

# P211C-010-1202

## 产品规格书

### PRODUCT DATA SHEET



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\*规格书如有变更恕不另行通知。

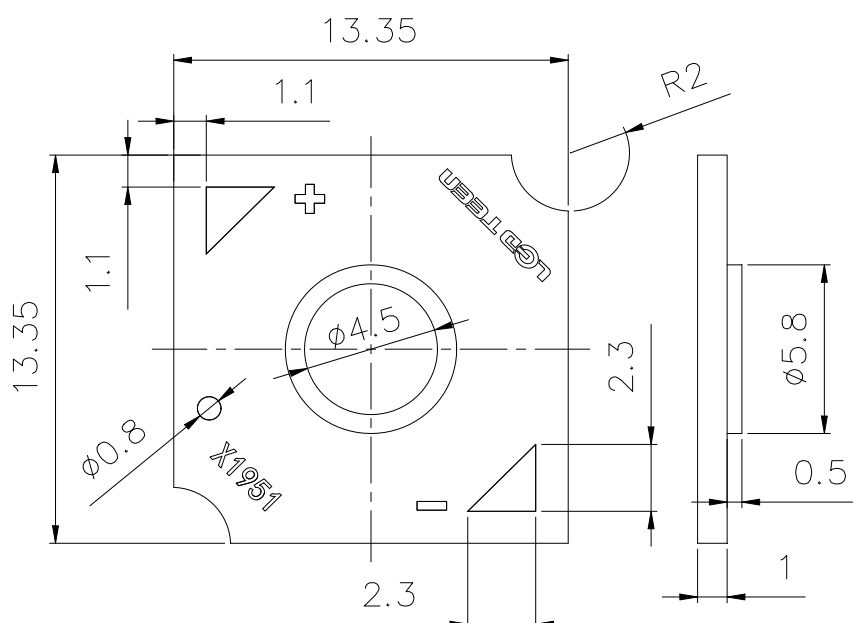
\*规格书最终解释权归硅能光电半导体（广州）有限公司所有。

\* Version:1.1 Date:20220425

## >1.应用范围 Main Applications

导轨灯 Tracking Light	射灯 Spot Light	帕灯 Par Light	球泡 Bulb Light	筒灯 Down Light
				

## >2.产品尺寸 Mechanical Dimensions



\*所有尺寸单位: mm, 所有尺寸公差:  $\pm 0.3\text{mm}$ 。

All dimensions are in millimeters (mm), tolerances are  $\pm 0.3$  mm.

