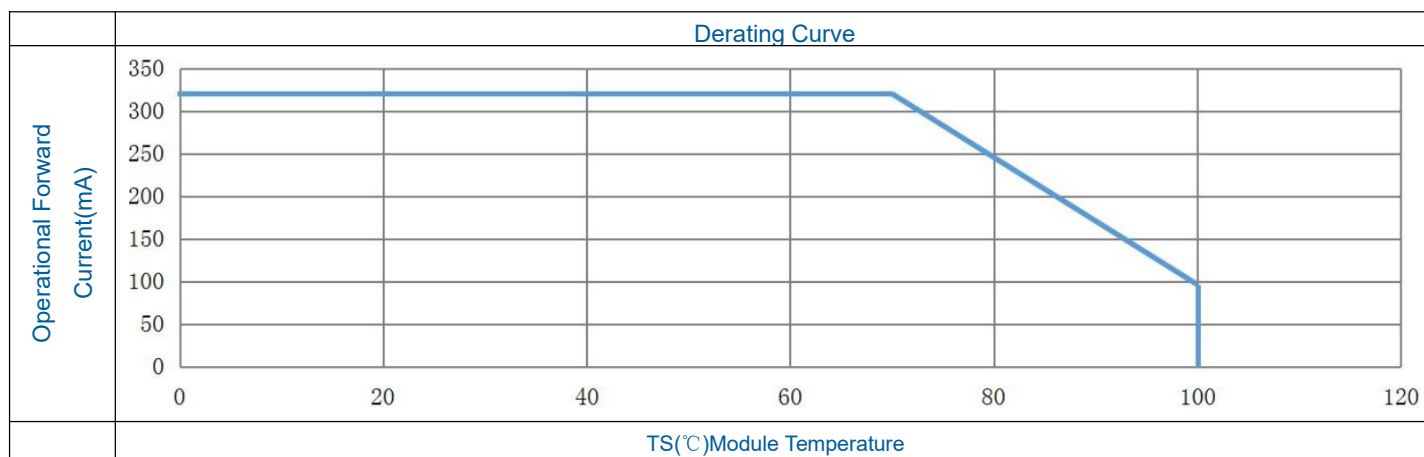
**(10W)**

PARAMETER	CHIP	CONDITION	RA	MIN.	TYP.	MAX.	LM/W	UNIT
Forward Voltage	/	IF=320mA /Ta=25°C	/	30	32.5	34	/	V
Luminous Flux	Chinese Brand	CCT: 3000K 320mA	80	1050	--	1150	>105	LM (lm/w)
		CCT: 4000K 320mA		1100	--	1100	>110	
		CCT: 6000K 320mA		1100	--	1100	>110	
		CCT: 3000K 320mA	90	750	--	--	>75	
		CCT: 4000K 320mA		850	--	--	>85	
		CCT: 6000K 320mA		850	--	--	>85	

Note:

1. Data above for reference only.
2. Any CCT(1500-8000k) can be customized.

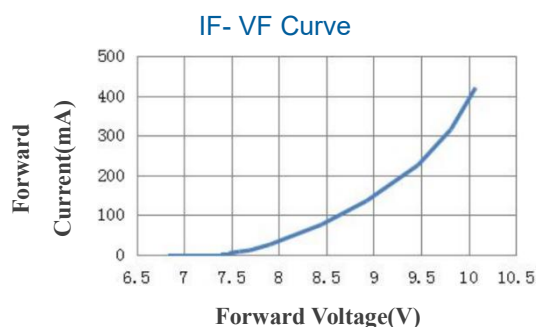
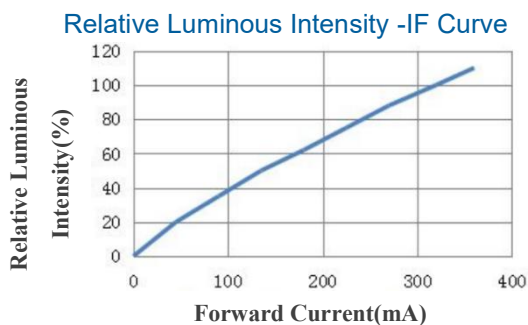
**5.Electrical Derating Curve**



