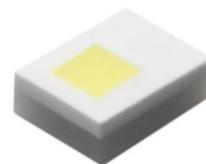


Part No: M2016F-606A0101-0301UD-Z



Applications/应用:

Automotive lighting

汽车照明

Features/特征:

- Package: AlN Ceramics +PIS Package
- 封装: 氮化铝陶瓷+硅胶荧光膜封装
- Emitting Color: Cold White
- 发光颜色: 冷白光
- Device Outline: 2.00×1.60×0.76(mm)
- 外形特征: 2.00×1.60×0.76(mm)
- HBM ESD: 8000V
- 人体抗静电指标: 8000V
- Compliance with RoHS and REACH
- 符合 RoHS 和 REACH 标准
- Chip technology: Flip chip
- 芯片技术: 倒装芯片
- Viewing Angle: 120°
- 发光指向角: 120°
- Typ. color coordinates : (0.328,0.341)
- 典型颜色坐标: (0.328,0.341)
- MSL: 2a
- 湿气敏感性等级: 2a
- Pb-Free
- 无铅

1、Absolute maximum ratings/极限参数:

Parameter 参数	Symbol 符号	Value 参数	Unit 单位
Power Dissipation 损耗功率	P_d	1.5	W
Forward Current 正向工作电流	I_{Fm}	500	mA
Surge Current 正向峰值电流 ($t \leq 1ms$; $D=1/10$; $T_s=25\text{ }^\circ\text{C}$)	I_{Fs}	650	mA
Reverse Voltage 反向电压 ($T_s=25\text{ }^\circ\text{C}$)	V_R	5	V
Operating Temperature 工作温度范围	T_{opr}	- 40 ~ +125	$^\circ\text{C}$
Storage Temperature 储存温度范围	T_{str}	- 40 ~ +125	$^\circ\text{C}$
Junction Temperature 结温	T_j	150	$^\circ\text{C}$

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

Parameter 参数	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	I _{Fm}	---	100	350	500	mA	
Reverse Current 反向电流	I _R	VR = 5V	---	1	2	μA	
Forward Voltage 正向电压	V _F	IF = 350mA	2.8	3.0	3.4	V	
Luminous Flux 光通量	Φ	IF = 350mA	130	140	150	lm	
Color 色坐标	CIE _x	IF = 350mA	---	0.328	---	---	
	CIE _y		---	0.341	---	---	
Viewing Angle 发光指向角	2 θ 1/2	IF = 350mA	---	120	---	Deg.	
Thermal Resistance (Junction to Solder) 热阻 (PN 结/焊点)	Real 实测	R _{th JS real}	IF = 350mA	---	10	---	K/W

Notes/备注: Error/误差: VF: ±0.10V, IV: ±8%, Other/其它: ±5%

3、Product Ranks/产品分档范围:

Brightness Grading / 亮度分档 (LM)

(Ta=25°C ; IF=350mA)

Rank	Luminous Flux	Luminous Flux
	光通量 (min)	光通量 (max)
	130	140
	140	150

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

Voltage grading / 电压分档 (V)

(Ta=25°C ; IF=350mA)

