

# HVB-2835FQY



## 2835 PLCC2 系列产品 / Products Series

具有高发光效率、高一致性、高稳定性、高可靠性，主要用于汽车应用

High luminous efficiency, consistency, stability and reliability, it is mainly used in automobile applications.

### 特征

- 外观：白色PCT塑料，无色透明硅树脂封装
- 50% I<sub>v</sub> 视角度：120°
- 颜色：蓝色（470nm）
- 资格：可靠性测试符合AEC Q102和 IEC 60810标准
- 潮湿敏感等级-2

### Features

- Package: Colorless clear silicone in white PCT cup
- Viewing angle at 50% I<sub>v</sub>: 120°
- Color: Blue (470nm)
- Qualifications: Reliability test compliance with AEC Q102 and IEC 60810
- MSL-2

### 应用

- 信号灯
- 汽车内外部照明应用

### Applications

- Signaling
- Interior and exterior lighting for automotive

## 订购信息 / Ordering Information

型号 Type	发光强度 Luminous Intensity I <sub>v</sub> @ I <sub>f</sub> =150mA	订单编号 Ordering Code
HVB-2835FQY- XXXX - XX - XXXX       亮度档 颜色档 电压档 Brightness Color Forward Voltage	1.80 -4.50 cd	XXXXXX

## 备注

## ■ 亮度档

单个最小包装只装有同一个亮度档次的产品，具体分档信息请见第4页

例如：HVB-2835FQY-BACB-XX-XXXX 单个卷盘中的产品只有BA、BB、CA、CB中的某一档

## ■ 颜色档

单个最小包装只装有同一个颜色档次的产品，具体分档信息请见第4页

例如：HVB-2835FQY-XXXX-25-XX，单个卷盘中的产品只有2、3、4、5中的某一档

## ■ 正向电压档

单个最小包装只装有同一个正向电压档次的产品，具体分档信息请见第4页

例如：HVB-2835FQY-XXXX-XX-58，单个卷盘中的产品只有5,6...8中的某一档

## Note

## ■ Brightness Grouping

Only one brightness group will be packed in each reel. Please refer to page #4 for details.

E.g.: HVB-2835FQY-BACB-XX-XXXX, means only one bin of BA ,BB ,CA or CB is in each reel.

## ■ Color Grouping

Only one color group will be packed in each reel. Please refer to page #4 for details.

E.g.: HVB-2835FQY-XXXX-25-XX, means only one bin of 2 ,3, 4 or 5 is in each reel.

## ■ Forward Voltage Groups

Only one forward voltage group will be packed in each reel. Please refer to page #4 for details.

E.g.: HVB-2835FQYA-XXXX-XX-58, means only one bin of 5,6 ,7or 8 is in each reel.

## 极限参数 / Maximum Ratings

参数 Parameters	符号 Symbol	数值 Rating	单位 Unit
结温 / Junction Temperature	$T_j$	125	°C
正向电流 / Forward Current ( $T_s=25^\circ\text{C}$ )	$I_f$	200	mA
峰值正向电流 Peak Forward Current ( $t \leq 10\mu\text{s}$ ; $D=0.005$ ; $T_s=25^\circ\text{C}$ )	$I_{fp}$	750	mA
反向电压 / Reverse Voltage ( $T_s=25^\circ\text{C}$ )	$V_r$	不适用于反向操作 Not designed for reverse operation	V
抗静电能力 Electrostatic Discharge (HBM)	$V_{ESD}$	2000	V
操作温度 / Operating Temperature	$T_{opr}$	-40 ~ +110	°C
储存温度 / Storage Temperature	$T_{stg}$	-40 ~ +110	°C

特性 / Characteristics ( $T_s = 25^\circ\text{C}$ ;  $I_f = 150\text{ mA}$ )