### >3.产品特点 Features

高光品质、高亮度、高光效

High color quality, high-flux, high-efficacy

低热阻

### Low thermal resistance

易于安装使用

Easy for assemble

### 高可靠性

## Long lifetime

光色参照 ANSI 标准

### Available white chromaticity bins form ANSI options

#### >4.光电参数 Electro Optical Parameters

标称电流 (If) = 280mA, 温度 (Tc) = 25℃

产品型号 Product Code	颜色标准	色温 CCT	显指 CRI		光通量 Luminous Flux (lm)		光效 Efficacy (lm/w)	电压 Voltage (V)
			Ra	R9			Typ.	Typ.
			Min.	Min.	Min.	Typ.		
P211C-010-1202-P2280-X	ANSI/ANSI+	2200K	80	0	953	1025	100	36.6
P211C-010-1202-P2580-X	ANSI/ANSI+	2500K	80	0	1001	1076	105	36.6
P211C-010-1202-P2780-X	ANSI/ANSI+	2700K	80	0	1048	1127	110	36.6
P211C-010-1202-P3080-X	ANSI/ANSI+	3000K	80	0	1101	1184	116	36.6
P211C-010-1202-P3580-X	ANSI/ANSI+	3500K	80	0	1122	1206	118	36.6
P211C-010-1202-P4080-X	ANSI/ANSI+	4000K	80	0	1153	1240	121	36.6
P211C-010-1202-P4580-X	ANSI/ANSI+	4500K	80	0	1161	1248	122	36.6
P211C-010-1202-P5080-X	ANSI/ANSI+	5000K	80	0	1169	1257	123	36.6
P211C-010-1202-P5780-X	ANSI/ANSI+	5700K	80	0	1169	1257	123	36.6
P211C-010-1202-P6580-X	ANSI/ANSI+	6500K	80	0	1153	1240	121	36.6
P211C-010-1202-P2290-X	ANSI/ANSI+	2200K	90	50	796	856	84	36.6
P211C-010-1202-P2590-X	ANSI/ANSI+	2500K	90	50	843	907	89	36.6
P211C-010-1202-P2790-X	ANSI/ANSI+	2700K	90	50	891	958	94	36.6
P211C-010-1202-P3090-X	ANSI/ANSI+	3000K	90	50	954	1026	100	36.6
P211C-010-1202-P3590-X	ANSI/ANSI+	3500K	90	50	954	1026	100	36.6
P211C-010-1202-P4090-X	ANSI/ANSI+	4000K	90	50	980	1054	103	36.6
P211C-010-1202-P4590-X	ANSI/ANSI+	4500K	90	50	987	1061	104	36.6
P211C-010-1202-P5090-X	ANSI/ANSI+	5000K	90	50	994	1068	104	36.6
P211C-010-1202-P5790-X	ANSI/ANSI+	5700K	90	50	994	1068	104	36.6
P211C-010-1202-P6590-X	ANSI/ANSI+	6500K	90	50	980	1054	103	36.6
P211C-010-1202-P2797-X	ANSI/ANSI+	2700K	97	90	695	747	73	36.6
P211C-010-1202-P3097-X	ANSI/ANSI+	3000K	97	90	771	829	81	36.6
P211C-010-1202-P3597-X	ANSI/ANSI+	3500K	97	85	809	870	85	36.6
P211C-010-1202-4097-X	ANSI/ANSI+	4000K	97	85	848	911	89	36.6
P211C-010-1202-P4595-X	ANSI/ANSI+	4500K	95	80	839	902	88	36.6
P211C-010-1202-P5095-X	ANSI/ANSI+	5000K	95	80	845	908	89	36.6

\*测试仪测量的公差 电压  $\pm 5\%$ , 光通量  $\pm 7\%$ ,  $Ra \pm 1$ 。

The tolerance of measurement at our tester is voltage  $\pm 5\%$ , luminous flux  $\pm 7\%$  and  $Ra \pm 1$ .

\*光通量在积分球内测量。

Luminous flux inside the integrating sphere measurements.

\*x 为 1 时, 代表硅能 A 光色, x 为 2 时, 代表硅能 A+ 光色。

When x is 1, it represents the color of LEDTEEN A light, and when x is 2, it represents the color of LEDTEEN A+ light.

\*When  $Ra=97, Ra \min \geq 96, R9=90 \pm 3$  at 2700K, 3000K;  $R9=85 \pm 3$  at 3500K, 4000K. When  $Ra=95, R9=80 \pm 3$  at 4500K, 5000K.

## >5.极限参数 Limit Parameters

项目 Item	符号 Symbol	最小 Min	最大 Max	单位 Unit
正向电流 Forward Current	$I_F$	40	440	mA
正向电压 Forward Voltage	$V_F$	33.6	39.6	V
工作温度 Operating Temperature	$T_{opr}$	-40	+105	°C
储存温度 Storage Temperature	$T_{stg}$	-40	+120	°C
手工焊接温度 Soldering Temperature	$T_{sol}$	/	280	°C
结温 Junction temperature	$T_j$	/	150	°C
热阻 Thermal Resistance	$R_{j-c}$	/	1.6	°C/W
抗静电能力 Antistatic Ability	ESD	2000	/	V

