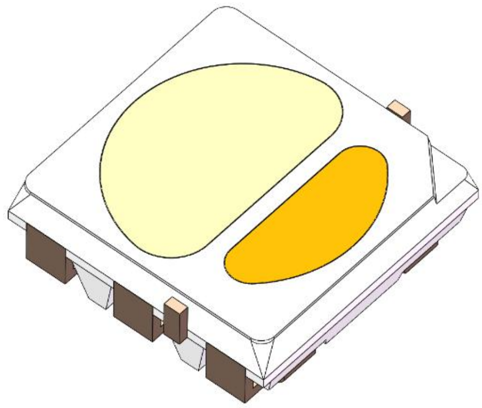
Product Specification

SAP料号 SAP part No. :	**10201T6805A490XXA0**
产品型号 Product P/N :	**SK6805-T52491H6RGBWP6-HV-XW-E-A-0XX**
样 品 号 SAP part No. :	**NMD000390-0XX**
客户料号 Client P/N :	**NA**
版 本 号 Version No.：	**A/0**
时 间 Sending Date :	**2024-09-13**

目 录 Catalogue

1.产品概述 Product overview:



● 工作电压：12V@5mA(OUT RGB) ， 12V@12mA(OUT W) ；

Forward voltage: 12V@5mA(OUT RGB) ， 12V@12mA(OUT W) ；

● 发光角度：120° ；

Typical view angle 50%:120 ° ；

● 胶体颜色：半透明；

Lens color: translucent ；

● 内置复位电路，上电不亮灯；

Built-in reset circuit, power does not light ；

● 灰度调节：256级；

Grayscale adjustment：256 levels ；

● 单线归零码传输协议，可无限级联；

Single-line zero code transmission protocol, can be infinite cascade；

● 数据传输频率可达800Kbps， 当刷新速 30帧/秒时，级联数 小于1024点；

The data transmission frequency can reach 800Kbps, and when the refresh rate is 30 frames per second, the number of cascades is not less than 1024 points ；

● 湿敏等级：5a ；

MSL：5a ；

● 静电ESD：2KV；

ESD level: 2KV；

●符合RoHS REACH；

RoHS and REACH-compliant.

2.主要应用 Main applications:

● 消费电子产品（SMT）

consumer electronics（SMT）

3. 产品命名一般说明 General instructions for product naming：

SK 6805-T5249 1H6 RGBW P6-HV-XW-E-A-00X

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

①	②	③	④	⑤
系列 series	IC系列与电流代码 IC series and current codes	封装外形 Package outline dimensions	产品高度 Product height	颜色代码 color codes
默认为RGB晶片与 IC 集成在一起 Default to RGB chip integrated with IC	6805：指68系列IC RGB:5mA电流 W:12mA电流版本 Refers to the 68 series IC; OUT R/G/B：5mA ，OUT W：12mA current version	T:顶面发光SMD产品 Top-face luminescent SMD product 5249:5.2*4.9*1.65mm	1H6:1.6mm	RGBW-BW: R:620-630nm G:515-530nm B:460-470nm W:While light

⑥	⑦	⑧	⑨	⑩
引脚数量 Number of pins	工作电压 Forward voltage	色温代码 TC code	胶体类型 Colloid type	内部编码 internal code
P6:6 脚 6 feet	HV:12V	XW: BW:5500-10000K NW:3600-4500K WS:2800-3200K	E:环氧树脂 epoxy	00X:内部编码 internal code

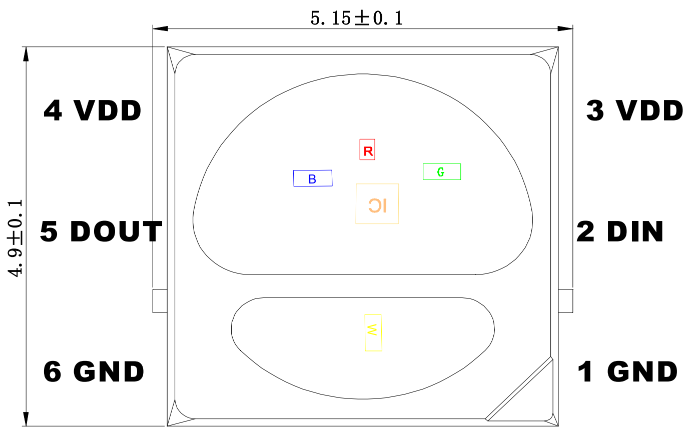
3.1.产品代码说明 Product code description:

序号 NO	产品型号 Model	样品号 Semple NO	SAP 代码 SAP Code	色温 Color temperature
1	SK6805-T52491H6RGBWP6-HV-BW-E-A-004	NMD000390-026	10201T6805A49014A0	5500-10000K
2	SK6805-T52491H6RGBWP6-HV-WS-E-A-004	NMD000390-027	10201T6805A49015A0	2800-3200K