参数 Parameters		符号 Symbol	数值 Rating	单位 Unit
峰值波长 / Wavelength at Peak Emission	typ.	$\lambda_{peak}$	465	nm
	min.	$\lambda_{dom}$	460	nm
主波长 / Dominant Wavelength	typ.	$\lambda_{dom}$	470	nm
	max.	$\lambda_{dom}$	476	nm
半波宽 / Spectral Bandwidth at 50% $I_{rel}$ max	typ.	$\Delta\lambda$	25	nm
50 % $I_v$ 下的视角 / Viewing Angle at 50 % $I_v$	typ.	$2\Phi$	120	°
	min.	$V_f$	2.60	V
正向电压 / Forward Voltage	typ.	$V_f$	3.32	V
	max.	$V_f$	4.10	V
反向电流 / Reverse Current ( $V_R=10\text{V}$ )	typ.	$I_r$	不可施加反向 电 压 / not designed for reverse operation	$\mu\text{A}$
	max.	$I_r$		$\mu\text{A}$
实际热阻值 (PN结-焊点) / Real Thermal Resistance (Junction / Solder Point)	max.	$R_{th JS_{real}}$	40	K/W

亮度分档 / Brightness Grouping ( $T_s = 25\text{ }^\circ\text{C}$ ;  $I_f = 150\text{ mA}$ )

档次 Grouping	发光强度 Luminous Intensity $I_v$ ( min. )	发光强度 Luminous Intensity $I_v$ ( max. )	光通量 Luminous Flux $\Phi_v$ ( typ. )
BA	1.80 cd	2.24 cd	6.30 lm
BB	2.24 cd	2.80 cd	7.90 lm
CA	2.80 cd	3.55 cd	9.90 lm
CB	3.55 cd	4.50 cd	12.60 lm

正向电压分档 / Forward Voltage Grouping ( $T_s = 25\text{ }^\circ\text{C}$ ;  $I_f = 150\text{ mA}$ )

档次 Grouping	正向电压 Forward Voltage $V_f$ ( min. )	正向电压 Forward Voltage $V_f$ ( max. )
5	2.60 V	2.90 V
6	2.90 V	3.20 V
7	3.20 V	3.50 V
8	3.50V	3.80 V

主波长分档 / Dominant Wavelength Grouping ( $T_s = 25\text{ }^\circ\text{C}$ ;  $I_f = 150\text{ mA}$ )

档次 Grouping	主波长 Dominant Wavelength $\lambda_{\text{dom}}$ ( min. )	主波长 Dominant Wavelength $\lambda_{\text{dom}}$ ( max. )
2	460 nm	464 nm
3	464 nm	468 nm
4	468 nm	472 nm
5	472 nm	476 nm

