

Part No: SA3433-RGBDA02-8ADKZ



Applications/应用:

- ★ Automotive lighting
汽车照明

Features/特征:

- ★ Package: PLCC6 package
封装: PLCC6 封装
- ★ Device Outline: 3.4 × 3.3 × 1.9 (mm)
外形特征: 3.4 × 3.3 × 1.9 (mm)
- ★ Compliance with RoHS and REACH
符合 RoHS 和 REACH 标准
- ★ HBM ESD: 6000V
人体抗静电指标: 6000V
- ★ The reliability conforms to AEC-Q102
可靠性符合 AEC-Q102 标准
- ★ Emitting Color: Red/Green/Blue
发光颜色: 红色/绿色/蓝色
- ★ Viewing Angle: 120°
发光指向角: 120°
- ★ Pb-Free
无铅
- ★ MSL: 2a
湿气敏感性等级: 2a

1、Absolute maximum ratings/极限参数:

Parameter 参数	Color 颜色	Symbol 符号	Value 参数	Unit 单位
Power Dissipation 损耗功率	Red	P_d	120	mW
	Green			
	Blue			
Forward Current 正向工作电流	Red	I_{Fm}	50	mA
	Green			
	Blue			
Surge Current 正向峰值电流 ($t \leq 10 \mu s$; $D=0.005$; $T_s=25 \text{ }^\circ\text{C}$)	Red	I_{Fs}	100	mA
	Green			
	Blue			
Reverse Voltage 反向电压 ($T_s=25 \text{ }^\circ\text{C}$)	Red	V_R	5	V
	Green			
	Blue			
Operating Temperature 工作温度范围	Red	T_{opr}	- 40 ~ +110	$^\circ\text{C}$
	Green			
	Blue			
Storage Temperature 储存温度范围	Red	T_{str}	- 40 ~ +110	$^\circ\text{C}$
	Green			
	Blue			
Junction Temperature 结温	Red	T_j	115	$^\circ\text{C}$
	Green		125	
	Blue		125	
HBM ESD 人体抗静电指标	Red	V_{ESD}	6	KV
	Green			
	Blue			

2、Electrical and optical characteristics/光电参数 (T_s = 25°C):

Parameter 参数	Color 颜色	Symbol 符号	Test Condition 测试条件	Value 参数			Unit 单位
				Min.	Typ.	Max.	
Forward Current 正向工作电流	Red	I _{Fm}	---	5	20	50	mA
	Green			5	20	50	
	Blue			5	20	50	
Reverse Current 反向电流	Red	I _R	V _R = 5V	---	2	10	μA
	Green						
	Blue						
Forward Voltage 正向电压	Red	V _F	I _F = 20mA	1.8	---	2.4	V
	Green			2.6	---	3.2	
	Blue			2.6	---	3.2	
Luminous Intensity 发光强度	Red	I _V	I _F = 20mA	550	---	1100	mcd
	Green			1900	---	2750	
	Blue			145	---	350	
Luminous Flux 光通量	Red	Φ	I _F = 20mA	---	2.5	---	LM
	Green			---	7	---	
	Blue			---	1.1	---	
Dominant Wavelength 主波长	Red	λ _{dom}	I _F = 20mA	618	---	627	nm
	Green			518	---	527	
	Blue			450	---	460	
Spectral Bandwidth at 50% I _{rel,max} 光谱带宽, 50% I _{rel,max}	Red	Δλ	I _F = 20mA	---	17	---	nm
	Green			---	27	---	
	Blue			---	17	---	
Viewing Angle 发光指向角	Red	2θ _{1/2}	I _F = 20mA	---	120	---	Deg.
	Green						
	Blue						
Thermal Resistance (Junction to Solder) 热阻 (PN 结/焊点)	Red	R _{th JS real}	I _F = 20mA	---	---	160	K/W
	Green					170	
	Blue					140	

Notes/备注: Error/误差: V_F: ±0.10V, I_V: ±8%, Other/其它: ±5%; Luminous flux non-shipping standard, for reference only./光通量非出货标准, 仅供参考.