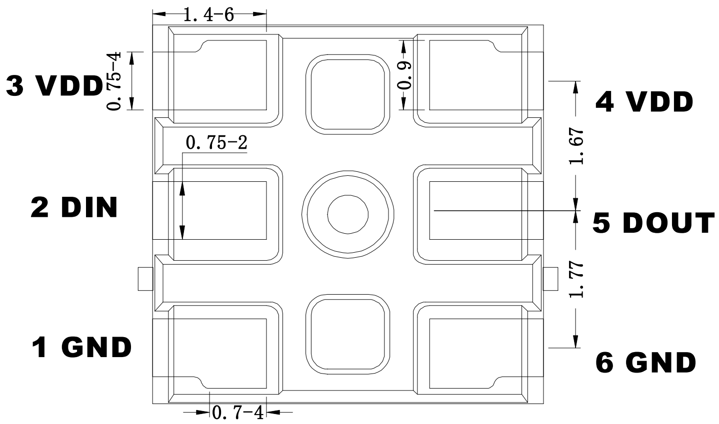
注：色温误差±100K，Ra>80 ±2

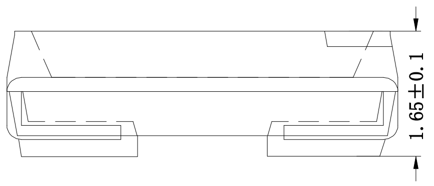
Note: Color temperature : ±100K, Ra>80 ±2

4.机械尺寸 Mechanical dimensions:



Bottom view





备注 notes:
1. 以上标示单位为毫米.
The above markings are in millimeters
2. 除非另外注明，尺寸公差为 ±0.1毫米.
Unless otherwise specified, the dimensional tolerance is ± 0.1 millimeters

5. 引脚功能说明 Pin Function Description：

序号 Serial Number	符号 symbol	管脚名 Pin name	功能描述 Function Description
1	GND	地 Grounds	电源接地 Power grounding
2	DIN	数据输入 Data input	控制数据信号输入 Control data signal input
3	VDD	电源 Power supply	供电管脚 Power supply pins
4	VDD	电源 Power supply	供电管脚 Power supply pins
5	DOUT	数据输出 Data output	控制数据信号输出 Control data signal output
6	GND	地 Grounds	电源接地 Power grounding

6.IC极限参数 IC limit parameter ：（Ta=25℃）

参数 parameter	符号 symbol	范围 range	单位 unit
逻辑电源电压 working voltage	**V_{DD}**	**+9～+13.5**	**V**
工作温度 operation temperature	**Topt**	**-40~+85**	℃
储存温度 storage temperature	**Tstg**	**-40~+85**	℃
ESD耐压（人体模式） ESD withstand voltage (human mode)	**V_{ESD}**	**2K**	V

7. RGB LED 光电参数 Optoelectronic parameters：

颜色 Colour	SK6805-T52491H6RGBWP6-HV-XW-E-A-00X R/G/B：5mA W：12mA		
	波长Wavelength（nm)	色温 Color temperature（K）	亮度 Brightness（mcd)
红色（RED)	617-625	/	815-1275
绿色（GREEN)	525-535	/	1500-2100
蓝色（BLUE)	465-475	/	280-515
BW(White)	/	5500-10000K	3850-5800
NW(White)	/	3600-4500K	/
WS(White)	/	2800-3200K	3625-5312.5

注：亮度误差±10%，波长误差±1.0nm，色温误差： ±100K

Note: Luminous Intensity: ±10%Iv, Dominant Wavelength: ±1.0nm，Color temperature： ± 100K

8. IC电气参数 IC electrical parameters：（TA=25℃）

参数 parameter	符号 symbol	最小 minimum	典型 typical	最大 maximum	单位 unit	测试条件 Test conditions
工作电压 Chip input voltage	V_{DD}	9	---	13.5	V	---
信号输入翻转阀值 Signal input flip threshold	V_{IH}	3.1	---	5.5	V	---
	V_{IL}	---	---	1.7	V	
B/G/R输出驱动电流 B/G/R output drive current	I_{DOUT}	---	5	---	mA	V_{DS}=1V
W输出驱动电流 W output drive current		---	12	---		
PWM频率 PWM frequency	F_{PWM}	---	4.0	---	KHz	---
静态功耗 Static power consumption	I_{DD}	---	2	---	mA	---
数据传输速率 Transfer rate	F_{DIN}	---	800	---	Kbps	