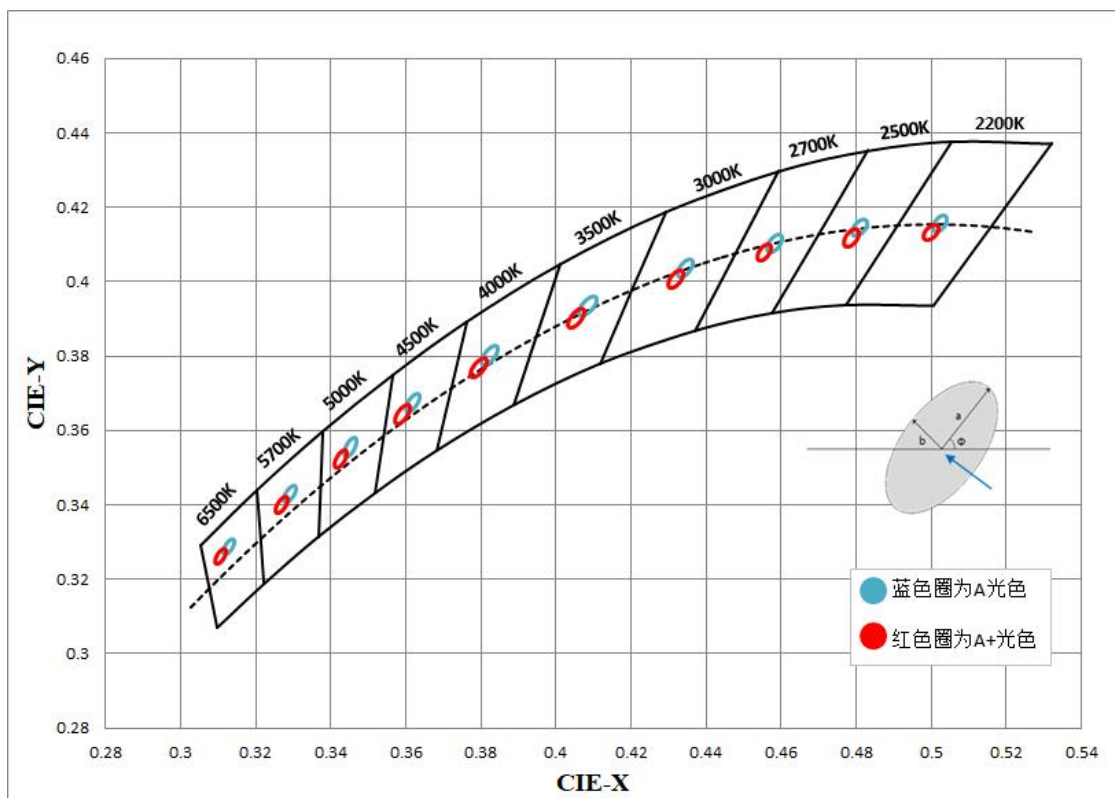
\*产品使用时，基板温度不能超过 105℃，若有超出温度，请降低电流使用或联系我们。

The using temperature is less than 105℃; please reduce the using current or contact with us if using temperature is more than 105℃.

\*当手工焊接时,烙铁的温度不能超过 280℃,时间不能超过 10 秒。

When hand soldering,keep the temperature of iron below less 280℃ less than 10 seconds.

## >6.色度坐标组 Chromaticity Coordinate Groups





色温代码 CCT Code	色温 CCT	电流 mA Current(mA)	中心坐标 Center Point		半长轴 a Major Axis a	半短轴 b Minor Axis b	旋转角 $\theta$ Ellipse Rotation Angle $\theta$
			CIE-X A/A+	CIE-Y A/A+			
P22	2200K	280	0.5022/0.4999	0.4155/0.4132	0.0025	0.0014	52.78
P25	2500K	280	0.4809/0.4788	0.4145/0.4117	0.0026	0.0014	53.10
P27	2700K	280	0.4583/0.4555	0.4103/0.4078	0.0027	0.0014	53.42
P30	3000K	280	0.4344/0.4318	0.4036/0.4008	0.0028	0.0014	53.13
P35	3500K	280	0.4085/0.4054	0.3935/0.3901	0.0032	0.0014	52.58
P40	4000K	280	0.3824/0.3794	0.3801/0.3769	0.0031	0.0013	53.43
P45	4500K	280	0.3618/0.3592	0.3675/0.3642	0.0029	0.0013	56.40
P50	5000K	280	0.3451/0.3427	0.3555/0.3524	0.0027	0.0012	59.37
P57	5700K	280	0.3291/0.3269	0.3429/0.3401	0.0025	0.0011	58.86
P65	6500K	280	0.3127/0.3107	0.3287/0.3261	0.0022	0.0010	58.34

\*色坐标允许误差  $\pm 0.005$ ，色容差为 1 阶麦克亚当椭圆。

LEDTEEN maintains chromaticity (x, y)  $\pm 0.005$ , color region stay within MacAdam 1-step ellipse from the chromaticity center.

\*ANSI 标准简称 A 标，参考来源 ANSI-C78.377-2015。

The ANSI standard is A standard for short, reference standard is ANSI-C78.377-2015.

\*产品 A 光色与 A+光色均满足 ANSI 标准。

Both product A color and A+color meet ANSI standards.