Rank	Voltage	Voltage
	电压 (min)	电压 (max)
UF7	2.8	3.0
UF8	3.0	3.2
UF9	3.2	3.4

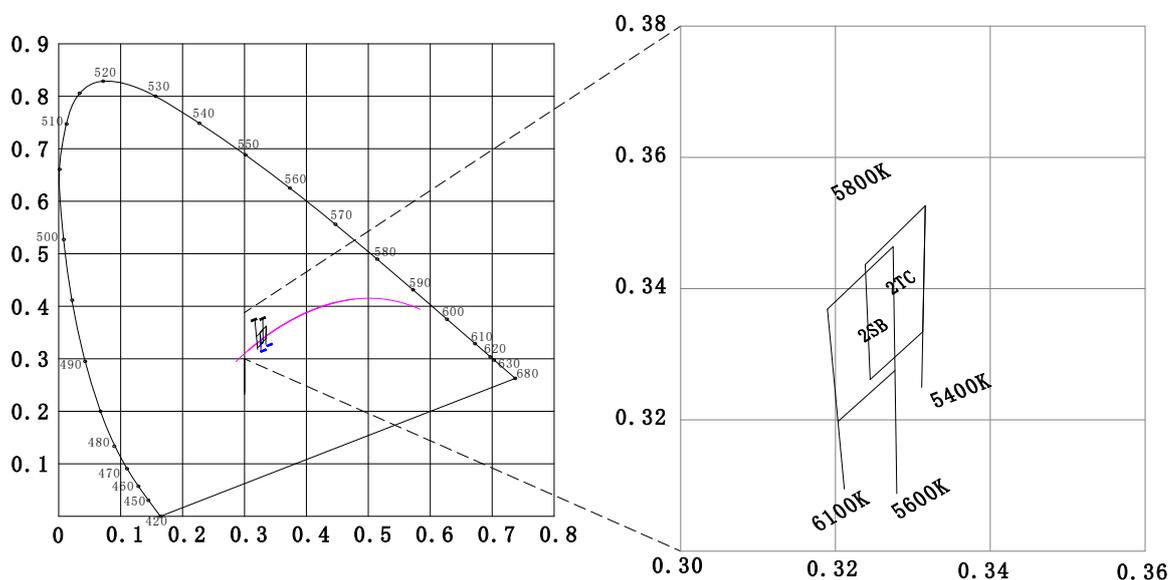
Notes/备注: Voltage error/电压误差: $\pm 0.10V$

Cool White Color Bin Coordinates / 白光色坐标分 Bin 图表:

Color Bin 色坐标档位	CIE X	CIE Y	Color Bin 色坐标档位	CIE X	CIE Y
	0.3192	0.3423		0.3253	0.3508
2SB	0.3298	0.3542	2TC	0.3350	0.3620
5600-6100K	0.3301	0.3306	5400-5800K	0.3346	0.3380
	0.3209	0.3209		0.3261	0.3289

 Notes/备注: Color coordinate error/色坐标误差: ± 0.005

Diagram



4、Characteristics Graph/特性曲线:

Fig.1 Relative spectral curve

相对光谱曲线

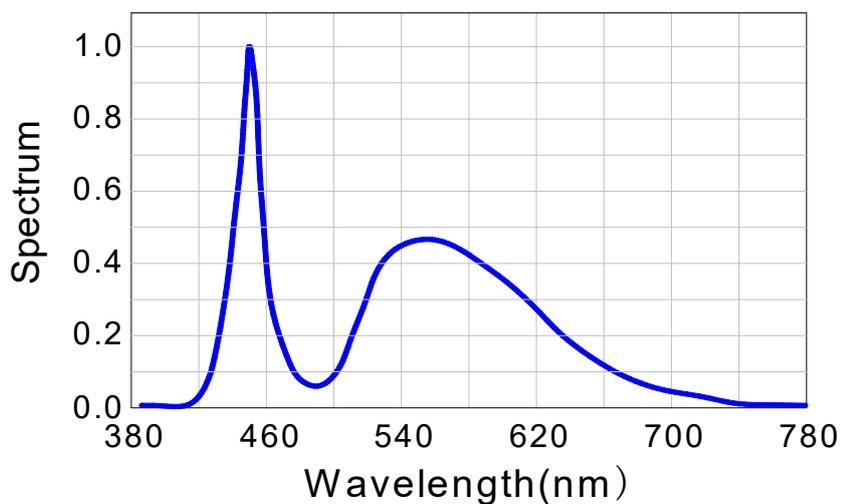


Fig.2 Radiation Characteristic

辐射特性

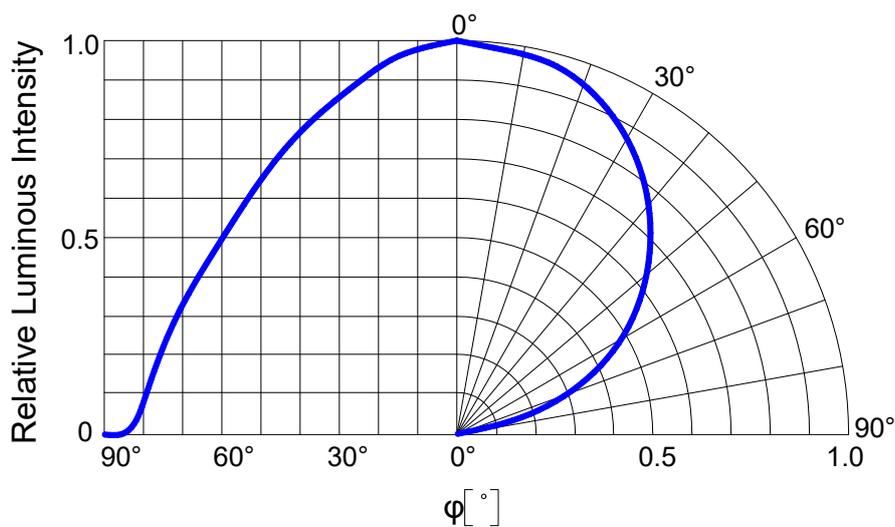


Fig.3 Forward Current vs. Forward Voltage

正向电流 Vs. 正向电压

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

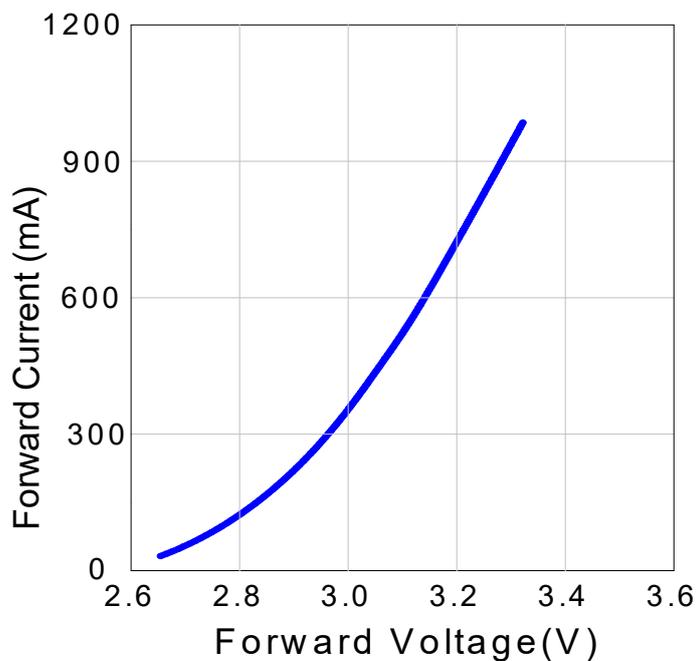


Fig.4 Relative Luminous Intensity vs. Forward Current

相对发光强度 Vs. 正向电流

$$\Phi/\Phi(350\text{mA})=f(I_F); T_S=25^{\circ}\text{C}$$

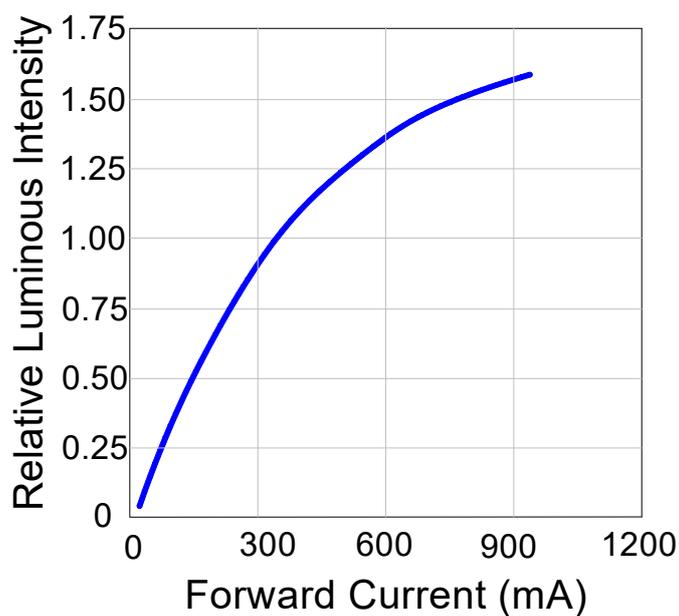


Fig.5 Chromaticity Coordinates Shift vs. Forward Current
色坐标偏移 Vs. 正向电流
 $\Delta Cx, \Delta Cy = f(I_F); T_s=25^\circ C$