9. 建议数据传输时间 Suggested data transmission time：

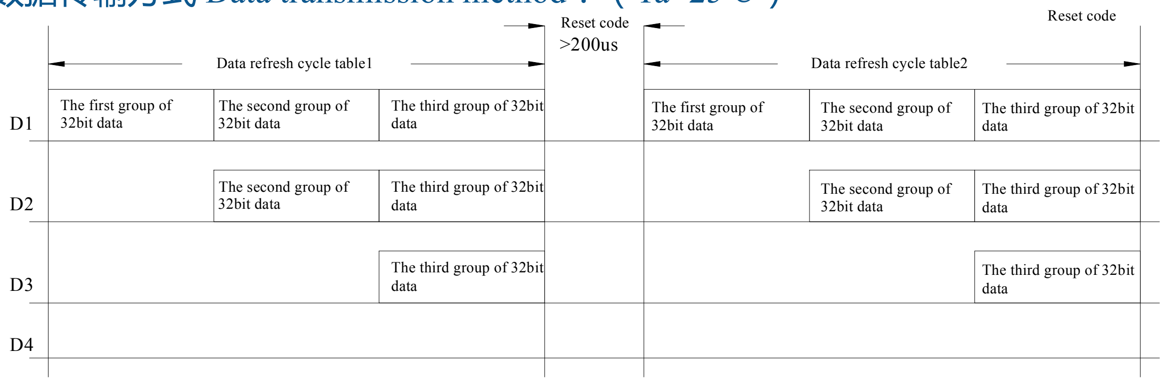
时序表名称 Timeline Name		Min.	实际值 actual value	Max.	单位 unit
T	码元周期 Symbol period	1.20	--	--	μs
T0H	0码， 高电平时间 0 code, high-level time	0.20	0.32	0.40	μs
T0L	0码， 低电平时间 0 code, low-level time	0.80	--	--	μs
T1H	1码， 高电平时间 1 code, high-level time	0.65	0.75	1.0	μs
T1L	1码， 低电平时间 1 code, low-level time	0.20	--	--	μs
Reset	Reset码，低电平时间 Reset code, low-level time	>200	--	--	μs

1. 协议采用单极性归零码，每个码元必须有低电平，本协议的每个码元起始为高电平，高电平时间宽度决定“0”码或“1”码。
The protocol adopts unipolar zeroing code, and each symbol must have a low level. Each symbol in this protocol starts with a high level, and the duration of the high level determines the "0" or "1" code.

2. 书写程序时，码元周期最低要求为1.2μs。
When writing a program, the minimum required code period is 1.2 μ s.

3. “0”码、 “1”码的高电平时间需按照上表的规定范围， “0”码、 “1”码的低电平时间要求小于20μs。
The high-level time of "0" and "1" codes should be within the specified range in the table above, and the low-level time of "0" and "1" codes should be less than 20 μ s.

10.数据传输方式 Data transmission method：（Ta=25℃）

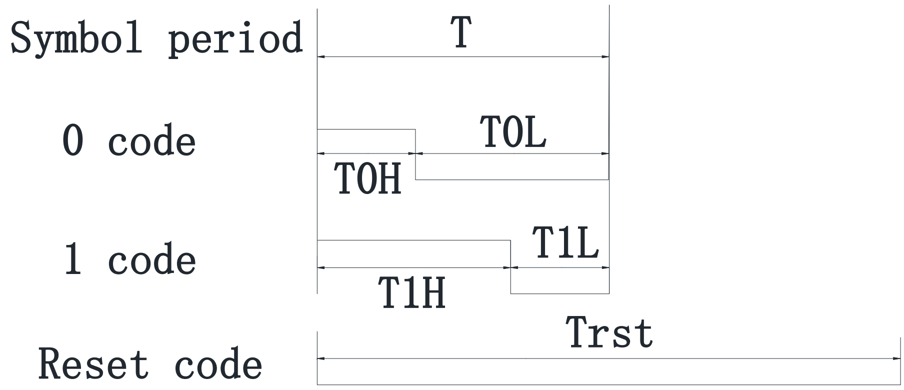


注Note： 其中D1为MCU端发送的数据，D2、D3、D4为级联电路自动整形转发的数据。

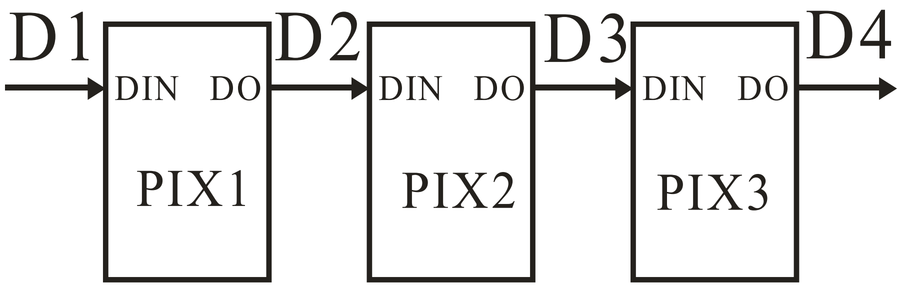
Among them, D1 is the data sent by the MCU end, and D2, D3, and D4 are the data automatically shaped and forwarded by the cascaded circuit.