3、Product Ranks/产品分档范围:

Brightness Grading / 亮度分档 (mcd)

(Ta=25°C ; IF=20mA)

	Rank	Luminous Intensity 发光强度 (min)	Luminous Intensity 发光强度 (max)
Red	LR1	550	850
	LR2	770	1100
Green	LG1	1900	2400
	LG2	2250	2750
Blue	LB1	145	280
	LB2	200	350

Notes/备注: Brightness error/亮度误差: $\pm 8\%$

Wavelength Grading / 波长分档 (nm)

(Ta=25°C ; IF=20mA)

	Rank	Dominant Wavelength 主波长 (min)	Dominant Wavelength 主波长 (max)
Red	RD1	618	623
	RD2	620	625
	RD3	622	627
Green	GD1	518	523
	GD2	520	525
	GD3	522	527
Blue	BD1	450	455
	BD2	452	457
	BD3	455	460

Notes/备注: Wavelength error/波长误差: $\pm 1\text{nm}$

4、Characteristics Graph/特性曲线:

Fig.1 Relative spectral curve

相对光谱曲线

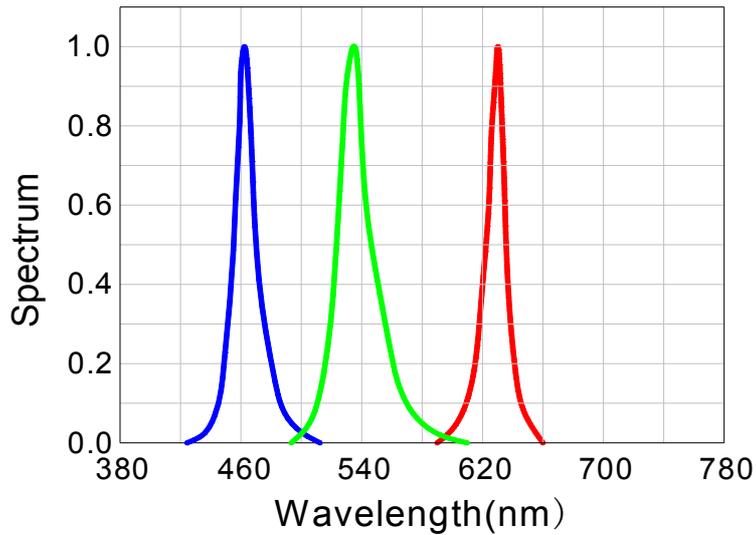


Fig.2 Radiation Characteristic

辐射特性

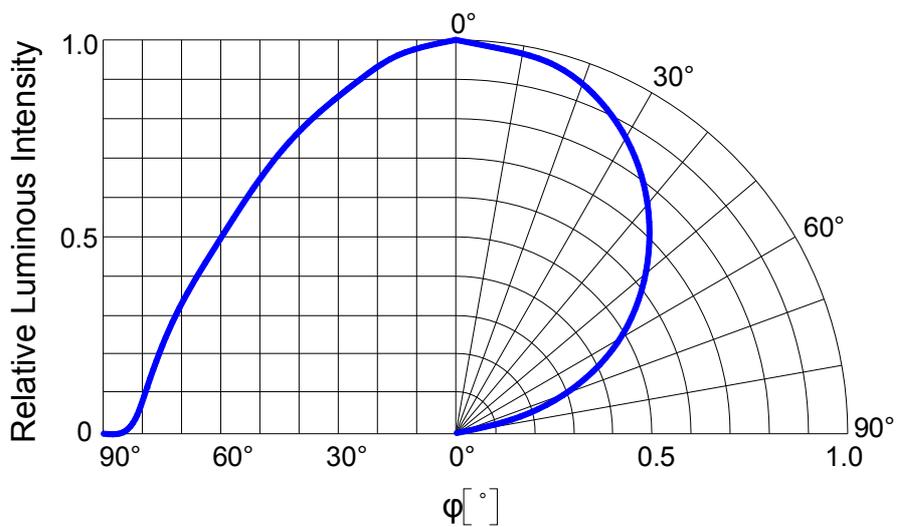


Fig.3 Forward Current vs. Forward Voltage

正向电流 Vs. 正向电压

$$I_F = f(V_F); T_S = 25^\circ\text{C}$$

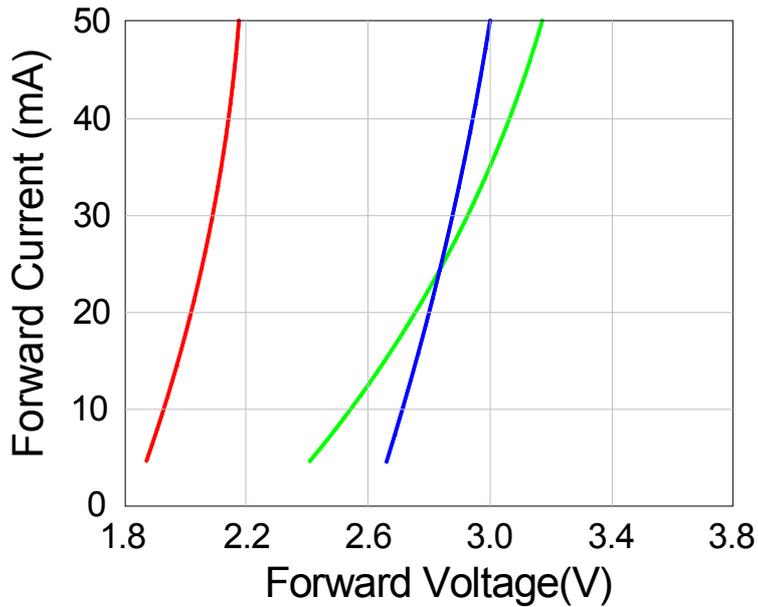


Fig.4 Relative Luminous Intensity vs. Forward Current