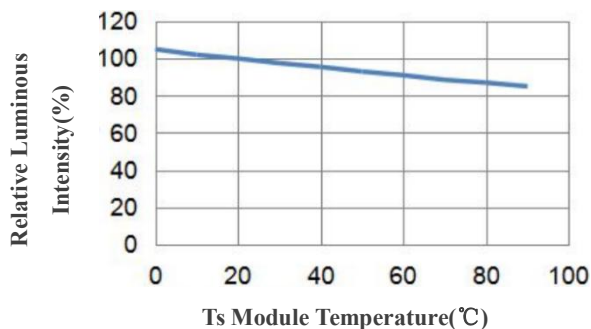
Note: In order to keep the temperature below the rated, please make sure the radiator has enough heat dissipation performance.

## 6. Typical Electrical/Optical Characteristic Curves

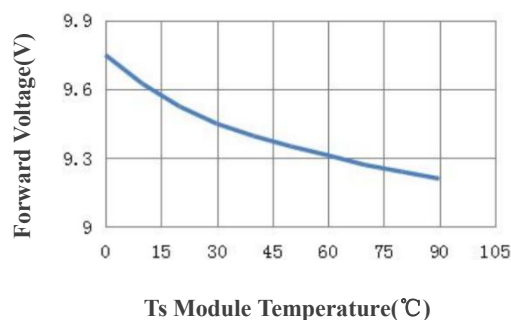
(3W)



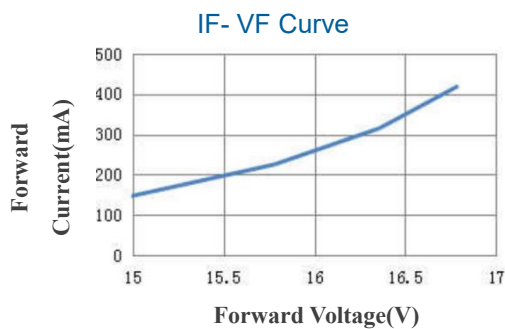
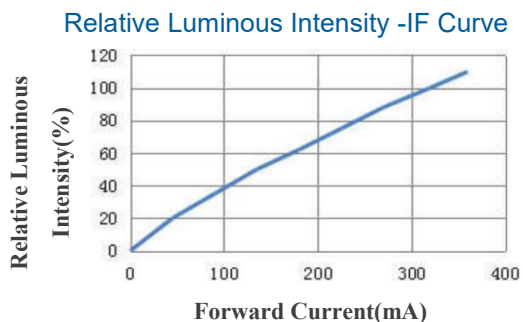
Relative Luminous Intensity -Temperature Curve



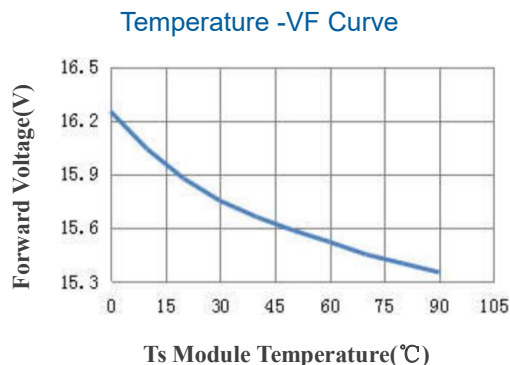
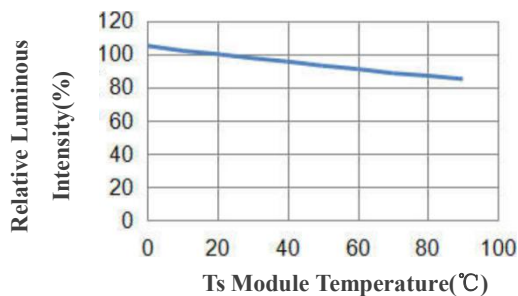
Temperature -VF Curve