11.时序波形图 Time series waveform diagram：（Ta=25℃）

输入码型 Input code type：



连接方式 Connection method：



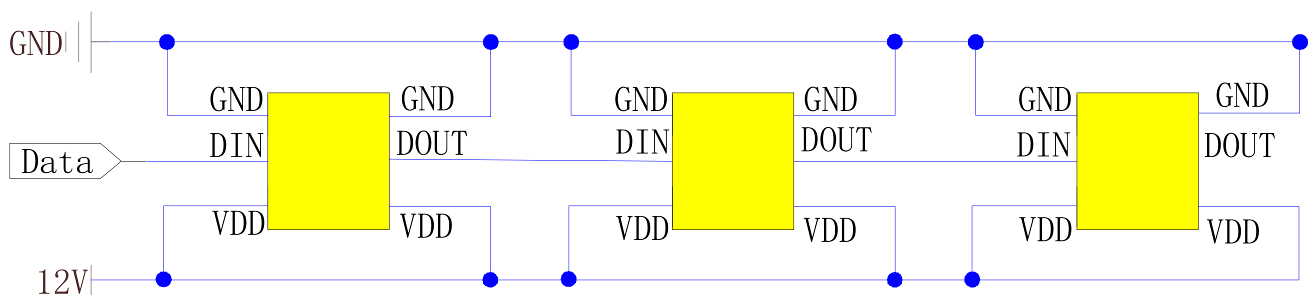
12.32bit数据结构 32 bit data structure：（Ta=25℃）

G7	G6	G5	G4	G3	G2	G1	G0	R7	R6	R5	R4
R3	R2	R1	R0	B7	B6	B5	B4	B3	B2	B1	B0
W7	W6	W5	W4	W3	W2	W1	W0				

注Note：**高位先发，按照GRBW的顺序发送数据(G7 → G6 →……..W0)**

High bit first send, send data in GRBW order (G7 → G6 →.... W0)

13.应用电路原理图 Principles of Applied Circuits：

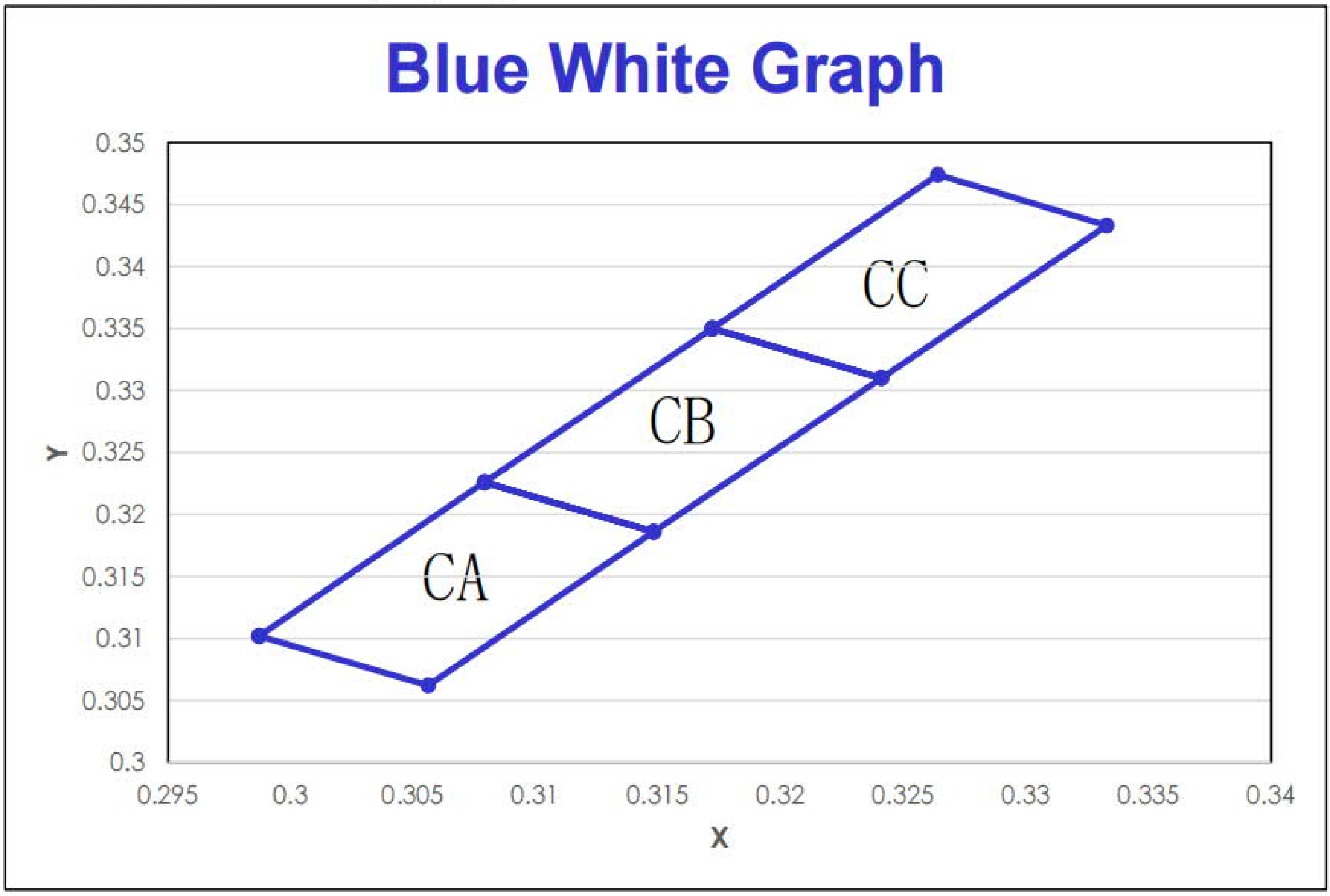


14. 白光色温等级及CIE颜色等级划分（指1931 CIE色度图）White light color temperature level and CIE color level classification (referring to the 1931 CIE chromaticity chart)