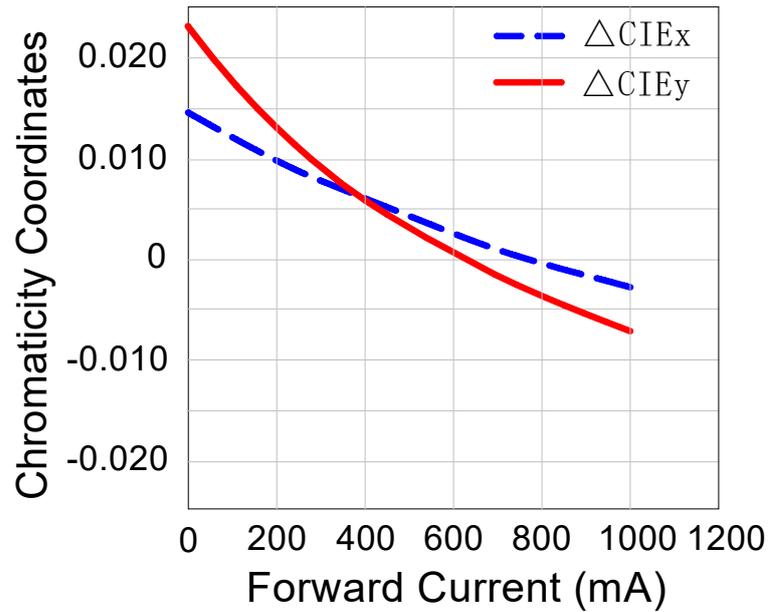


Fig.6 Max. Permissible Forward Current
允许最大正向电流

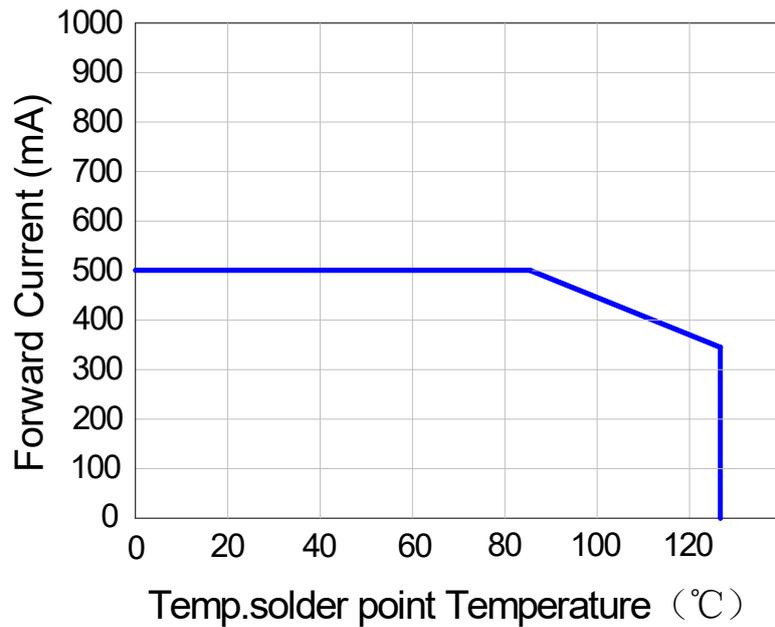


Fig.7 Relative Luminous Intensity vs. Temp.solder point Temperature

相对发光强度 Vs. 焊点温度

$$\Phi/\Phi(25^{\circ}\text{C})=f(T_s); I_F=350\text{mA}$$

