



佛山市国星光电股份有限公司

FOSHAN NATIONSTAR OPTOELECTRONICS CO., LTD

产品规格书 SPECIFICATION

顾客名称 Customer		产品名称 Product	多芯片组合 Combination of multi-chip
顾客部品号 Customer No.		产品型号 Type	MC-P1215CW-3W0350310

顾客确认 APPROVED SIGNATURES

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批准 APPROVE	审核 CHECK	制定 DRAW
版本号 (Version No.): B		
文件发放日期 (Release Date): 2012-06-08		

MC-P1215CW-3W0350310

多芯片组合
Combination of multi-chip

技术数据表 Technical Data Sheet

本产品在小尺寸上集成了高光强、高光效，长寿命等优点，其主要应用于家庭日常照明，建筑照明，泛光照明，路灯以及各类商业和娱乐的装饰照明。例如：MR16, AR111, PAR, 球泡灯等。

This product is heat dissipation effect, high intensity, high luminous efficiency and long working life. It is generally used for common illuminate, architectural lighting or for commercial and entertainment decorative lighting. It is also be used as TFT-LCD back lighting.

特性:

Features:

- 功率等级: 3.15 W
Power: 3.15 W
- 适合大电流应用电路
Adapt to large current circuit
- 特别适合恶劣的工作环境
Adapt to severe working atmosphere especially
- 高发光效率: 103 lm/W
High Illuminant Efficiency: 103 lm/W
- 符合欧盟公布 RoHS 指令
Complied With RoHS Directive

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* 产品规格如因工艺改进而有所改变，恕不另行通知。

*The Specifications of the product may be modified for improvement without notice.

光电性参数

Optical-Electrical Characteristics

- ◇ **极限参数 (温度=25℃):**
Absolute Maximum Ratings (Temperature=25℃):

参数名称 Parameter	符号 Symbol	数值 Rating	单位 Unit
正向电流 Forward Current	I_F	600 MAX	mA
反向电压 Reverse Voltage	V_R	15 MAX	V
静电敏感 Antistatic Effect	--	1000	V
工作温度 Operating Temperature	T_{OPR}	-30 ~ +100	℃
贮存温度 Storage Temperature	T_{stg}	-40 ~ +100	℃
功耗 Power	P_D	4	W
焊接温度 Solder Temperature	T_{sld}	手工焊: 350℃ < 5 sec.	

* 注: 脉冲宽度 $\leq 0.1ms$, 占空比 $\leq 1/10$

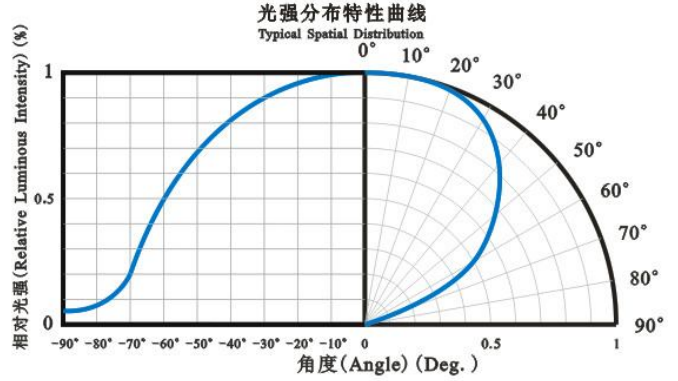
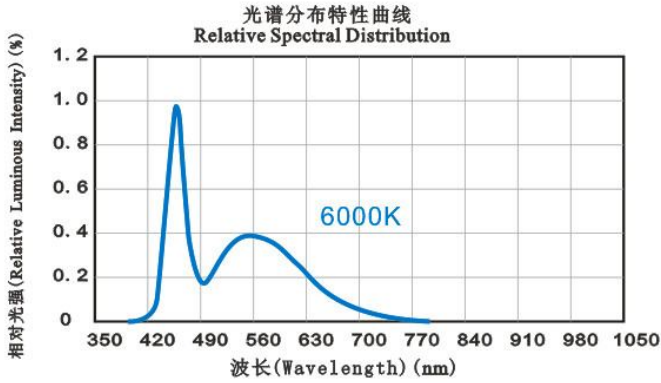
* Note: Pulse width $\leq 0.1ms$, Duty $\leq 1/10$

- ◇ **光电参数 (温度=25℃):**
Electro-Optical Characteristics (Temperature=25℃):