(5W)



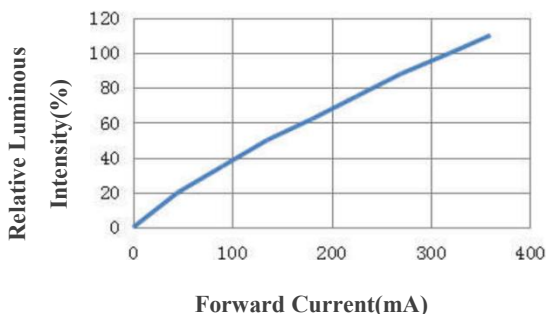
Relative Luminous Intensity -Temperature Curve



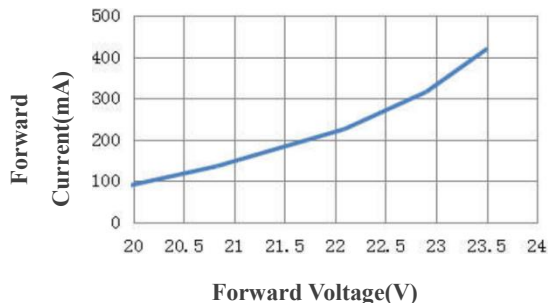


**(7W)**

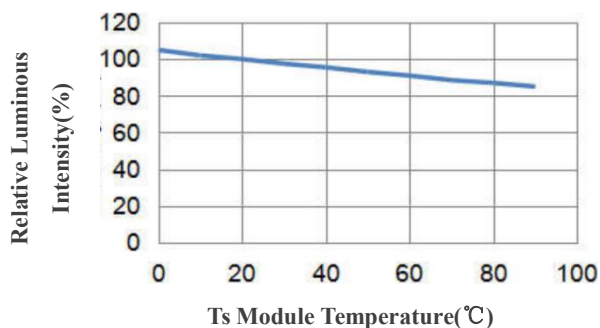
Relative Luminous Intensity -IF Curve



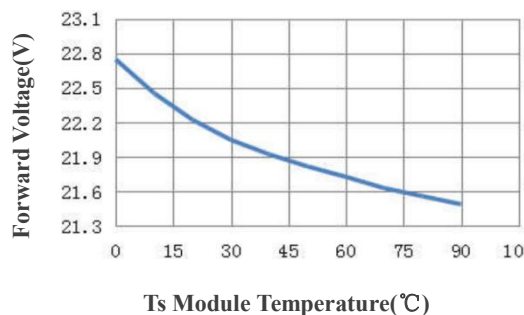
IF- VF Curve



Relative Luminous Intensity -Temperature Curve