CIE 色品坐标系(BW) CIE chromaticity coordinate system（BW）

Name	X1	Y1	X2	Y2	X3	Y3	X4	Y4	TC
CA	0.2987	0.3102	0.3056	0.3062	0.3148	0.3186	0.3079	0.3226	6450-7600K
CB	0.3079	0.3226	0.3148	0.3186	0.3241	0.3310	0.3172	0.3350	6000-6850K
CC	0.3172	0.3350	0.3241	0.3310	0.3333	0.3433	0.3264	0.3474	5450-6250K

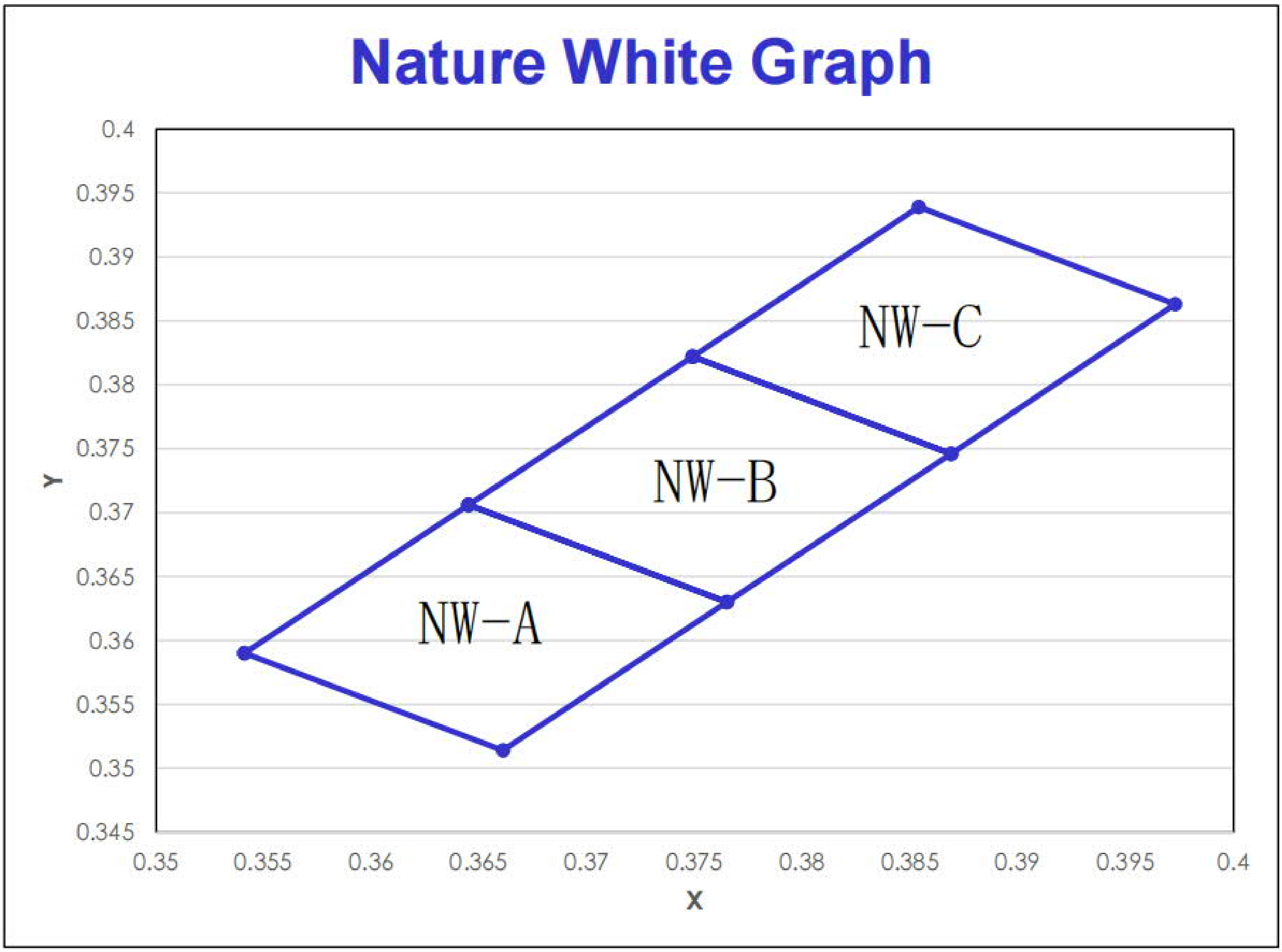
BW 白光分级形式 BW White light grading form



CIE 色品坐标系(NW) CIE chromaticity coordinate system（NW）

Name	X1	Y1	X2	Y2	X3	Y3	X4	Y4	TC
NW-A	0.3541	0.3590	0.3661	0.3514	0.3765	0.3630	0.3645	0.3706	4050-4500K
NW-B	0.3645	0.3706	0.3765	0.3630	0.3869	0.3746	0.3749	0.3822	3900-4250K
NW-C	0.3749	0.3822	0.3869	0.3746	0.3973	0.3863	0.3854	0.3939	3800-4150K