## >7.特性曲线 Characteristic Curves

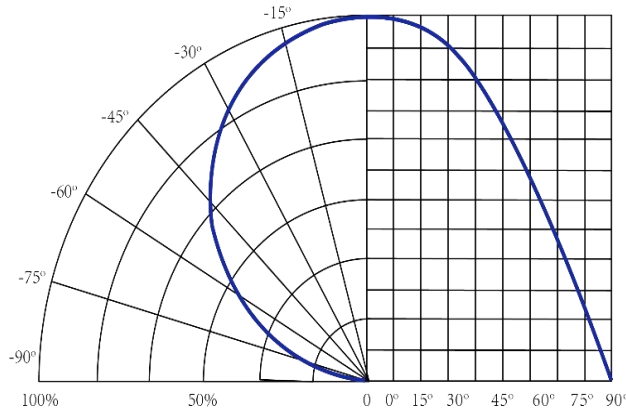
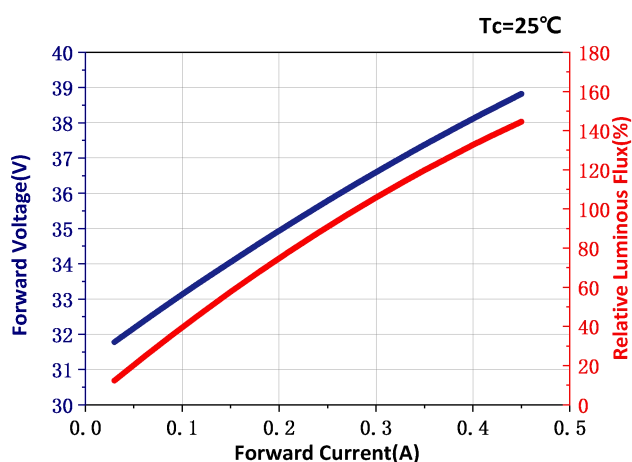
### 7-1.电流特性/辐射特性/温度特性 Forward Current Characteristics/Radiation Characteristics/Temperature Characteristics

电流与电压，电流与相对光通量曲线图

Forward Voltage vs Forward Current (blue line),  
Relative Luminous Flux vs Forward Current (red line)

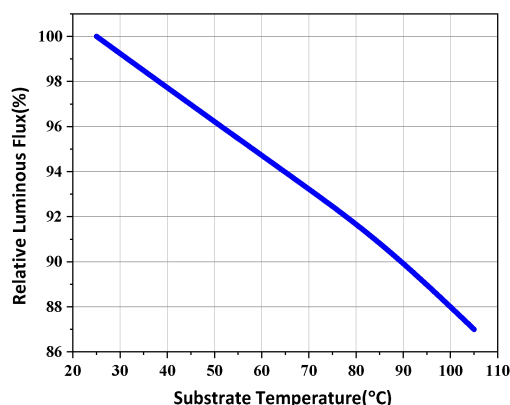
辐射角度

Radiation Angle



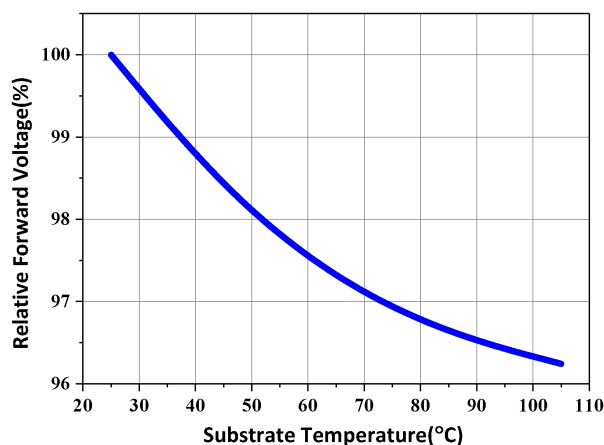
### 基板温度与相对光通量曲线

Relative Luminous Flux vs Substrate Temperature If=280mA



### 基板温度与电压曲线图

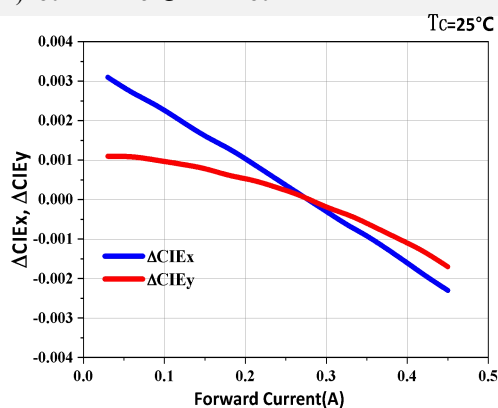
Forward Voltage vs Substrate Temperature If=280mA