## 标签信息 / Information on Label

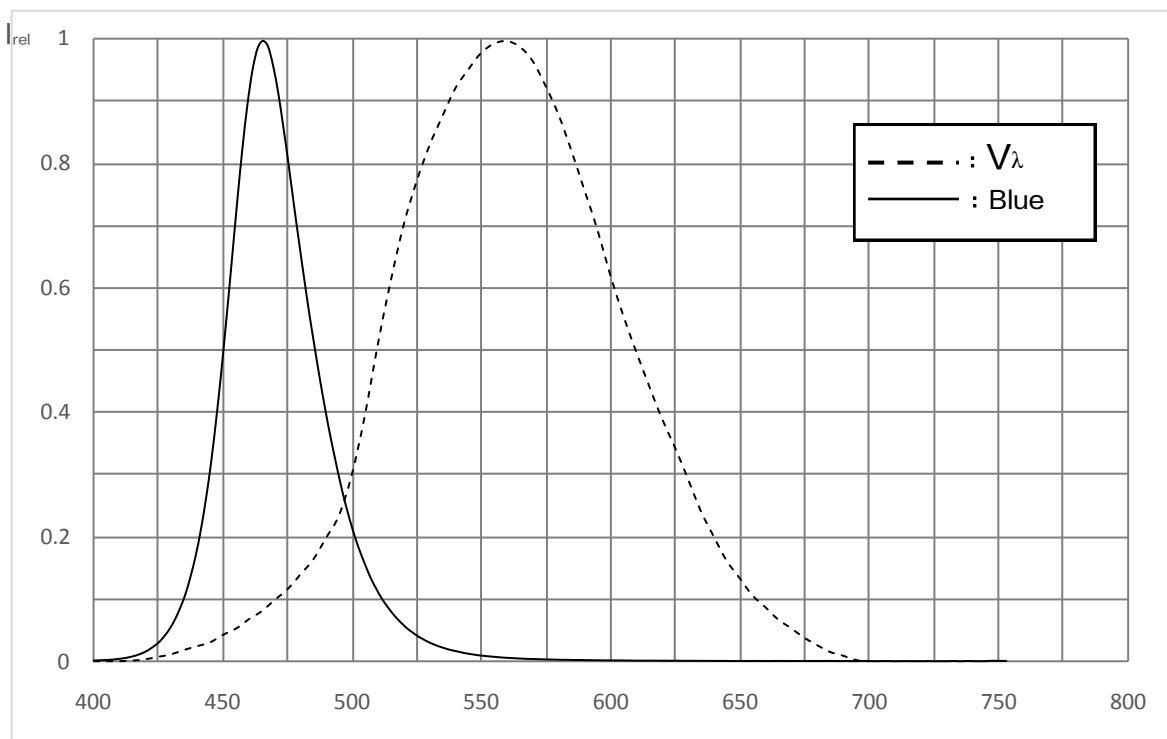
例 / E.g.: BA-2-5

亮度档 / Brightness	颜色 / Color	正向电压 / Forward Voltage
BA	2	5

相对发射光谱 -  $V(\lambda)$  = 标准人眼视觉曲线

Relative Spectral Emission -  $V(\lambda)$  = Standard Eye Response Curve

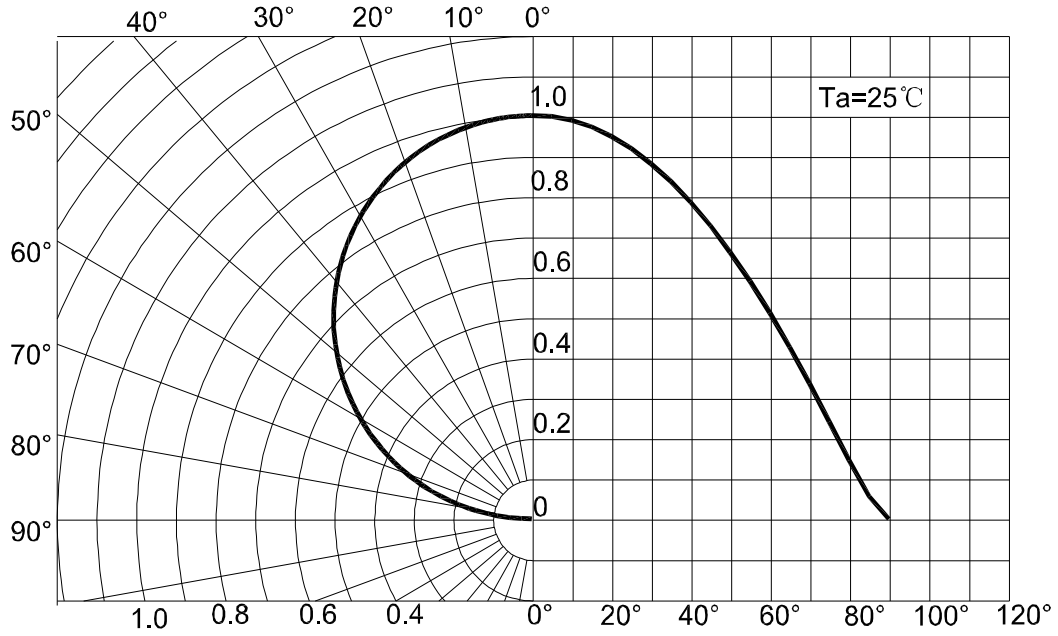
$I_{rel} = f(\lambda)$ ;  $T_s = 25\text{ }^\circ\text{C}$ ;  $I_f = 150\text{ mA}$