参数名称 Parameter	符号 Symbol	条件 Condition	最小值 Min.	典型值 Typ.	最大值 Max.	单位 Unit
正向电压 Forward Voltage	V_F	$I_F=350mA$	8.85	9.00	9.15	V
反向电流 Reverse Current	I_R	$V_R=15V$	--	--	100	μA
色温 Color temperature	T_C	$I_F=350mA$	--	6000	--	K
显色指数 CRI	R_a	$I_F=350mA$	--	70	--	
光通量 Flux	Φ_v	$I_F=350mA$	--	325	--	lm

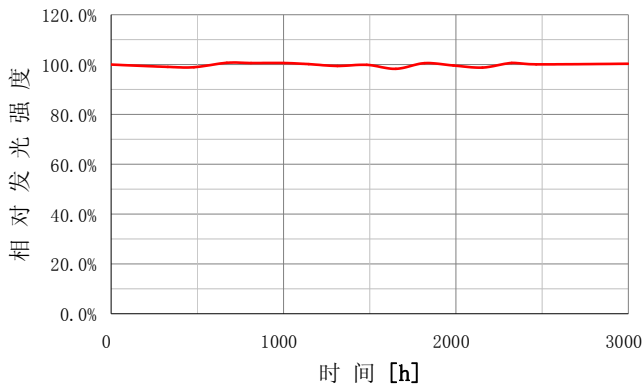
典型特性曲线

Typical Characteristics Curves



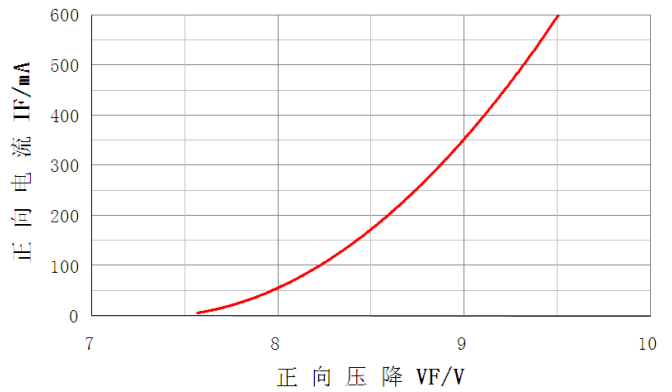
光衰特性曲线:

Optic Attention Characteristics Curves:



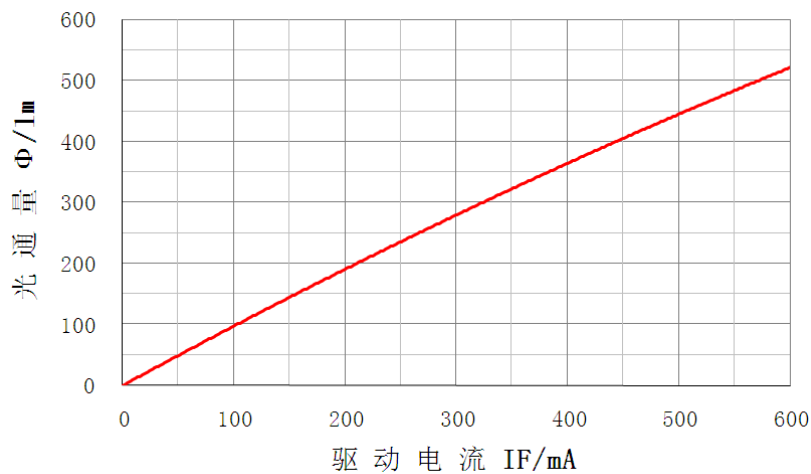
I-V 特性曲线:

Forward Voltage vs. Forward Current:



电流光通关系曲线:

Forward Current vs. Luminous Flux:



可靠性试验

Reliability Test Items And Conditions

实验项目 Test Items	参考标准 Reference	实验条件 Test Conditions	时间 Time	样品数 Quantity	判据 Criterion
冷热冲击 Thermal Shock	MIL-STD-202G	-40°C(30min)←→100°C(30min)	循环 100 次 100 cycles	22	0/22
湿热循环 Temperature And Humidity Cylic	JEITA ED-4701 200 203	-10°C~65°C , 0%~90%RH 24hrs./1cycle	循环 10 次 10 cycles	22	0/22
高温高湿储存 High Temperature High Humidity Storage	JEITA ED-4701 100 103	Ta=60°C, RH=90%	1000h	22	0/22
高温寿命 High Temperature Life Test	JESD22-A108D	Ta=55°C IF =350mA	1000h	22	0/22
常温寿命试验 Life Test	JESD22-A108D	Ta=25°C IF =350mA	1000h	22	0/22