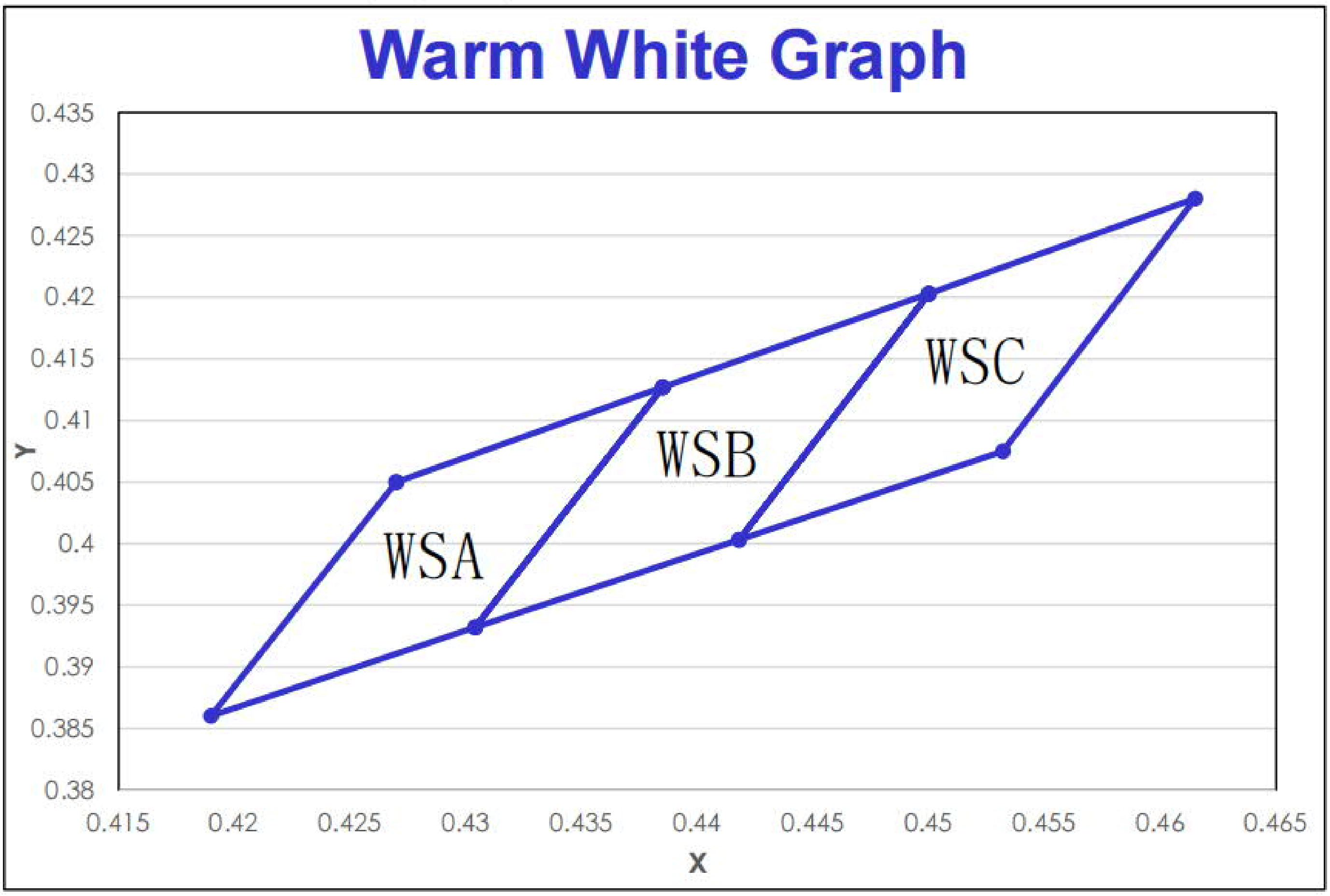
NW 白光分级形式 NW White light grading form



CIE 色品坐标系(白色)CIE chromaticity coordinate system（white）

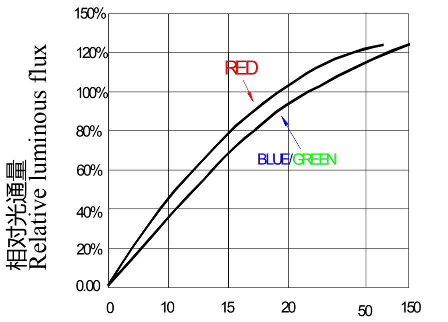
name	X1	Y1	X2	Y2	X3	Y3	X4	Y4	TC
K1-A	0.4270	0.4050	0.4190	0.3860	0.4304	0.3932	0.4385	0.4127	3050-3200K
K2-A	0.4385	0.4127	0.4304	0.3932	0.4418	0.4003	0.4500	0.4203	2900-3050K
K3-A	0.4500	0.4203	0.4418	0.4003	0.4532	0.4075	0.4615	0.4280	2800-2900K