nm

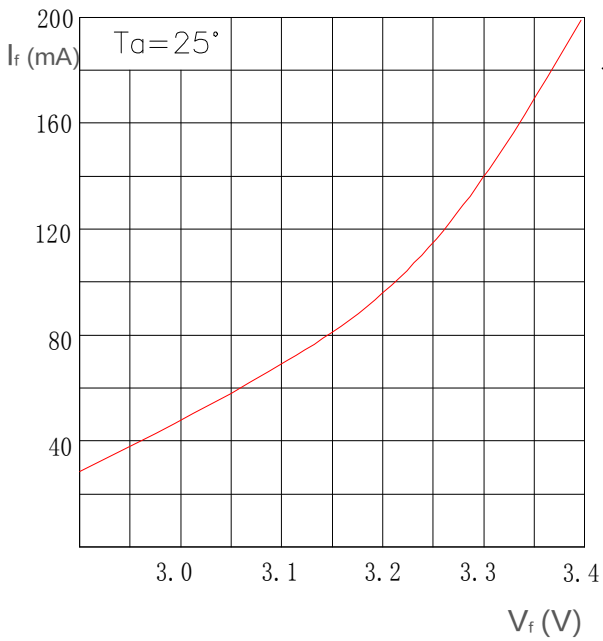
辐射特性 / Radiation Characteristics

$I_{rel} = f(\phi); T_s = 25\text{ }^\circ\text{C}$



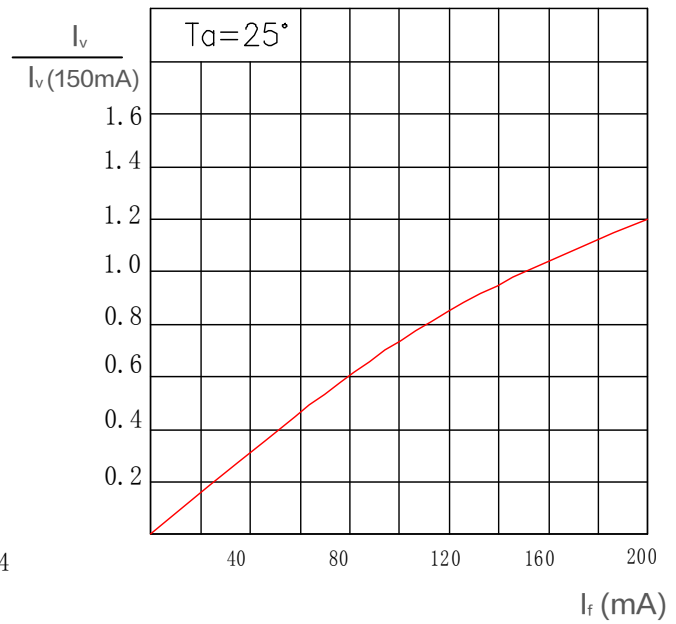
正向电流 / Forward Current

$I_f = f(V_f); T_a = 25\text{ }^\circ\text{C}$

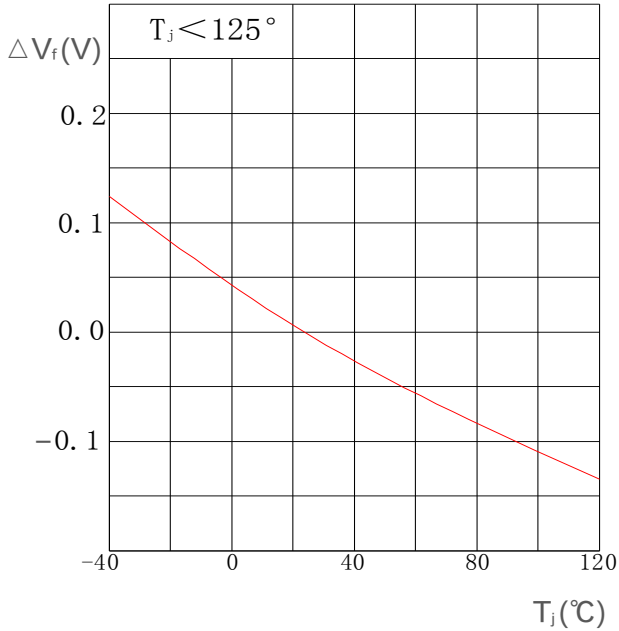