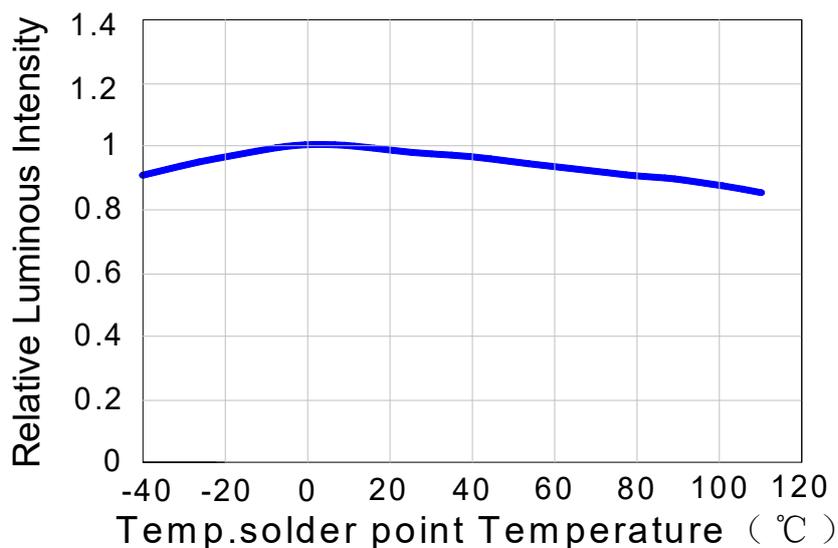


Fig.8 Relative Forward Voltage vs. Temp.solder point Temperature

相对电压 Vs. 焊点温度

$$\Delta V_F = V_F - V_F(25^{\circ}\text{C}) = f(T_s); I_F=350\text{mA}$$

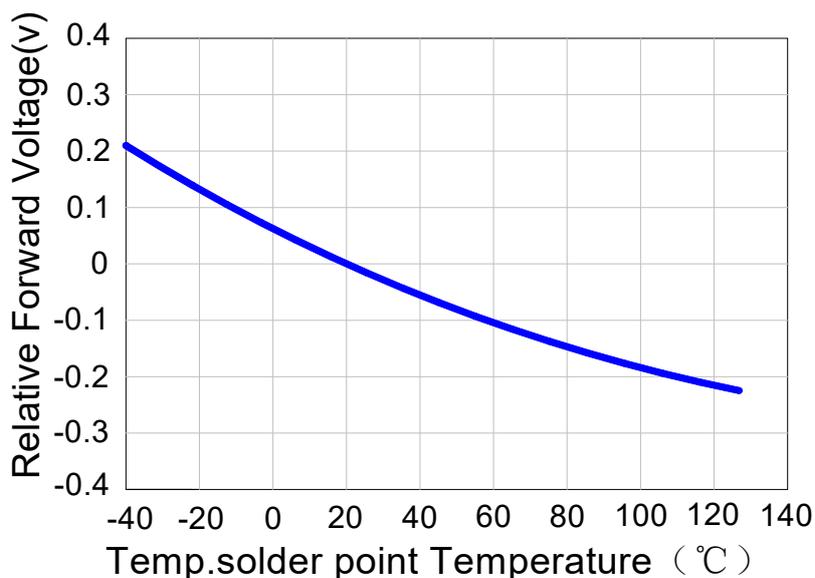
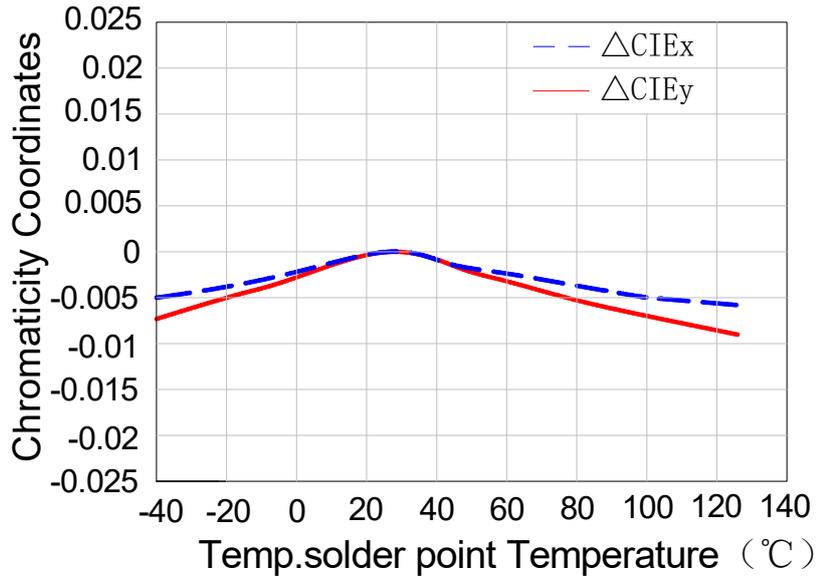
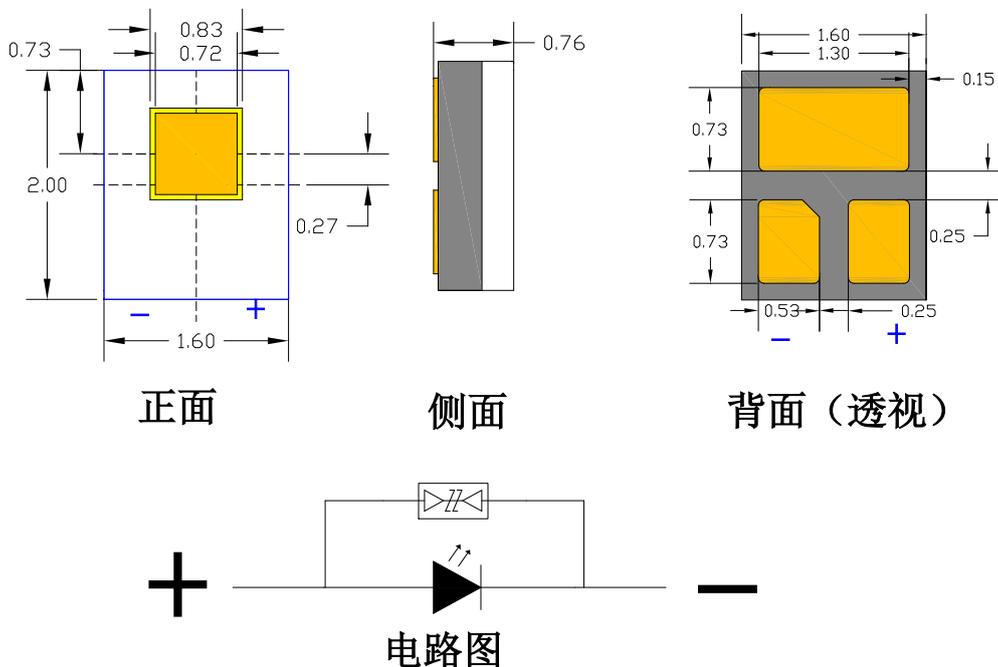