## 7-2.色漂移特性 Color Shift Characteristics

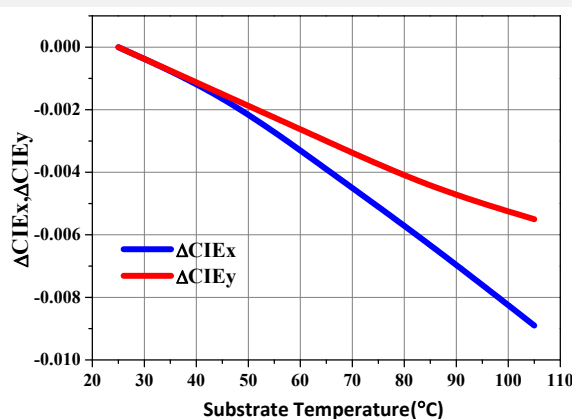
### 电流与 XY 坐标变化曲线图

$\Delta CIE x, \Delta CIE y$  vs Forward Current  
CRI(Ra)=80 Tc=25°C If=280mA



### 基板温度与 XY 坐标变化曲线图

$\Delta CIE x, \Delta CIE y$  vs Substrate Temperature  
CRI(Ra)=80 Tc=25°C If=280mA



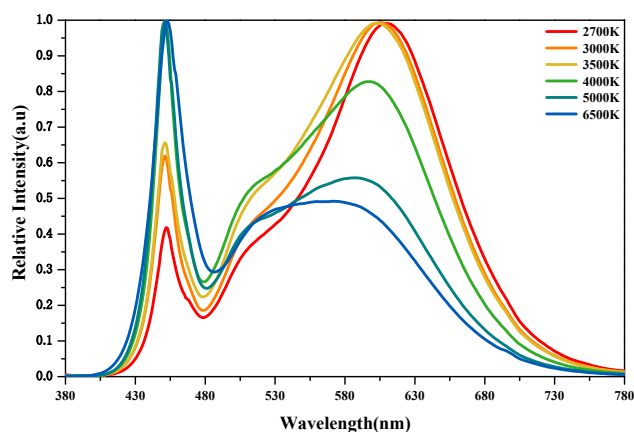
## 7-3.光谱图 spectrum distribution

### 相对光谱与波长曲线图

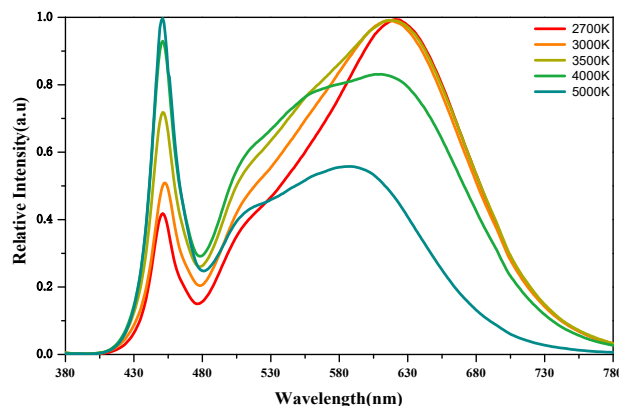
Relative Intensity vs Wavelength  
=280mA

Tc=25°C If

CRI(Ra) 80Min



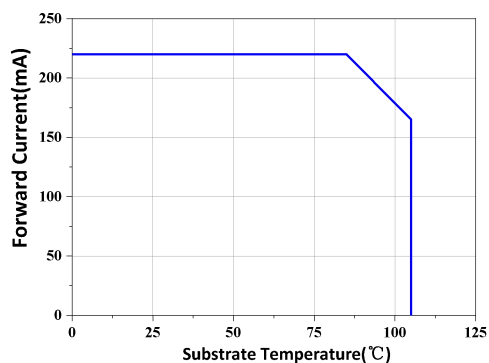
CRI(Ra) 90Min



#### 电流与基板温度变化曲线图

Forward Current vs Substrate Temperature

Sample: 1201



备注：该图数据是在单路 12 个芯片串联情况下的测试结果。对于多路芯片并联的情况，可以此图数据为基础乘以相应倍数。

Note: this diagram is based on the test result of a product with twelve chips in series and one in parallel (1201). For multiple-parallel products, the maximum forward current can be calculated by multiplying the number of parallels and the data shown in the diagram.