相对发光强度 Vs. 正向电流

$$I_v / I_v (20\text{mA}) = f(I_F); T_S = 25^\circ\text{C}$$

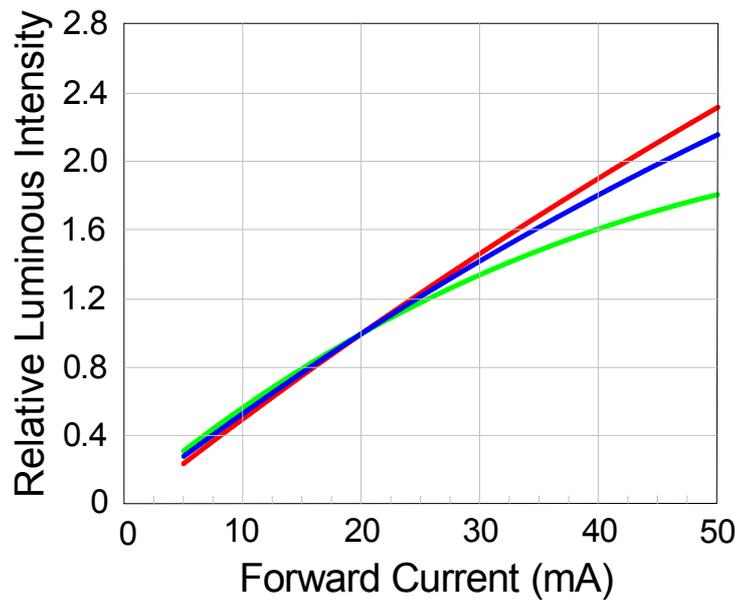


Fig.5 Dominant Wavelength vs. Forward Current

主波长 vs. 正向电流

$$\Delta\lambda - \lambda_d(20\text{mA}) = f(I_F); T_S = 25^\circ\text{C}$$

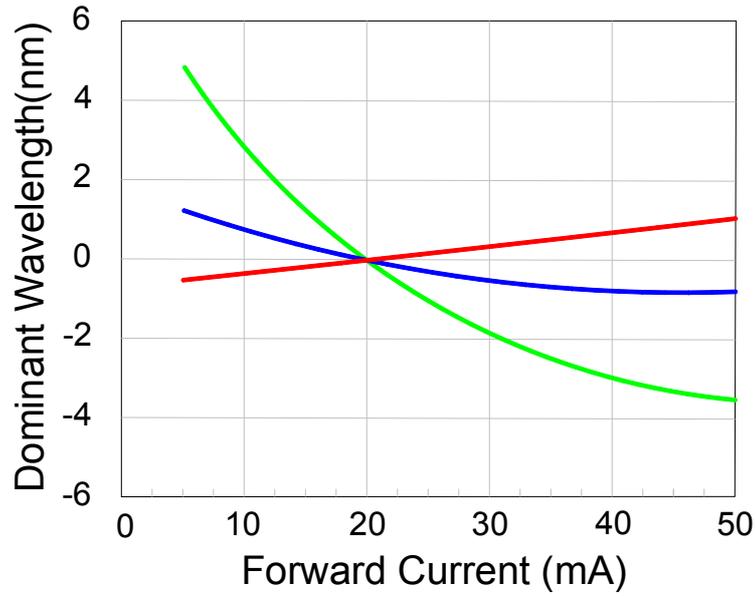


Fig.6 Max. Permissible Forward Current

容许最大正向电流

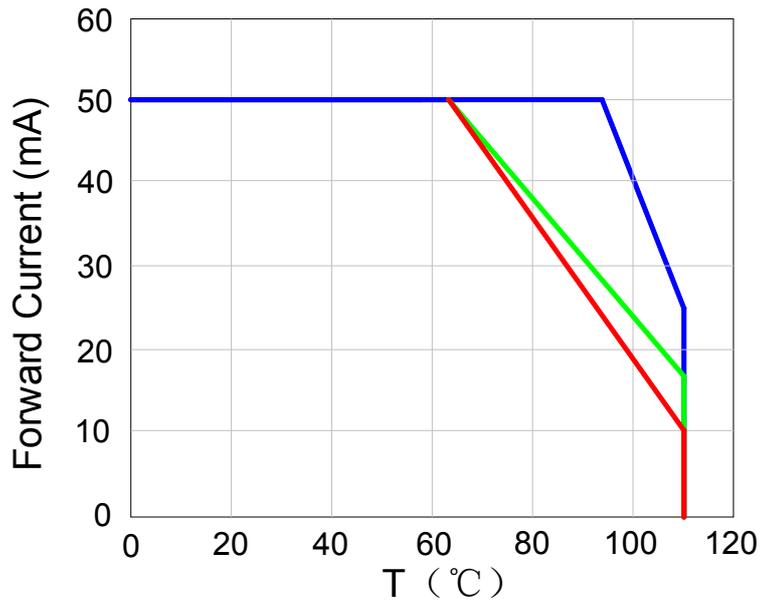


Fig.7 Relative Luminous Intensity vs. Temp.solder point Temperature