相对亮度特性曲线 / Relative Luminous Intensity

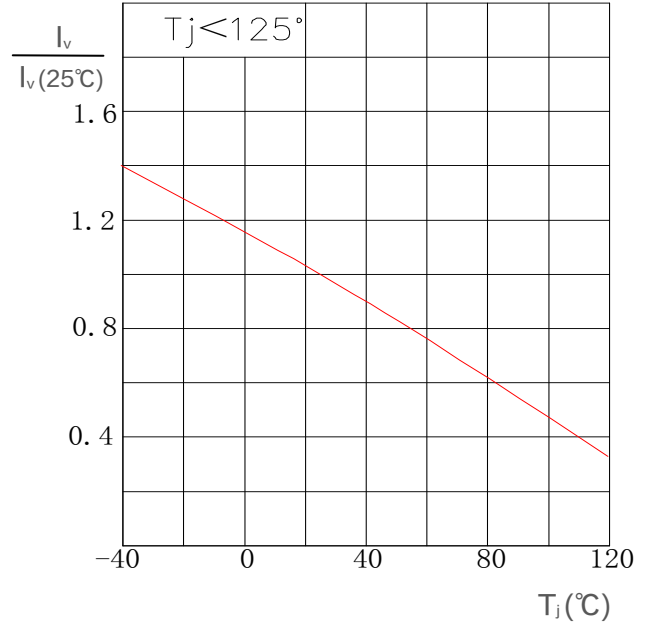
$I_v/I_v(150\text{ mA}) = f(I_f); T_a = 25\text{ }^\circ\text{C}$



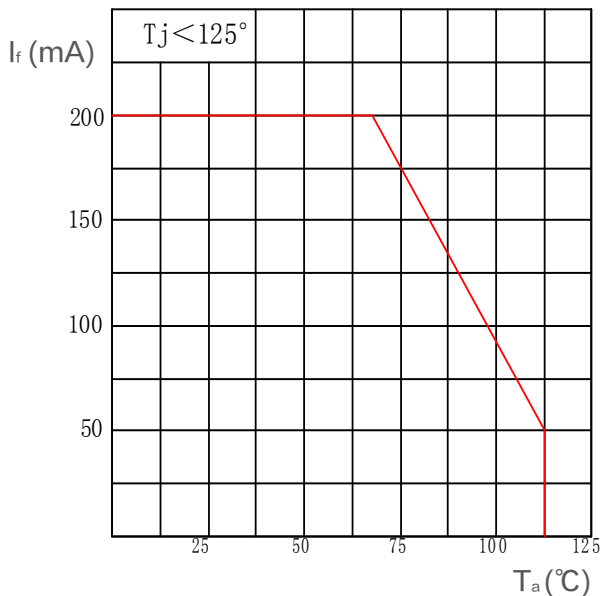
相对正向电压 / Relative Forward Voltage  
 $\Delta V_f = V_f - V_f(25^\circ\text{C}) = f(T_j); I_f = 150\text{ mA}$