### >8. 产品编码 Encoding

XX XXX - XXX - XXXX-XXX XX - X (eg: P2121-006-1201-P3080-X)



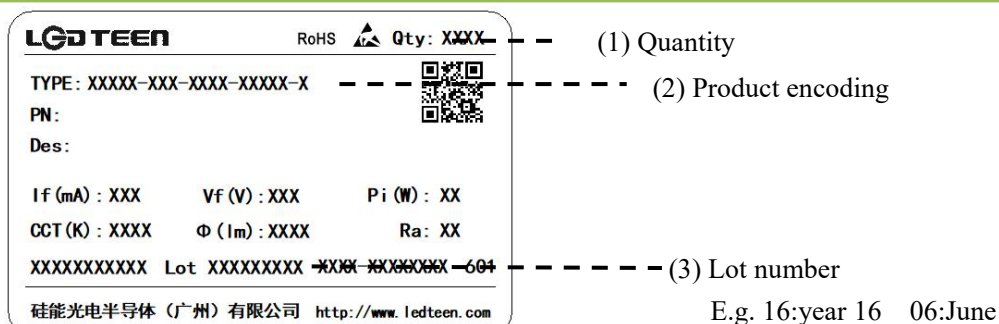
## >9.热测参考光电参数 Thermal transient Electro Optical Parameters for reference

产品型号 Product Code	测试温度 Test Temperature(℃)	测试电流 Forward Current (mA)	光效 Efficacy (lm/w) Typ.	光通量 Luminous Flux (lm) Typ.
P211C-010-1202-P2280-X	85℃	280mA	90	904
P211C-010-1202-P2580-X	85℃	280mA	95	949
P211C-010-1202-P2780-X	85℃	280mA	99	994
P211C-010-1202-P3080-X	85℃	280mA	104	1044
P211C-010-1202-P3580-X	85℃	280mA	106	1064
P211C-010-1202-P4080-X	85℃	280mA	109	1094
P211C-010-1202-P4580-X	85℃	280mA	110	1101
P211C-010-1202-P5080-X	85℃	280mA	110	1109
P211C-010-1202-P5780-X	85℃	280mA	110	1109
P211C-010-1202-P6580-X	85℃	280mA	109	1094
P211C-010-1202-P2290-X	85℃	280mA	75	755
P211C-010-1202-P2590-X	85℃	280mA	80	800
P211C-010-1202-P2790-X	85℃	280mA	84	845
P211C-010-1202-P3090-X	85℃	280mA	90	905
P211C-010-1202-P3590-X	85℃	280mA	90	905
P211C-010-1202-P4090-X	85℃	280mA	93	930
P211C-010-1202-P4590-X	85℃	280mA	93	936
P211C-010-1202-P5090-X	85℃	280mA	94	942
P211C-010-1202-P5790-X	85℃	280mA	94	942
P211C-010-1202-P6590-X	85℃	280mA	93	930
P211C-010-1202-P2797-X	85℃	280mA	66	659
P211C-010-1202-P3097-X	85℃	280mA	73	732
P211C-010-1202-P3597-X	85℃	280mA	76	768
P211C-010-1202-P4097-X	85℃	280mA	80	804
P211C-010-1202-P4595-X	85℃	280mA	79	796
P211C-010-1202-P5095-X	85℃	280mA	80	801