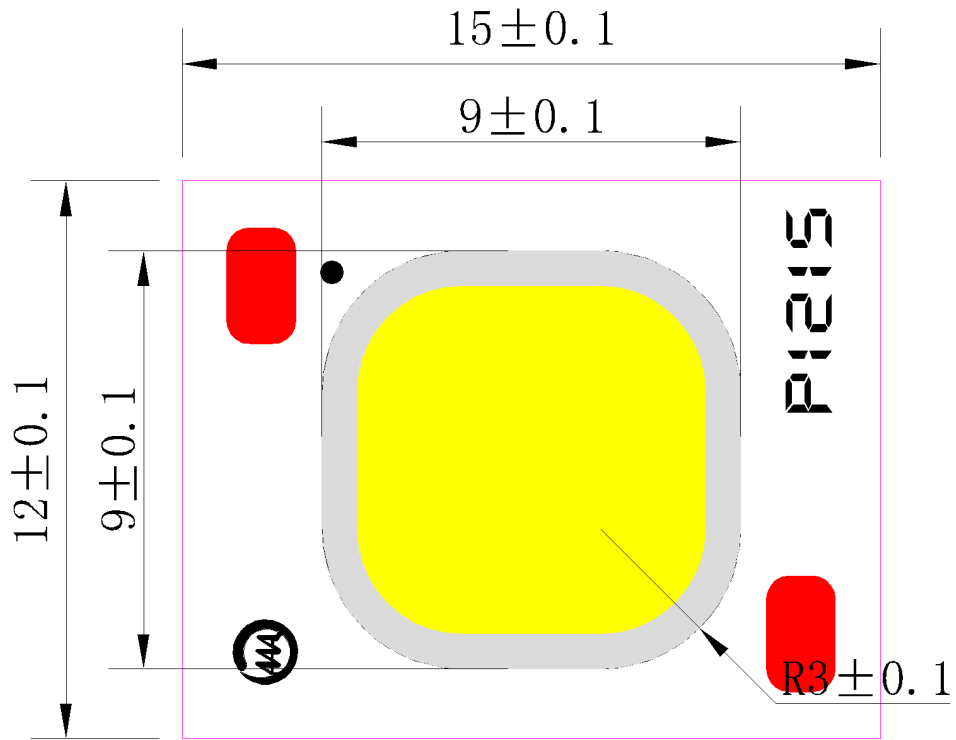
* 单个 LED 失效判断标准 Criteria For Judging Damage of One single LED

测试项目 Test Items	符号 Symbol	测试条件 Test Conditions	判定标准 Criteria For Judging Damage
正向电压 Forward Voltage	V_F	$I_F = I_{FT}$	初始值±10% Initial Data±10%
光通量 Luminous Flux	Φ_V	$I_F = I_{FT}$	平均 Φ_V 衰减≤30%，单个 Φ_V 衰减≤50% Average Φ_V degradation≤30%; Single LED Φ_V degradation≤50%
耐焊接热 Resistance to Soldering Heat			材料无内部裂痕、无材料间爆裂、剥离、无死灯。 Meterial without internal cracks, no meterial between stripped, no deaded light.

* 注：Tsol-锡液温度 * Note: Tsol-Temperature of tin liquid.

外形尺寸

Outline Dimension



使用注意事项 (1)

Precautions (1)

1. 使用烙铁人手焊接

Hand Soldering

人手焊接过程中的不慎操作易引起 LED 产品的损坏，应当小心谨慎。

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

在焊接升温过程中，请不要对 LED 施加任何压力。

Stress on the LEDs should be avoided during heating in soldering process.

在焊接完成后，待产品温度下降到室温之后，再进行其他处理。

After soldering, do not deal with the product before its temperature drop down to room temperature.

2. 清洗:

Cleaning

在焊接后推荐使用酒精进行清洗，在温度不高于 30℃ 的条件下持续 3 分钟，不高于 50℃ 的条件下持续 30 秒。使用其他类似溶剂清洗前，请先确认使用的溶剂不会对 LED 的封装和硅树脂部分造成损伤。

超声波清洗也是有效的方法，一般最大功率不应超过 300W，否则可能对 LED 造成损伤。请根据具体的情况预先测试清洗条件是否会对 LED 造成损伤。

It is recommended that alcohol be used as a solvent for cleaning after soldering. Cleaning is to go under 30℃ for 3 minutes or 50℃ for 30 seconds. When using other solvents, it should be confirmed beforehand whether the solvents will dissolve the package and the resin or not.

Ultrasonic cleaning is also an effective way for cleaning. But the influence of Ultrasonic cleaning on LED depends on factors such as ultrasonic power. Generally, the ultrasonic power should not be higher than 300W. Before cleaning, a pre-test should be done to confirm whether any damage to LEDs will occur.