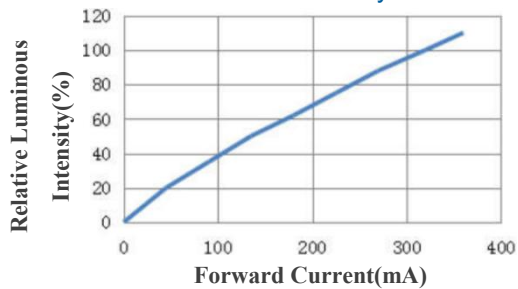


Temperature -VF Curve

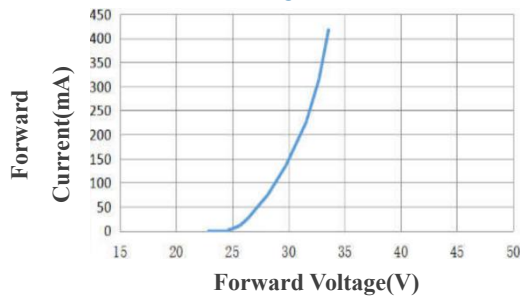


**(10W)**

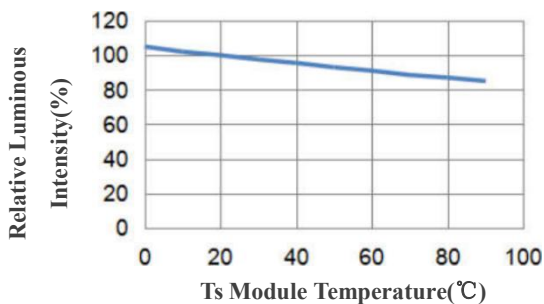
Relative Luminous Intensity -IF Curve



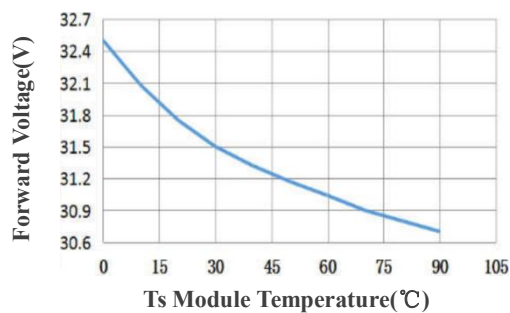
IF- VF Curve



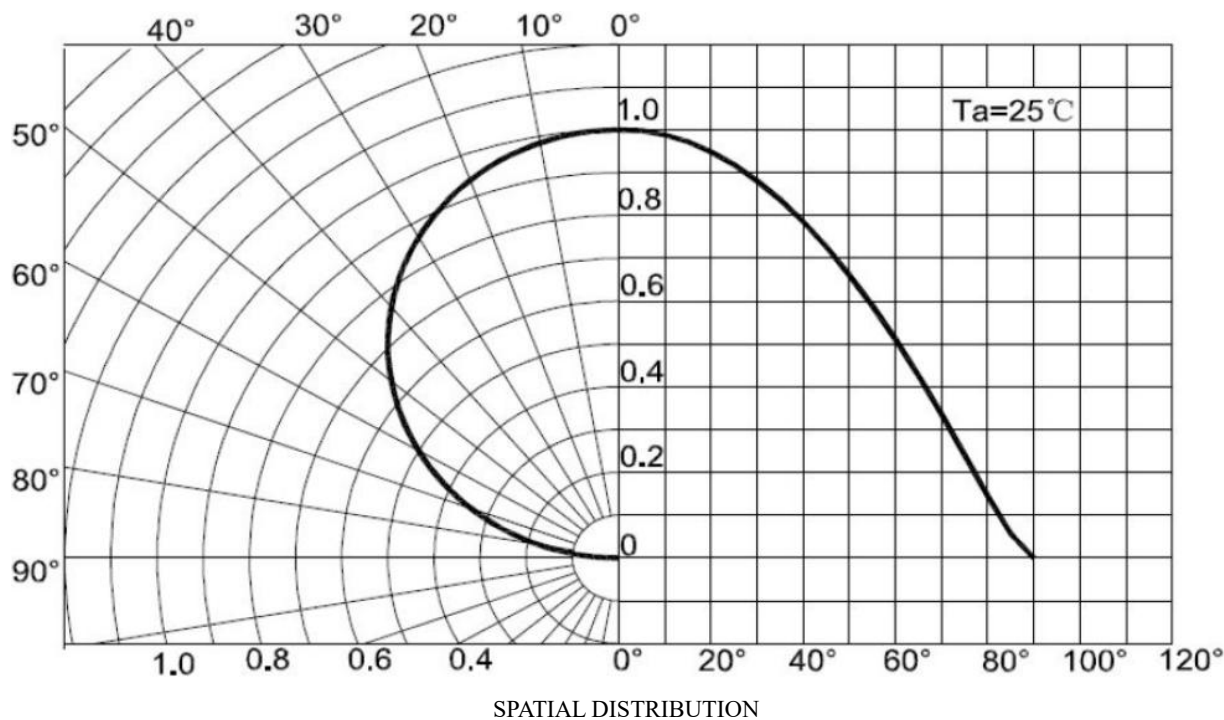
Relative Luminous Intensity -Temperature Curve