WS 白光分级形式 WS White light grading form



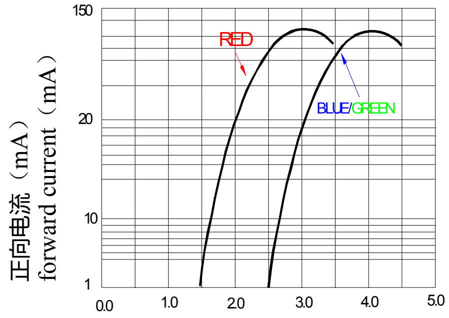
15. 光电特性 Photoelectric characteristic：

相对光通量与正向电流的关系
The relationship between relative luminous flux and forward current



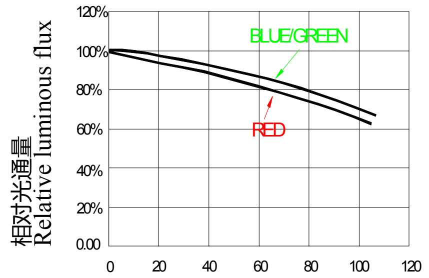
正向电流 (mA)
forward current（mA）

正向电压与正向电流的关系
The relationship between forward voltage and forward current



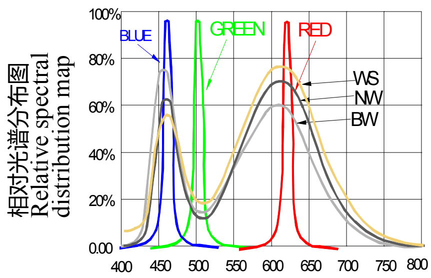
正向电压(V) 温度=25℃
Forward voltage (V) temperature=25° C

焊盘温度与光通量输出的相对关系
The relative relationship between pad temperature and luminous flux output



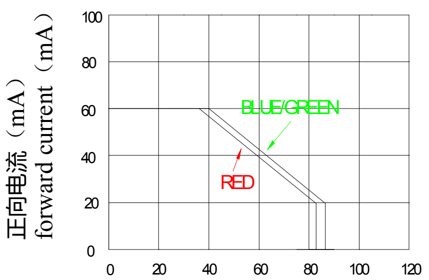
焊盘温度(T=25℃)
Pad temperature (T=25℃)

波长特性
Wavelength characteristics



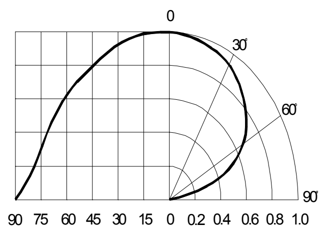
波长wavelength (nm)

焊盘温度与正向电流的相对关系
The relative relationship between pad temperature and forward current