Fig.9 Chromaticity Coordinates Shift vs. Temp.solder point Temperature

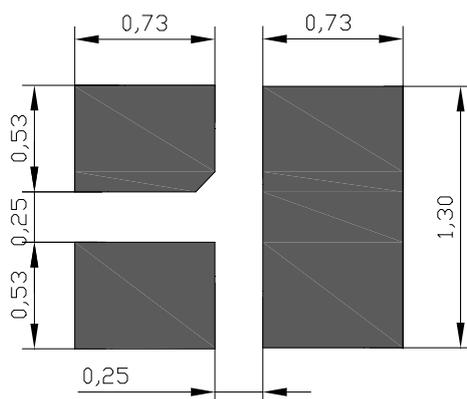
色坐标偏移 Vs. 焊点温度

$\Delta Cx, \Delta Cy=f(T_s); IF=350mA$



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:


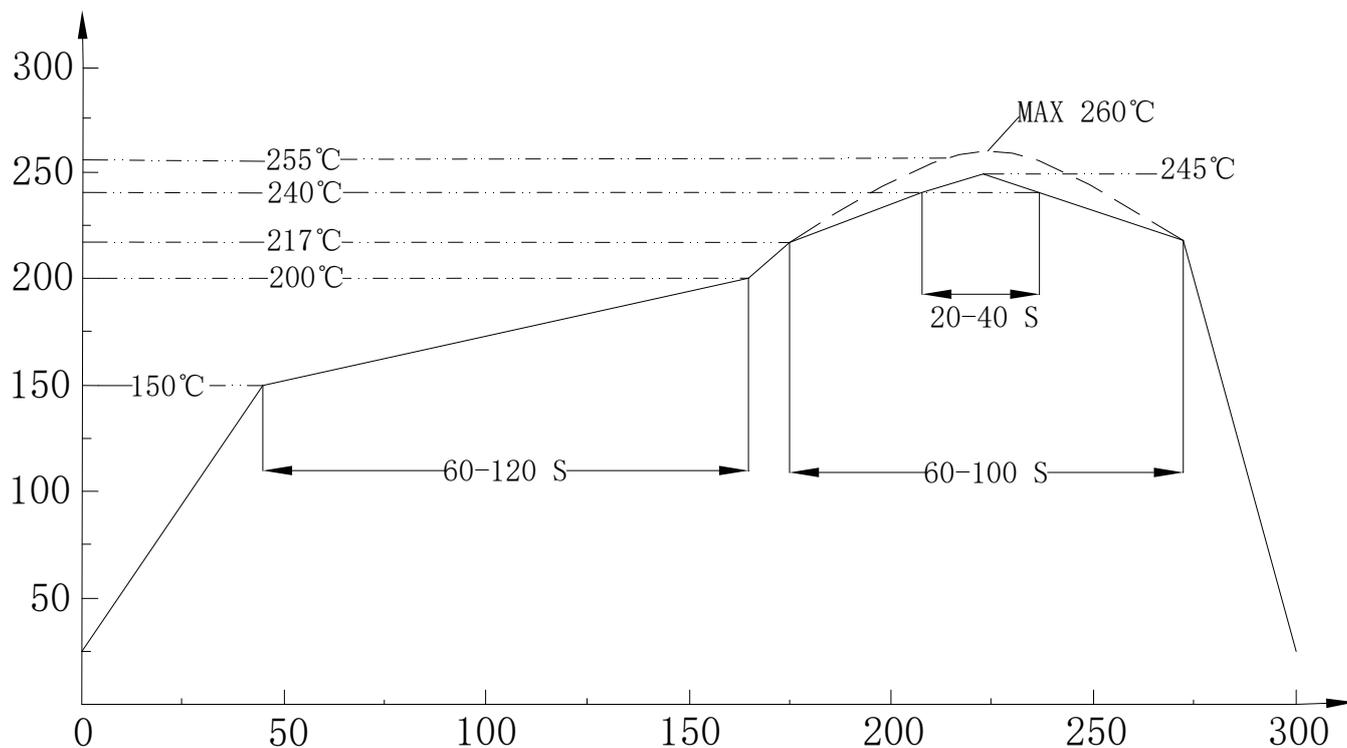
Notes/备注:

- 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。产品不适合超声波清洁。

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 700 °C 预热平均升温速率 25°C至 700°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、Specification of Packing /包装规格

8.1 Label Form Specification/标签格式规范



No:
P/N: M2016F-606A0101-0301UD-Z
IV code:
VF code:
λ/Tc code:
IF: 350mA
Lot No:
Cus No:



IV: 50-60lm
VF:
λ/Tc : 5600-6100
Q'ty : 4000pcs
Date:

RoHS

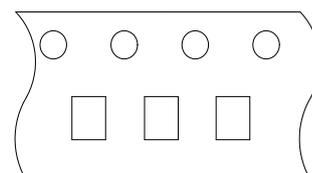
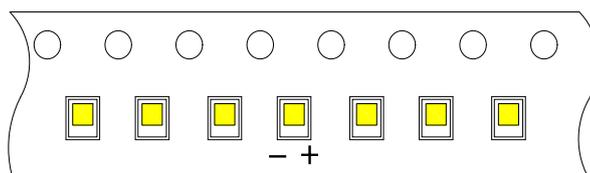
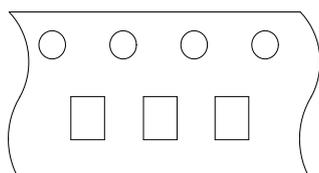
QC

No: 产品品号	IV: 光通量/发光强度
P/N: 产品品名	VF: 电压
IV code: 光通量/发光强度代码	λ/Tc: 波长/色系档位
VF code: 电压代码	Q'ty: 包装数量
λ/Tc code: 波长代码/色温	Date: 标签打印日期
IF: 测试电流	QC: 检验合格章
Lot No: 生产批号	
Cus No: 客户料号	

8.2 Taping and Orientation/编带和方向(Reel packing/卷盘包装: 4000PCS)

末端

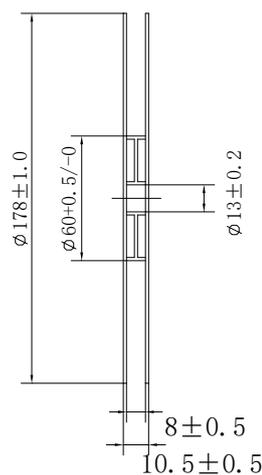
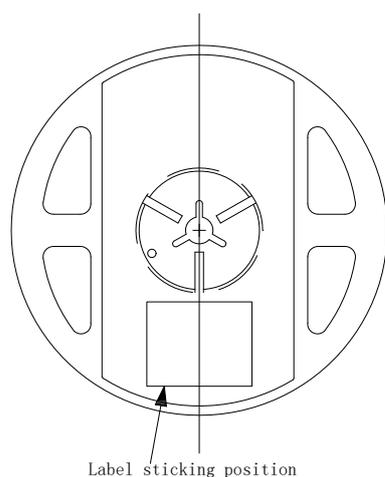
进料方向