Temperature -VF Curve

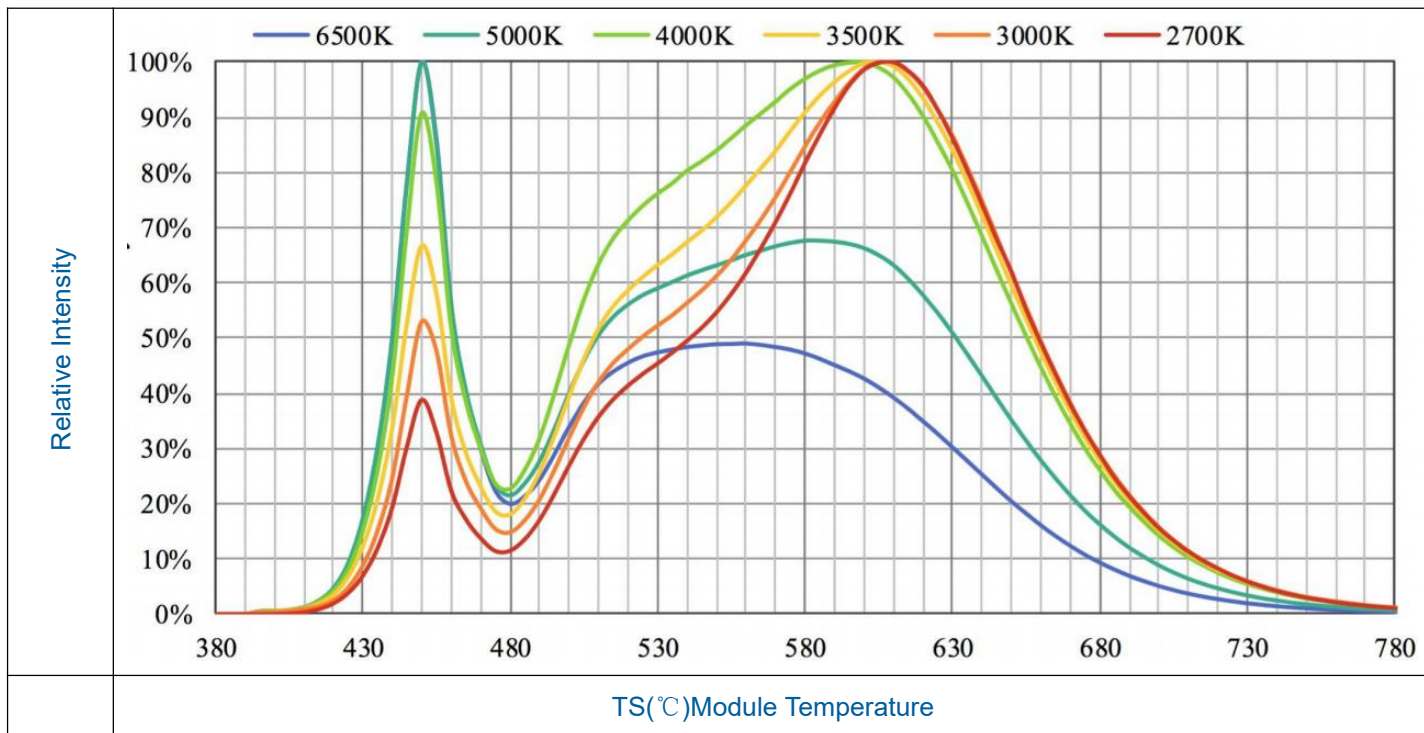


## 7. Luminous Flux Distribution

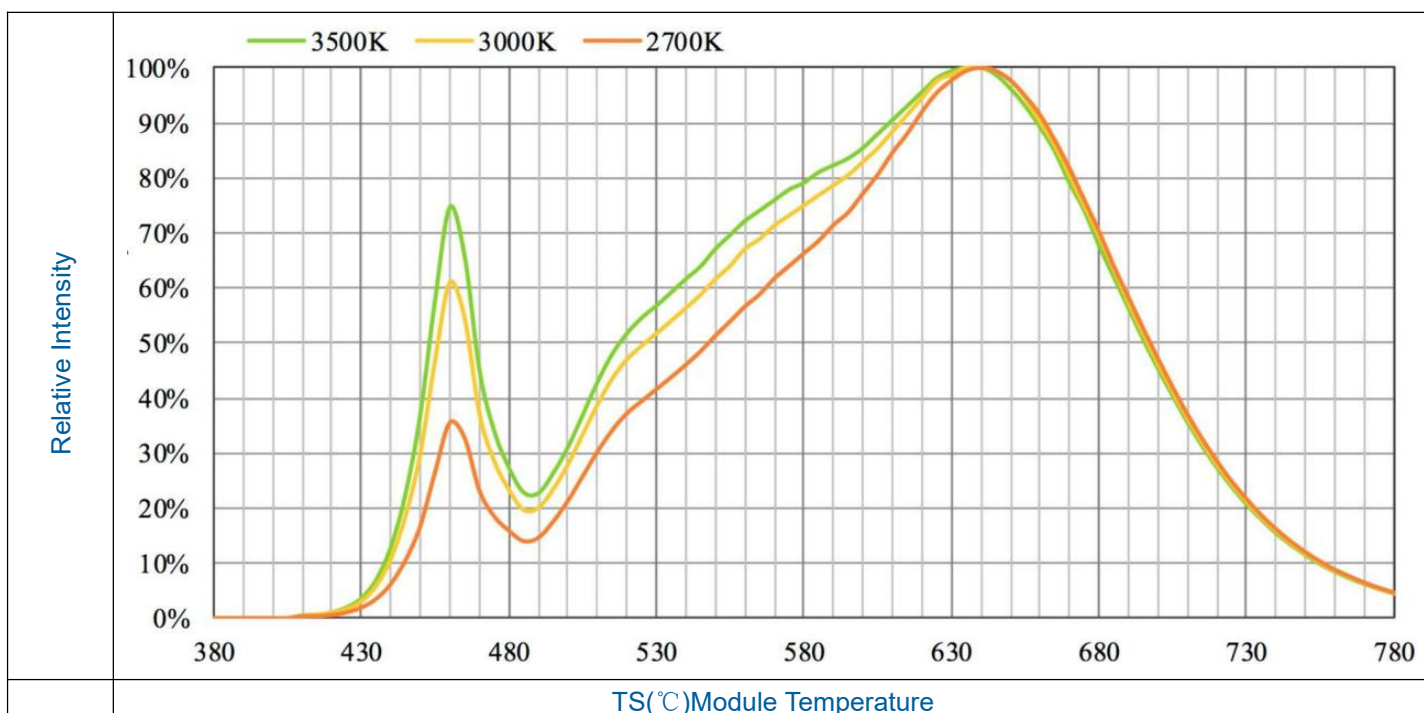