相对发光强度 Vs. 焊点温度

$$I_v / I_v (25^\circ\text{C}) = f(T_j); I_F = 20\text{mA}$$

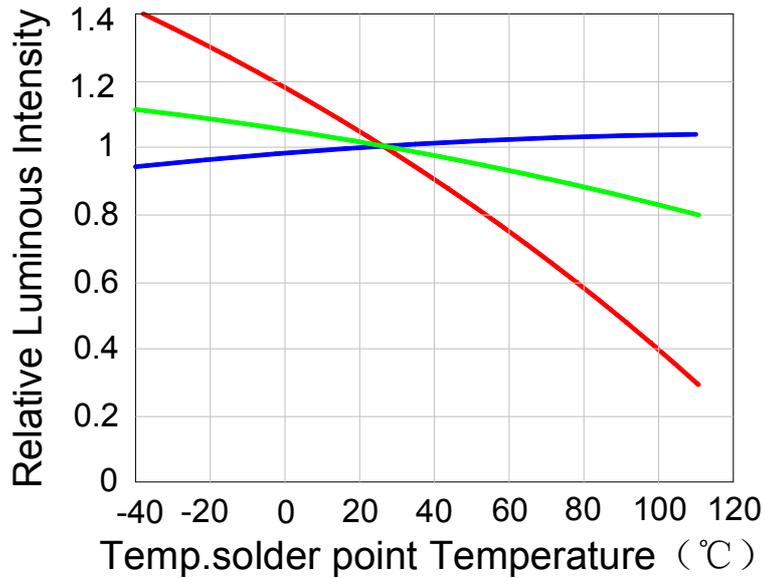


Fig.8 Relative Forward Voltage vs. Temp.solder point Temperature

相对电压 Vs. 焊点温度

$$\Delta V_F = V_F - V_F(25^\circ\text{C}) = f(T_j); I_F = 20\text{mA}$$

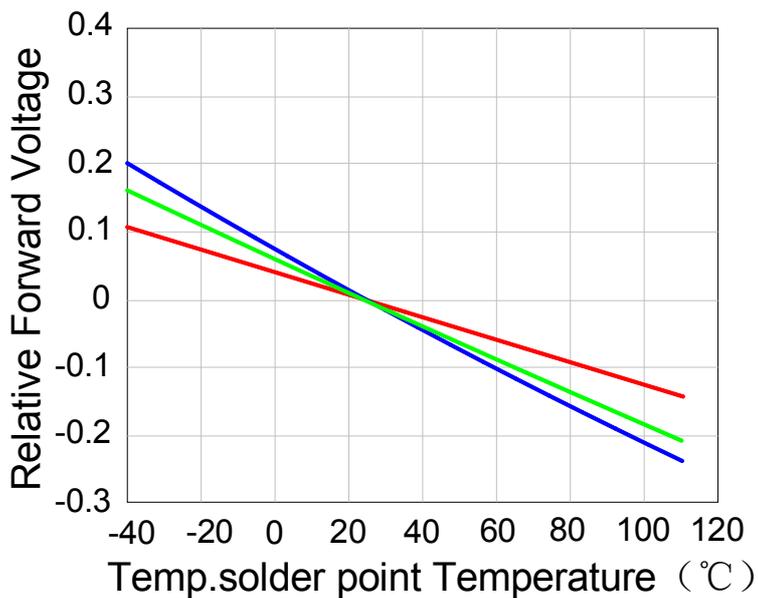
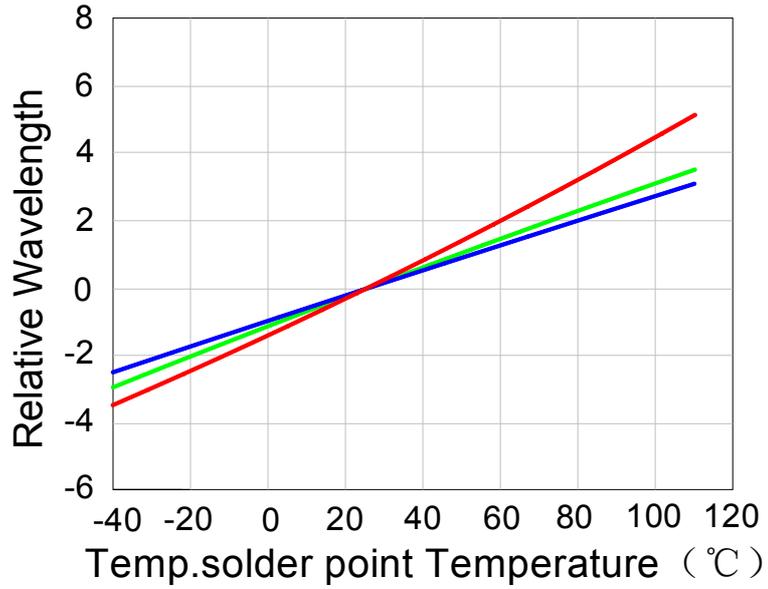


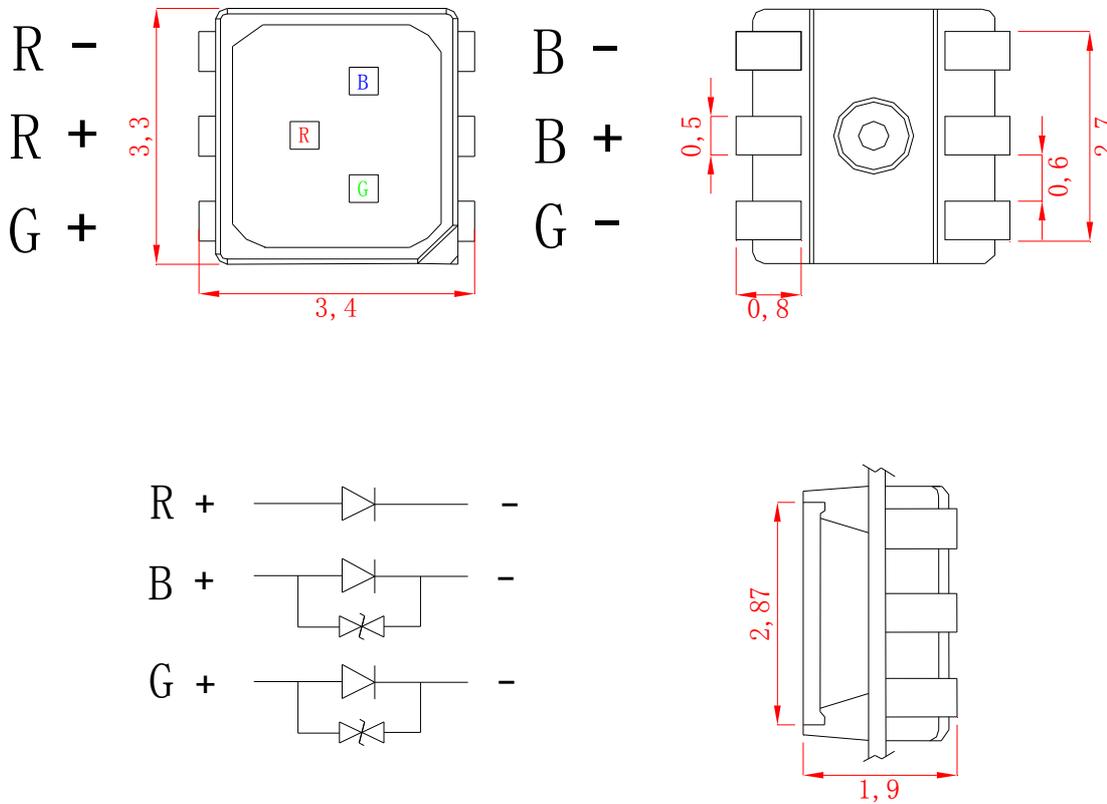
Fig.9 Relative Wavelength vs. Temp.solder point Temperature