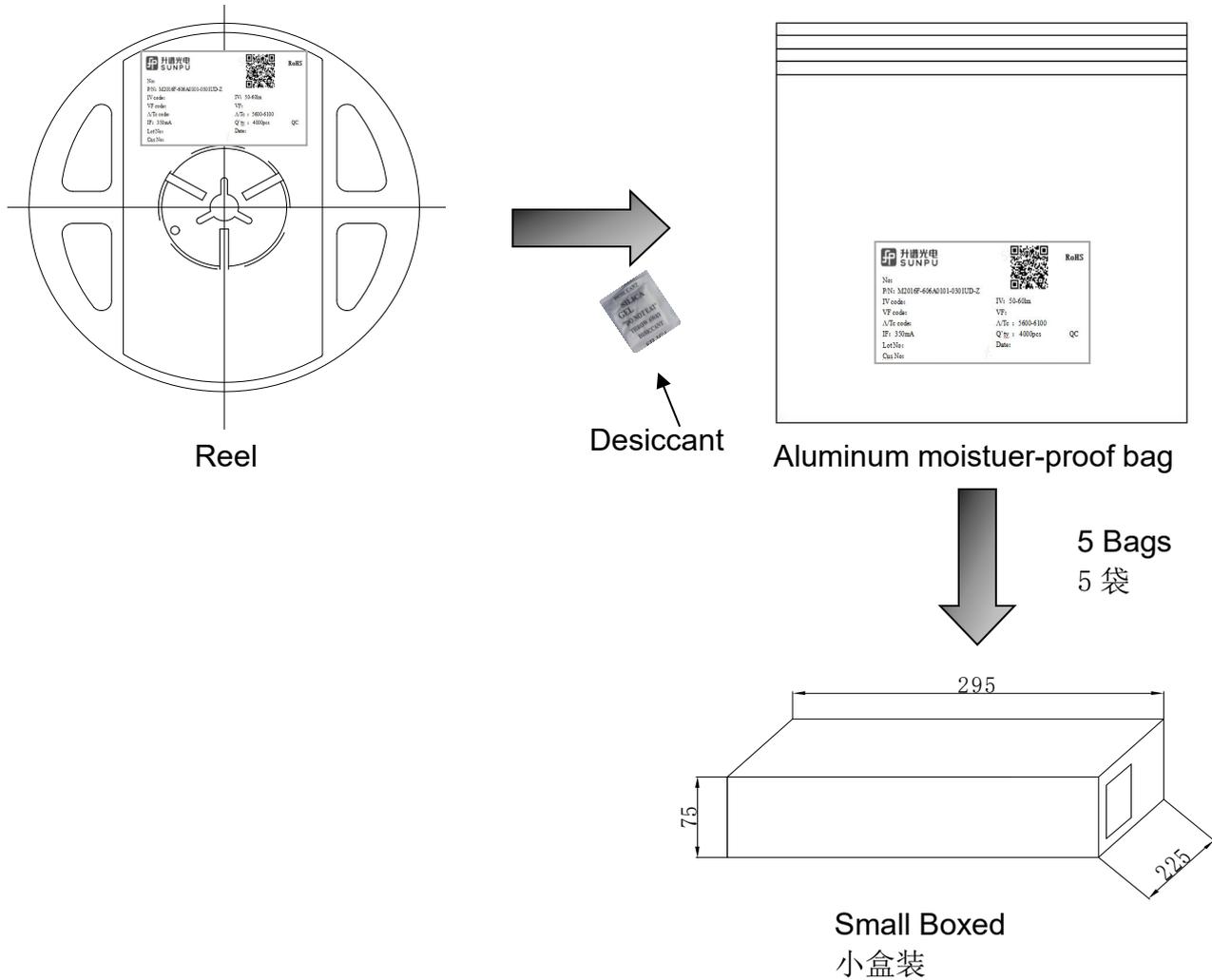


200mm空载带

每卷4000PCS

400mm空载带



8.3 Specification of Packing/包装规格

Notes/备注:

- ◆ Reel packing/卷盘包装: 4000PCS
- ◆ Boxed/盒装: 5 Bags (20000PCS)
- ◆ humidity sensitive products packed in aluminum foil bags, containing desiccant. 湿敏产品包装在铝箔袋中, 内含干燥剂。

9、Notes/注意

9.1 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

9.2 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。

9.3 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。

9.4 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.

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。

附 1、Revision History /修订历史

Rev 版本号	Revision time 修订时间	Revisions 修订内容
A/0	2024/05/07	