## 8.Relative Spectral Distribution Graph

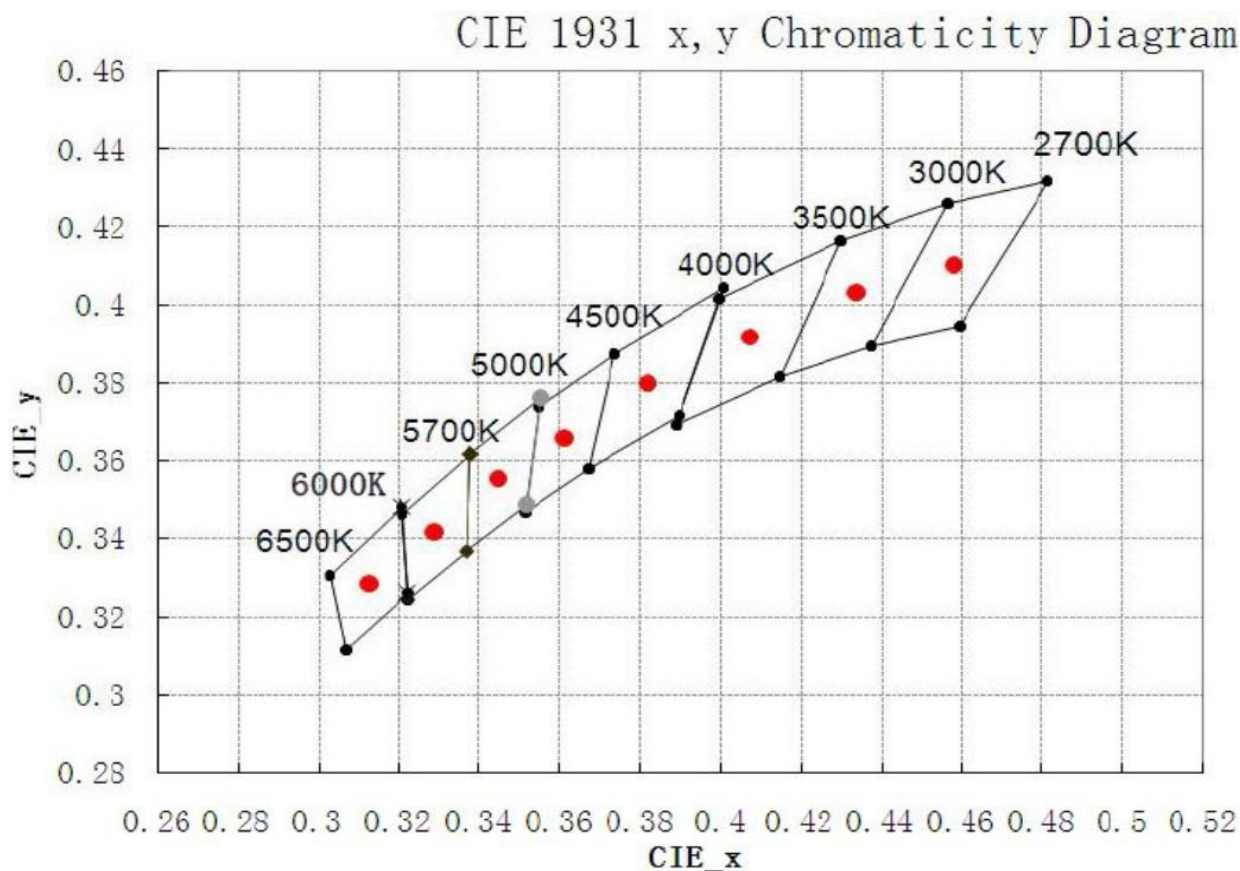
Spectrum:CRI(Ra)80Min



Spectrum:CRI(Ra)90Min



## 9.CIE Chromaticity Diagram



## Color Rank:

Center Color	2725K	3045K	3560K	3985K	4550K	5028K	5665K	6530K
X	0.4578	0.4338	0.4082	0.3818	0.3607	0.3447	0.329	0.3123
Y	0.4101	0.403	0.3918	0.3797	0.3675	0.3553	0.3417	0.3282