相对波长 Vs. 焊点温度

$$\Delta\lambda_d = \lambda_d - \lambda_d(25^\circ\text{C}) = f(T_j); I_F = 20\text{mA}$$

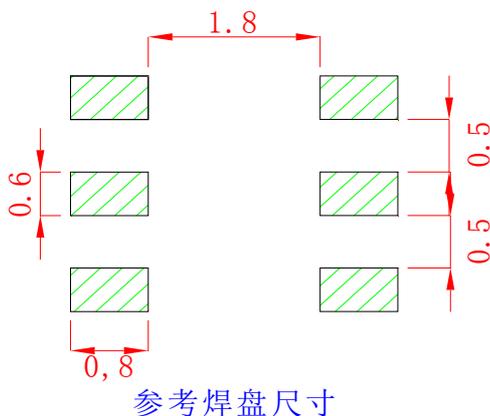


5、Outline Dimensions/产品外形尺寸:



Notes/备注: Tolerance is $\pm 0.1\text{mm}$ (公差 $\pm 0.1\text{mm}$)

6、Reference Pad size/参考焊盘尺寸:



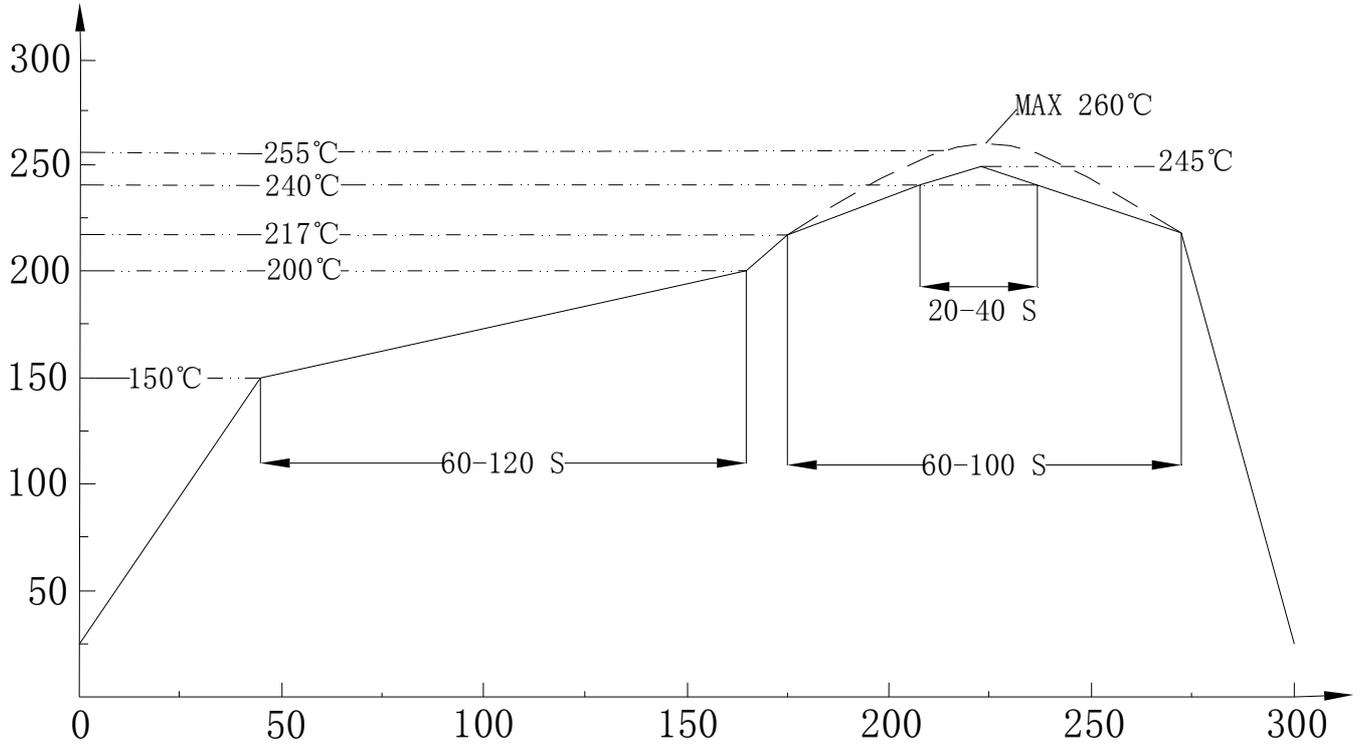
Notes/备注:

- 1、Tolerance is $\pm 0.1\text{mm}$ (公差 $\pm 0.1\text{mm}$)
- 2、For superior solder joint connectivity results we recommend soldering under standard nitrogen atmosphere. Package not suitable for ultra sonic cleaning./ 为了获得更佳的焊点连接效果，我们建议在标准氮气环境下进行焊接。封装不适合超声波清洁。

7、Reflow curve /回流焊曲线

Product complies to MSL Level 2a. to JEDEC J-STD-020E

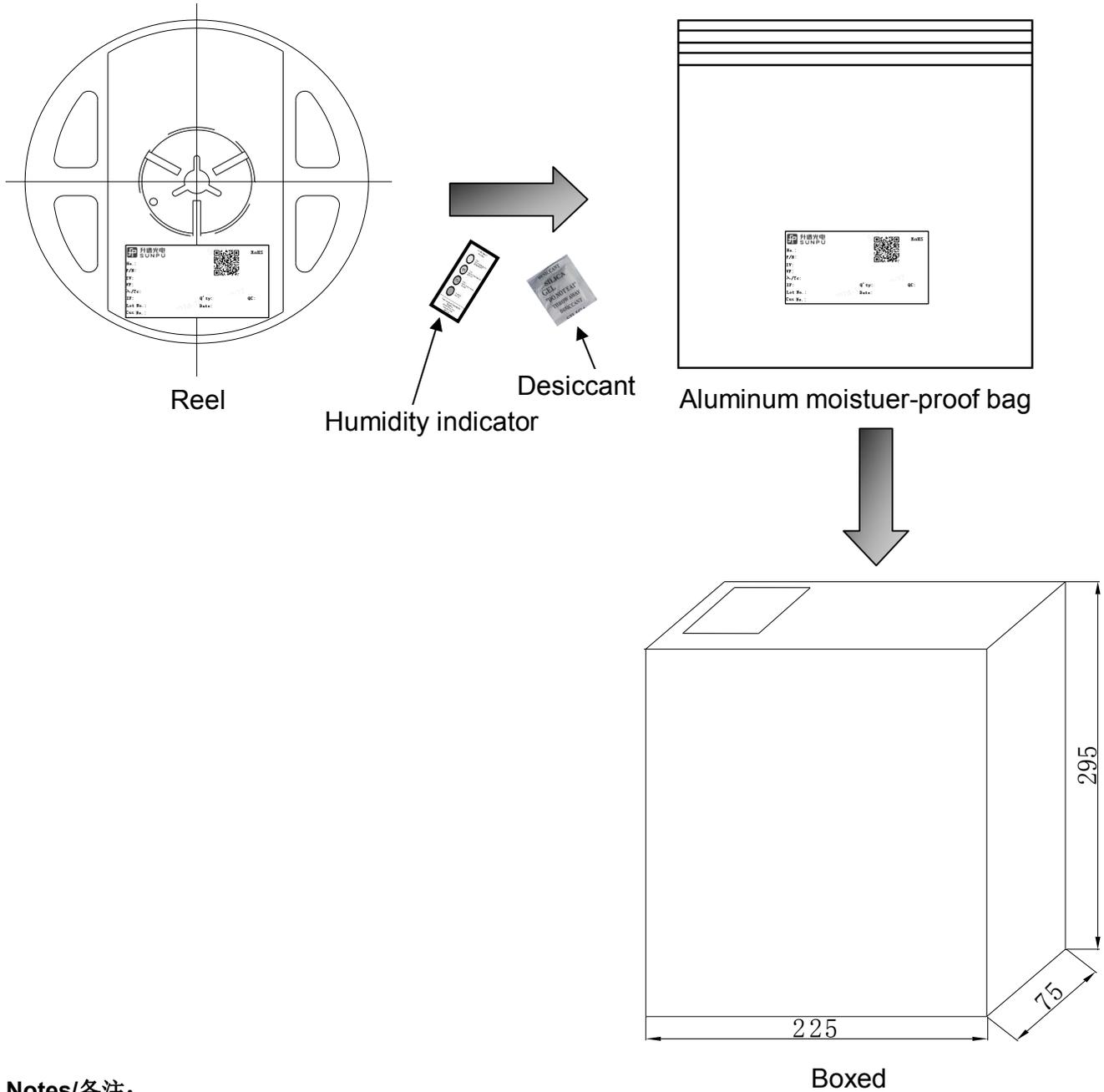
产品符合 MSL 等级 2a 根据 JEDEC J-STD-020E



Curvilinear feature 曲线特征	Lead-free combination/无铅组合	Unit/单位
	Recommended criteria/建议标准	
Average preheating heating rate 25 °C to 150 °C 预热平均升温速率 25°C至 150°C	2	°C/sec
Warm-up time 预热时间	60-120	secs
Reflux temperature 回流温度	217	°C
Reflux time 回流时间	60-100	secs
Peak temperature(max) 峰值温度 (最大)	260	°C
The time when the actual peak temperature is within 5 °C 实际峰值温度在 5°C以内的时间	20-40	secs
Cooling rate 降温速度	4	°C/sec

Notes/备注: Hand Soldering (Not Recommended) /手工焊接 (不推荐)

8.3 Specification of Packing/包装规格



Notes/备注:

- ◆ Reel packing/卷盘包装: 1000PCS
- ◆ Boxed/盒装: 5 Bags (5000PCS)
- ◆ humidity sensitive products packed in aluminum foil bags, containing humidity cards and desiccant. 湿敏产品包装在铝箔袋中，内含湿度卡和干燥剂。

9、Notes/注意

9.1 LED operating environment and sulfur element composition cannot be over 100PPM in the LED mating usage material.

LED 工作环境及与 LED 适配的材料中硫元素及化合物成份不可超过 100PPM。

9.2 Not suitable to operate in acidic environment, PH<7

LED 不可用在 PH<7 的酸性环境。

9.3 Please note that the Light Board in the test, not live plug-in operation, to avoid the instant high current LED breakdown

请注意灯板在测试时，不可带电插拔作业，避免 LED 受到瞬间大电流击穿