*** 注意:** 此一般指导原则并不适用于所有焊接设备的配置。具体工艺受到诸多因素的影响，请根据特定的设计和焊接设备来确定焊接方案。

*** Note:** This general guideline may not apply to configurations of all soldering equipment. The technics in practice is influenced by many factors, it should be specialized base on the designs and configurations of the soldering equipment..

使用注意事项 (2)

Precautions (2)

3. 静电:

Static Electricity

静电和电涌会导致产品特性发生改变, 例如正向电压降低等, 如果情况严重甚至会损毁产品。所以在使用时必须采取有效的防静电措施。

所有相关的设备和机器都应该正确接地, 同时必须采取其他防止静电和电涌的措施。

使用防静电手环, 防静电垫子, 防静电工作服、工作鞋、手套, 防静电容器, 都是有效的防止静电和电涌的措施。

Static electricity or surge voltage damages the LEDs. Damaged LEDs will show some unusual characteristics such as the forward voltage becomes lower, or the LEDs do not light at the low current., even not light.

All devices, equipment and machinery must be properly grounded. At the same time, it is recommended that wrist bands or anti-electrostatic gloves, anti-electrostatic containers be used when dealing with the LEDs.

4. 设计建议:

Design Consideration

设计电路时, 通过 LED 的电流不能超过规定的最大值, 同时, 还需使用保护电阻, 否则, 微小的电压变化将会引起较大的电流变化, 可能导致产品损毁。

In designing a circuit, the current through each LED must not exceed the absolute maximum rating specified for each LED. In the meanwhile, resistors for protection should be applied, otherwise slight voltage shift will cause big current change, burn out may happen.

LED 的特性容易因为自身的发热和环境的温度的改变而发生改变。温度的升高会降低 LED 的发光效率、影响发光颜色等, 所以在设计时应充分考虑散热的问题。

Thermal Design is paramount importance because heat generation may result in the Characteristics decline, such as brightness decreased, Color changed and so on. Please consider the heat generation of the LEDs when making the system design.

5. 眼睛保护忠告:

Safety Advice For Human Eyes

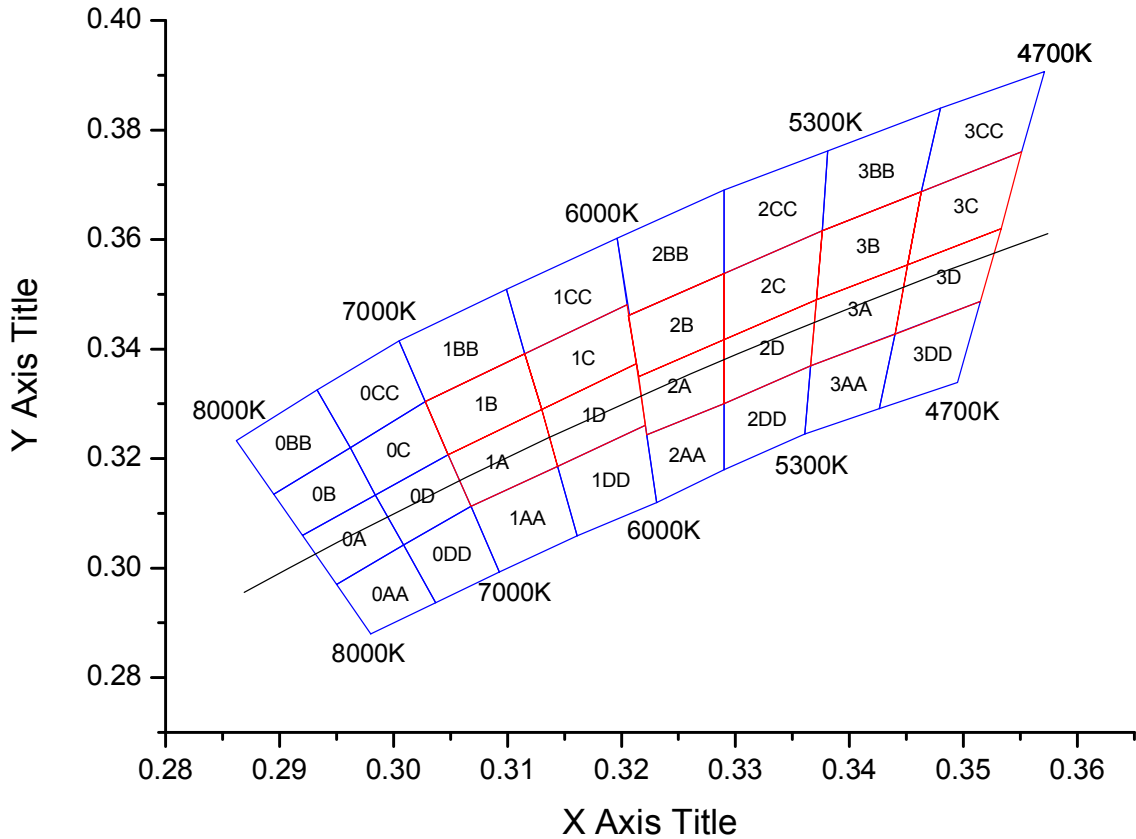
LED 发光时, 请勿直视发光光源, 特别是对于一些光强较高的 LED, 强光可能伤害你的眼睛。