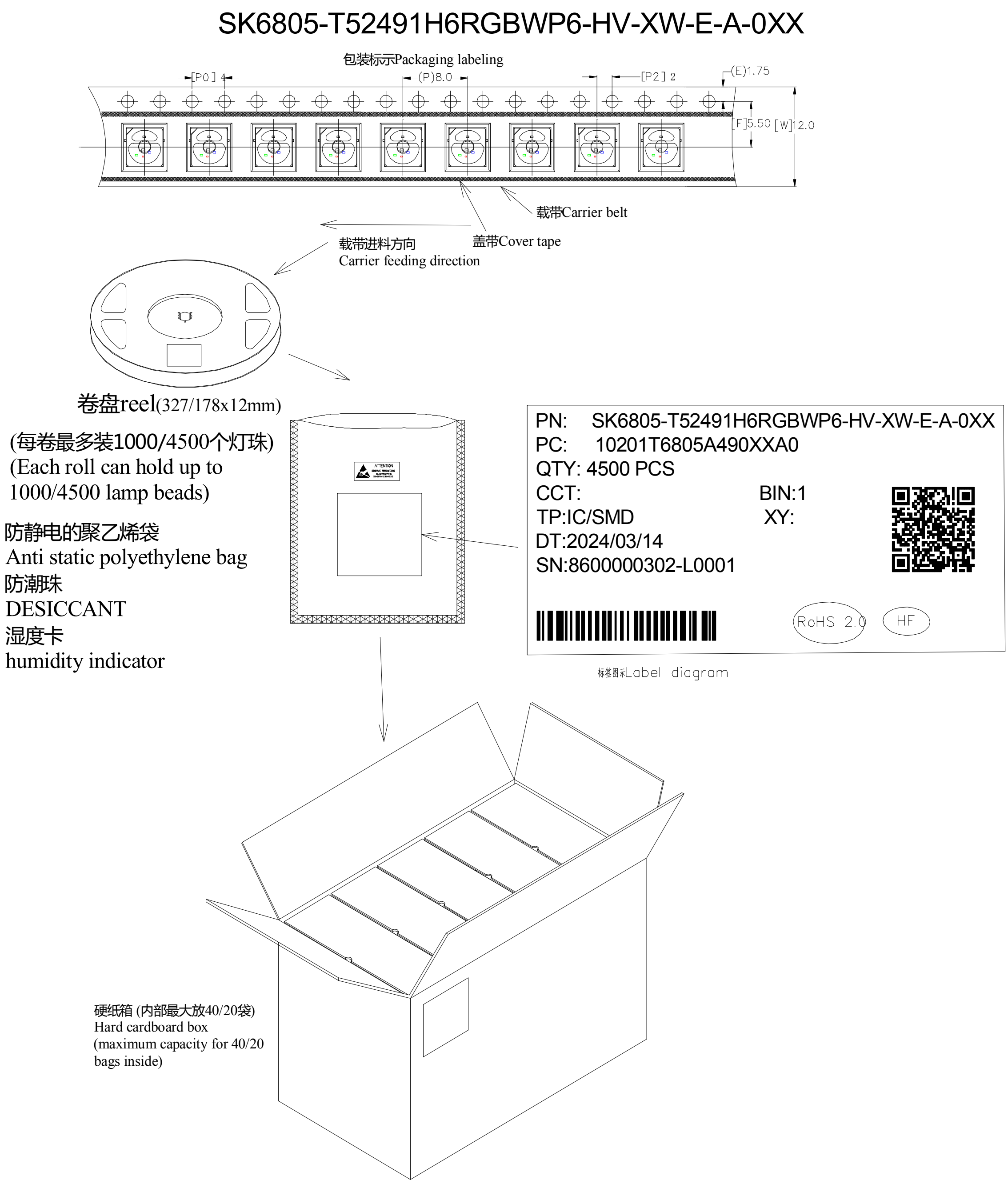
焊盘温度(T=25℃)
Pad temperature (T=25℃)

典型的辐射方向图 120°
Typical radiation pattern 120°



辐射角度
Radiation angle

16. 包装标准 Packaging standards：



表面贴装LED采用卷盘包装，LED在用普通或防静电袋包装后再装在纸箱中. 纸箱用于保护运输途中LED不受机械冲击，纸箱不防水，因此请注意防潮防水。

Surface mounted LEDs are packaged in rolls, and the LEDs are packaged in regular or anti-static bags before being packed in cardboard boxes The cardboard box is used to protect the LED from mechanical impact during transportation. The cardboard box is not waterproof, so please pay attention to moisture-proof and waterproof.

17. 可靠性测试 Reliability testing:

序号 Serial Number	实验项目Pilot projects	实验条件 experimental condition	参考标准 Reference standards	判断 determine
1	冷热冲击 Thermal Shock	100 ± 5°C ~ -40°C ± 5°C 15min~15min 100cycles	MIL-STD-202G	0/22
2	高温储藏 High temperature storage	Ta= +100ºC 1000hrs	JEITA ED-4701 200 201	0/22
3	低温储藏 low temperature storage	Ta= -40ºC 1000hrs	JEITA ED-4701 200 202	0/22
4	高温高湿储藏 High temperature and high humidity storage	Ta=60ºC RH=90% 1000hrs	JEITA ED-4701 100 103	0/22
5	温度循环 Temperature cycling	-40ºC~25ºC~100ºC~25ºC 30min~5min~30min~5min 100 cycles	JEITA ED-4701 100 105	0/22
6	耐焊接热 Resistance to Soldering Heat	Tsld = 260°C, 10sec. 2 times	JEITA ED-4701 300 301	0/22
7	常温寿命测试 Normal temperature life test	25°C, IF: Typical current , 1000hrs	JESD22-A 108D	0/22

失效判定标准 Failure criteria:

<table>
<tr><th rowspan="2">项目
project</th><th rowspan="2">符号
symbol</th><th rowspan="2">测试条件
Test conditions</th><th colspan="2">判断标准Judgment criteria</th></tr>
<tr><th>最小值
Minimum value</th><th>最大值
Maximum value</th></tr>
<tr><td>发光强度
intensity</td><td>IV</td><td>DC=5V,规格典型电流
DC=5V, typical current specification</td><td>初始数据X0.7
Initial data X0.7</td><td>---</td></tr>
<tr><td>耐焊接热
Resistance to Soldering Heat</td><td>---</td><td>DC=5V,规格典型电流
DC=5V, typical current specification</td><td colspan="2">无死灯或明显损坏
No dead lights or obvious damage</td></tr>
</table>

修订记录 Revision record

日期 date	Rev. No.	修改/改变的原因 Reason for modification/change	签名 signature
2024-09-13	A/0	首次发行 first issue	Zhang Wei You