## >10.包装说明 Packing Specification

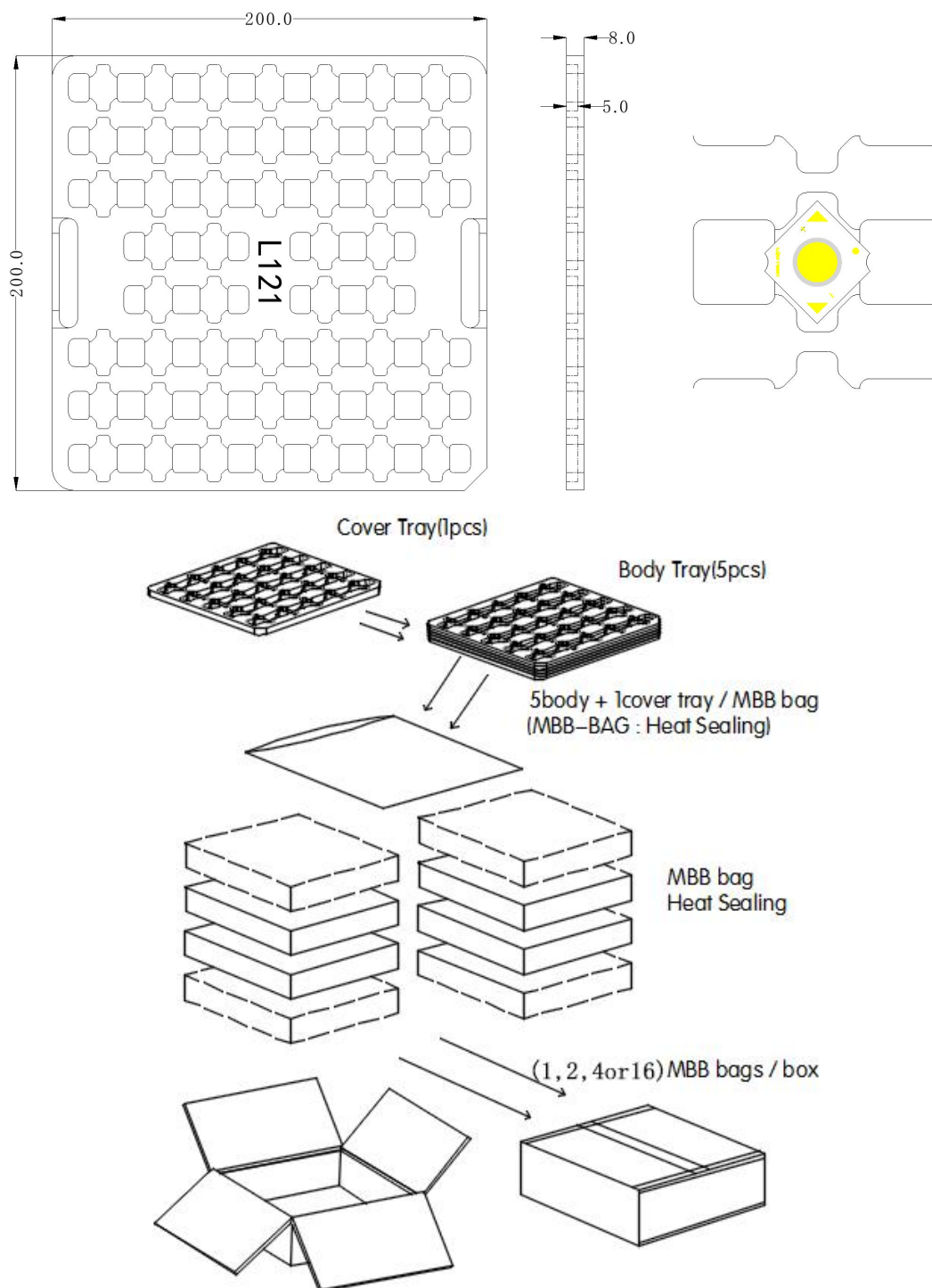
### 标签信息

### Label information



## 包装方式

Manner of packing



\*每一个静电袋中含有 5 盘 COB 及 1 空盘顶盒，每盘有 50 PCS COB。（最小包装数为 250 PCS）

An empty tray is placed on top of a 5-tier tray which contain 50 PCS each.(Smallest packing unit:250 PCS)

\*标签会标识在空盘顶盒的外静电袋上，说明该静电袋中的 COB 产品名称，数量及批号。（托盘尺寸为：200\*200\*8 mm）

A label whit product name,quantity and lot number is placed on the upper empty tray.(Tray Dimension:200\*200\*8 mm)

## >11.注意事项 Cautions

### 1. 储存条件 Storage

储存环境湿度小于 60%，温度应保持在 20°C-30°C。

Store the parts in a dry, nitrogen-purged cabinet or container that actively maintains the temperature at 20°C-30°C and the RH at no greater than 60%.

### 2. 使用注意事项 Precautions for Use

正确使用防静电手环，防静电垫子，防静电工作服和工作鞋，手套和防静电容器，能有效的防止静电和电涌，注意烙铁点应正确接地。人手焊接：烙铁的温度必须不高于 280°C，一次焊接时间不超过 10 秒。

By using anti-static-electricity bracelets/ cushions/ overalls/ shoes/gloves and anti-static-electricity containers, it can effectively prevent static electricity and surge. The soldering iron point should be properly grounded. Use soldering by hand: Soldering bit temperature shall be 280°C or less, Heating time: 10 seconds or less.