Viewing direct to the light emitting center of the LEDs, especially those of great Luminous Intensity, will cause great hazard to human eyes. Please be careful.

附录：分档标准

Appendix: Ranking Criteria

色坐标分档图
Chromaticity Diagram of Ranking



冷白 Cool White (CW)											
Region	x	y	Region	x	y	Region	x	y	Region	x	y
OA	0.295	0.297	OB	0.292	0.306	OC	0.2984	0.3133	OD	0.2984	0.3133
	0.292	0.306		0.2895	0.3135		0.2962	0.322		0.3048	0.3207
	0.2984	0.3133		0.2962	0.322		0.3028	0.3304		0.3068	0.3113
	0.3009	0.3042		0.2984	0.3133		0.3048	0.3207		0.3009	0.3042
OAA	0.298	0.288	OBB	0.2895	0.3135	OCC	0.2962	0.322	ODD	0.3037	0.2937
	0.295	0.297		0.2862	0.3233		0.2933	0.3325		0.3009	0.3042
	0.3009	0.3042		0.2933	0.3325		0.3005	0.3415		0.3068	0.3113
	0.3037	0.2937		0.2962	0.322		0.3028	0.3304		0.3093	0.2993
1A	0.3048	0.3207	1B	0.3028	0.3304	1C	0.3115	0.3391	1D	0.313	0.329
	0.313	0.329		0.3115	0.3391		0.3205	0.3481		0.3213	0.3373
	0.3144	0.3186		0.313	0.329		0.3213	0.3373		0.3221	0.3261
	0.3068	0.3113		0.3048	0.3207		0.313	0.329		0.3144	0.3186

1AA	0.3093	0.2993	1BB	0.3005	0.3415	1CC	0.3099	0.3509	1DD	0.3161	0.3059
	0.3068	0.3113		0.3099	0.3509		0.3196	0.3602		0.3144	0.3186
	0.3144	0.3186		0.3115	0.3391		0.3205	0.3481		0.3221	0.3261
	0.3161	0.3059		0.3028	0.3304		0.3115	0.3391		0.3231	0.312
2A	0.3215	0.335	2B	0.3206	0.3461	2C	0.329	0.3538	2D	0.329	0.3417
	0.329	0.3417		0.329	0.3538		0.3376	0.3616		0.3371	0.349
	0.329	0.33		0.329	0.3417		0.3371	0.349		0.3366	0.3369
	0.3222	0.3243		0.3215	0.335		0.329	0.3417		0.329	0.33
2AA	0.3231	0.312	2BB	0.3196	0.3602	2CC	0.329	0.369	2DD	0.329	0.318
	0.3222	0.3243		0.329	0.369		0.3381	0.3762		0.329	0.33
	0.329	0.33		0.329	0.3538		0.3376	0.3616		0.3366	0.3369
	0.329	0.318		0.3206	0.3461		0.329	0.3538		0.3361	0.3245
3A	0.3371	0.349	3B	0.3376	0.3616	3C	0.3463	0.3687	3D	0.3451	0.3554
	0.3451	0.3554		0.3463	0.3687		0.3551	0.376		0.3533	0.362
	0.344	0.3427		0.3451	0.3554		0.3533	0.362		0.3515	0.3487
	0.3366	0.3369		0.3371	0.349		0.3451	0.3554		0.344	0.3427
3AA	0.3361	0.3245	3BB	0.3381	0.3762	3CC	0.348	0.384	3DD	0.3426	0.3291
	0.3366	0.3369		0.348	0.384		0.3571	0.3907		0.344	0.3428
	0.344	0.3428		0.3463	0.3687		0.3551	0.376		0.3515	0.3487
	0.3426	0.3291		0.3376	0.3616		0.3463	0.3687		0.3495	0.3339


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