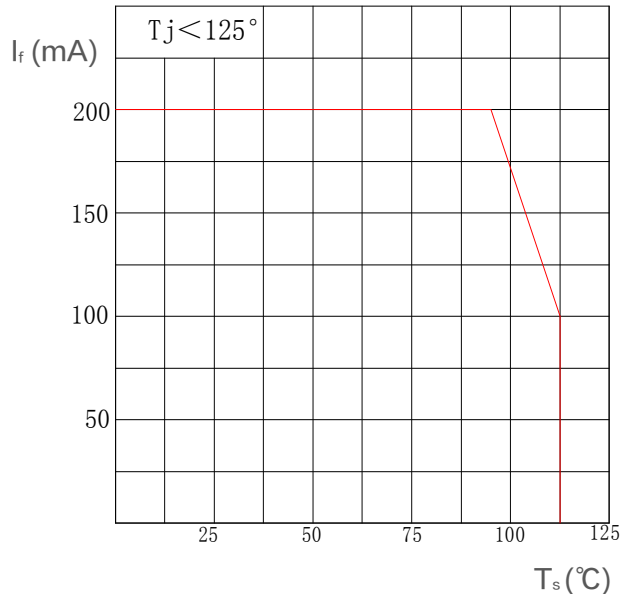
相对发光强度 / Relative Luminous Intensity  
 $I_v/I_v(25^\circ\text{C}) = f(T_j); I_f = 150\text{ mA}$



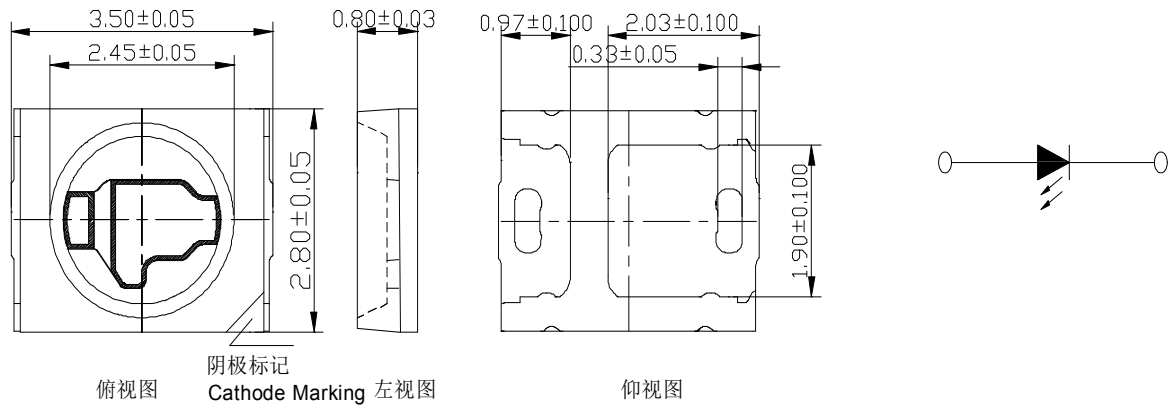
环境温度与正向电流  
 Ambient Temperature vs. Forward Current  
 $I_f = f(T_a)$



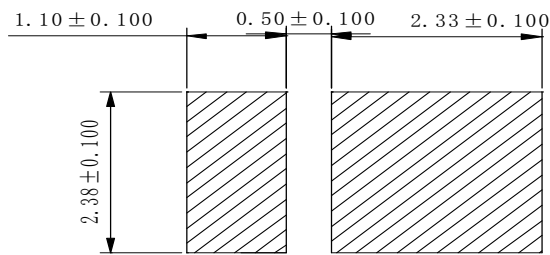
焊点温度与正向电流 / Solder Point Temperature vs. Forward Current  
 $I_f = f(T_s)$