### 3. 静电防护 ESD Protection

本产品对静电敏感，所以在使用本产品时必须采取有效的防护措施。尤其是静电产生的高压电流超过产品的最大额定值，会引起产品的损坏，或者可能使产品完全失效。客户使用产品时，应采取有效的防止静电和电涌的对应措施。接地电阻 $\leq 10\Omega$ 。

You need to take the protective measures for the product being sensitive to static electricity. It can lead to product damage or even the total invalid when the high voltage current made by static electricity is beyond the maximum rating. The ground resistance can't beyond  $10\Omega$ .

### 4. 清洁 Cleaning

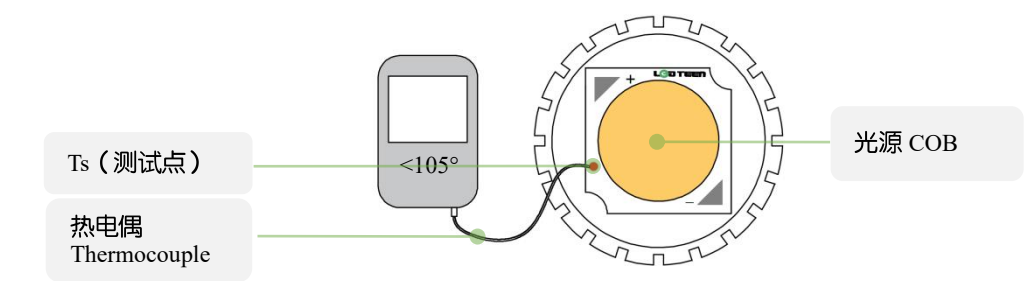
请不要让导热脂、油等接触到发光面，污垢可用气枪能去除。气枪压力：0.5MPa，时间：1~2 秒，距离：隔开 20cm 以上。

Please do not make the thermal grease, oil exposed to the light-emitting surface, air gun can be used to remove dirt. Guns Pressure: 0.5MPa, Time: 1 to 2 seconds, Distance: more than 20cm.

### 5. 过流保护 Overcurrent Protection

任何时候请勿按压胶体部分，以免产品表面不良甚至失效。建议在设计 PCB 时有接地电路。特别注意灯珠使用环境：湿度在 50%~80%之间，否则将会有静电击穿和大电流击死，温度在-40°C到 105°C使用。在使用本产品时，请注意参考规格书中的最大额定值和使用说明，如果没有遵照产品规格书中的最大额定值以及使用说明而产生的不良后果，不在硅能承诺范围之内。

Any time, don't press colloid part, lest product surface come to be damaged or even invalid. It is recommended to design PCB with ground circuit. Pay special attention to the use environment of the products: Humidity must be between 50% and 80%, or else electrostatic breakdown and overcurrent damage would occur. The use temperature is -40°C~105°C. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these data sheets. LEDTEEN assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these data sheets.



### 6. 热设计 Thermal Design

LED 照明系统的良好运行取决于 LED 封装内部热阻、外部导热热阻、功率损耗和环境温度。

LED 结温过高将影响光通量和光源寿命。在散热设计时需充分的考虑这些因素。

The thermal design to draw heat away from the LED junction is most critical parameter for an LED illumination system. High

operating temperatures at the LED junction adversely affect the performance of LED's light output and lifetime. Therefore the LED junction temperature should not exceed the absolute maximum rating in LED illumination system.

#### 7.安全提示 Safety Tips

在使用本产品的所有阶段，必须符合国家相关安全标准（如 GB7000.1-2007 等），对用户不遵守国家安全标准的行为，我司不承担任何责任。

During using this product, the country relative safety standards (eg. GB7000.1-2007) should be accorded with. We will not be liable for the users' acts of non-observance of the country safety standards.

\*温馨提示：为了保护环境，请将废弃光源按一般废弃物合规处理

Reminder: In order to protect the environment, please dispose the waste light according to the general waste

\*如对本规格书内容有异议，请在接收到规格书 7 日内书面形式向我司提出，否则视为默认接受本规格书之全部内容。

If you have any objection of this datasheet, please inform us in writing within 7 days, or it will be considered as accepting all the contents of this datasheet.