## 10. Reliability

### Test Item And Test Conditions

ITEM	STANDRAD TEST METHOD	TEST CONDITION	NOTE	NUMBER OF DAMAGED
Resistance To Soldering Heat	JEITA ED-4701 300 302	T <sub>SLD</sub> :160±5°C 10sec	1 time	0/30
Solder Ability	JEITA ED-4701 300 303	T <sub>SLD</sub> :150±5°C 5sec	1 time	0/30
Thermal Shock	JEITA ED-4701 300 307	-40~100°C 10min,10min	100 cycles	0/30
Temperature Cycle	JEITA ED-4701 100 105	-40~25~100~25°C 30min.5min.30min.5min	160 cycles	0/30
Terminal Strength (Pull test)	JEITA ED-4701 400 401	Load 10N(1kgf)10±1sec	None Damage	0/30
Terminal Strength (Bending test)	JEITA ED-4701 400 401	Load 5N(0.5kgf) 0°~90°~0°bend 2 times	None Damage	0/30
Temperature Humidity Storage	JEITA ED-4701 100 103	Ta=60°C,RH=90%	1000 hrs	0/30
Steady State Operating Life	--	Ta=25°C,IF=320mA	1000 hrs	0/30
Steady State Operating Life Of High Humidity Heat	--	Ta=60°C, RH=90%,IF=320mA	1000 hrs	0/30
High Temperature Storage	JEITA ED-4701 200 201	Ta=100°C	1000 hrs	0/30
Low Temperature Storage	JEITA ED-4701 200 202	Ta=-40°C	1000 hrs	0/30

### Test Item and results

ITEM	SYMBOL	TEST CONDITION	ITEM	
			MIN.	MAX.
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> =320mA	--	Initial data×1.1
Luminous Intensity	I <sub>V</sub>	I <sub>F</sub> =320mA	Initial data×0.9	--
Reverse Current	I <sub>R</sub>	V <sub>R</sub> =5V	--	≦ 5μA

## 11.Packing Standard

### Label

Model-Model Number

Power-Wattage

Chip-Chip Brand&Chip Size

IF-Forward Current

VF-Range Of Forward Voltage

IV  $\Phi_v$ -Range Of Luminance/Lumen

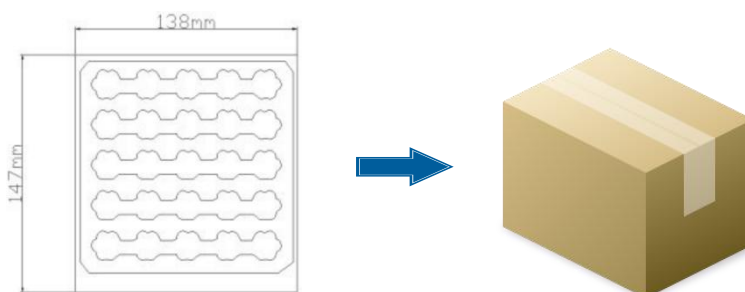
CCT-Correlated Color Temperature

QTY--(Quantity)

SANTANG LIGHTING			
Model			
Power		Chip	
IF		VF	
IV $\Phi_v$		CCT	
Ra		QTY	

2017-08-08

### Packing



PACKING	DETAILS	
	SET	BOX
QTY	12pcs	300boxes

## 12. Legal and additional information.

### About Shenzhen SanTang Lighting Co.,Ltd.

SHENZHEN SANTANG LIGHTING CO., LTD. (hereafter called ST) is the integration of Independent R&D, Production, and Brand agency which is dedicated to providing LED light-emitting devices and LED light-emitting modules for small and medium enterprises (SME).

Main products are widely used in outdoor lighting, commercial lighting, grow lighting, and other special lighting fields which are included three parts with Customized Module Series ( DC/AC PCBA, DC/customized size COB), General Lighting Series ( COB, HIGH POWER LED, SMD) and Special lighting Series(UV,IR,GROW LIGHT), and the products have been exported to Europe, Middle-East, East-South Asia and South America.

OEM/ODM inquiries will be warmly accepted by ST company with its great abilities of product innovation and supply chains management ,and in the next 10 years, we are all committed to focusing on LED light-emitting devices fields and going forward hand in hand with each partner in the best way “Hit The Lights Together”!

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