## 产品尺寸 / Package Outline



## 推荐焊盘 / Recommended Solder Pad



### 注释

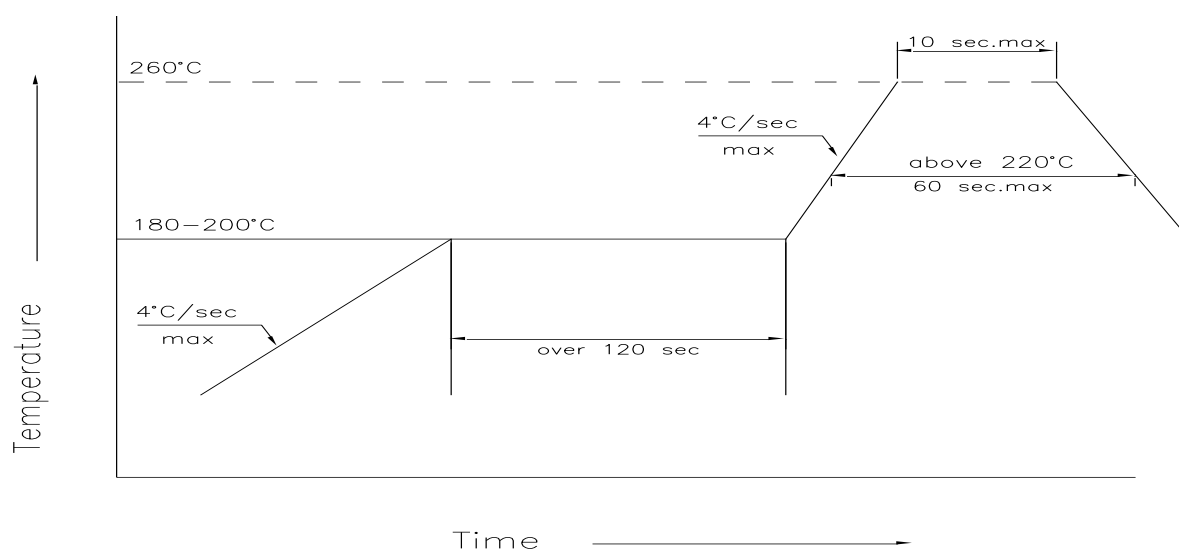
■ 不适合超声波清洗的封装

### NOTE

■ Package not suitable for ultrasonic cleaning



## 回流焊要求 / Reflow Soldering Profile



主要特性 Profile Feature	符号 Symbol	无铅焊接 Pb-Free Assembly			单位 Unit
		min.	rec.	max.	
预热升温速率 Ramp-up Rate to Preheat 25°C–180°C	–	–	2	3	°C/s
时间 / Time ( $T_{smin}$ to $T_{smax}$ )	$T_s$	60	100	120	s
峰值升温速率 Ramp-up Rate to Peak ( $T_{smax}$ to $T_p$ )	–	–	2	3	°C/s
熔点温度 Liquidus Temperature	$T_l$		217		°C
高于熔点温度的时间 Time above Liquidus Temperature	$t_l$	–	80	100	s
峰值温度 / Peak Temperature	$T_p$	–	255	260	°C
规定的峰值温度 ± 5°C 以内的时间 Time within 5°C of the Specified Peak Temperature	$t_p$	10	20	30	s
降温速率 / Ramp-down Rate ( $T_p$ to 100°C)	–	–	3	6	°C/s
时间 / Time (25°C to $T_p$ )	–	–	–	480	s