9.4 To ensure the quality of our LEDs, So please do not put pressure on the LEDs. Do not fold, bend or squeeze LED devices

为确保 LED 的可靠性，在操作过程中不可施加压力在 LED 器件胶体表面。不可折叠、弯曲、挤压 LED 器件。

9.5 in order to ensure the reliability of LED, sealed packaging is recommended for semi-finished products or module components that have been pasted during circulation, transportation and storage.

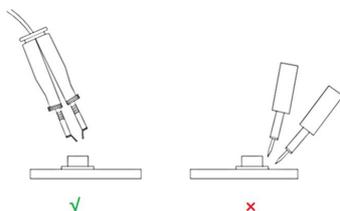
为确保 LED 的可靠性,已贴片好的半成品或模组组件，在流转、运输、储存过程中建议密封包装。

9.6 After opening the bag: The LEDs should be soldered within 24 hours after opening the package. If unused LEDs remain, they should be stored in moisture proof bags with moisture absorbent material. It recommended that the user use the LEDs as soon as possible. If the LEDs have exceeded the storage time or the moisture absorbent material has faded away. Baking process should be performed by using more than 24hours baking at $60 \pm 5^{\circ}\text{C}$ before using LEDs.

拆开包装袋之后：产品应该在拆封后的 24 小时内焊接完毕；如果没用完，产品应该储存在带有干燥剂的防潮包装袋中；建议客户尽快的使用完产品；如果产品超出了使用期限或者干燥剂失效，那么产品在使用前必须在 $60 \pm 5^{\circ}\text{C}$ 中烘烤至少 24 小时。

9.7 To ensure the reliability of LED, please complete one time welding, not too many reflow soldering, otherwise on the bead will have a destructive impact. 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).

为确保 LED 的可靠性，请一次焊接完成，不可过多次回流焊，否则对灯珠会有破坏性影响。LED 焊接后不应进行维修。如不得不修理，应使用双头烙铁(如图所示)。



附1、Revision History /修订历史

Rev 版本号	Revision time 修订时间	Revisions 修订内容
A0	2023/05/31	初始版本
A1	2023/08/04	LOGO 更新 去除“附2”
A2	2024/06/19	极限参数温度更新
A3	2024/11/06	LOGO 更新 标签更新