## 可靠性试验 / Reliability Test

试验项目 Test Item	试验方法Test Method	试验条件Test Condition	周期 Duration	试验数量 Number Of Test	试验结果 Test Result
光电测试 Test	产品规格书 Products Datasheet	25°C条件量测光电参数 Measurement of Photoelectric parameters At 25 °C	-	全部 ALL	Pass
外观检查 EV	JESD22 B- 101	显微镜观察 OM observation	-	全部 ALL	Pass
参数验证 PV	产品规格书 Products Datasheet	25°C条件量测光电参数 Measurement of photoelectric parameters at 25 °C	-	75	0/75
破坏性物理分 析 DPA	AEC-Q101- 004	化学开盖后,观察外观结构 After Decap, OM observation	-	10	0/10
人体模式静电 释放 ESD HBM	JESD22 A- 114	± 2000V	2次 2 times	30	0/30
机器模式静电 释放 ESD MM	JESD 22- A115C	± 200V	2次 2 times	30	0/30
尺寸测量 PD	JESD22 B- 100	参照样品规格书 Per Products Datasheet	-	30	0/30
高温高湿通电 测试 WHTOL1	JESD22 A- 101	Ta=85° C/85% RH,开/关各30分 钟,If=350mA Ta=85°C 85%RH, 30min. on/30min. off,If=350mA	1000小时 1000 hours	78	0/78
功率温度循环 测试 PTC	JESD22 A- 105	Ta = -40°C ~85°C,驻留时间10分 钟,转换时间11分钟, 开/关各5分钟, If=350mA Ta=-40°C ~85°C,Dwell: 10min,Transition time: 11min, 5 min. on / 5 min. off, If=350mA	1000循环 1000 cyc	78	0/78
高温寿命测试 HTOL	JESD22- A108	Ta = 85° C, If=350mA	1000小时 1000 hours	78	0/78

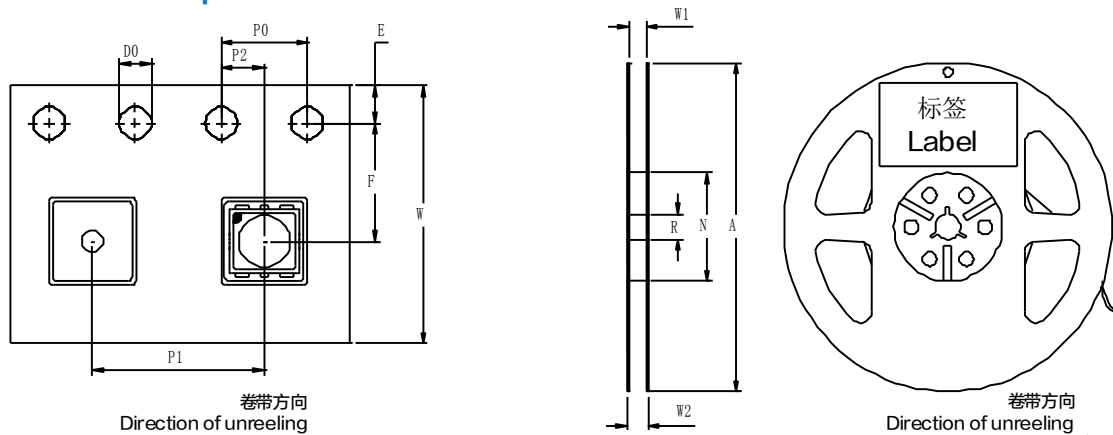
## 可靠性试验 / Reliability Test

热阻测试 TR	JEDEC JESD51-50 JESD51-51 JESD51-52	需使用不同导热材质分层测试 Need to use different thermal conductivity material layer test	-	10	16
金线拉力 WBP	MIL-STD-750-2 Method 2037	参照MIL-STD-750-2Method 2037 Per MIL-STD-750-2Method 2037	-	15	Ppk>1.67
金球推力 WBS	AEC Q101-003	参照AEC Q101-003 Per AEC Q101-003	-	15	Ppk>1.67
晶片推力 DS	MIL-STD-750-2 Method 2017	参照MIL-STD-750-2Method 2017 Per MIL-STD-750-2Method 2017	-	15	Ppk>1.67

## 接受标准 / Acceptance Criteria

正向电压 Forward Voltage	Vf变化 $\leq$ $\pm$ 10% VF shift% $\leq$ $\pm$ 10% from initial value
光通量 Luminous Flux	LM光通量变化 $\leq$ $\pm$ 20%，备注：某些应用环境 $\leq$ $\pm$ 30%，某些特定应用（如内饰） $\leq$ $\pm$ 50% LM shift $\leq$ $\pm$ 20% from initial value, Note. $\pm$ 30% may be acceptable for some application. $\pm$ 50% may be acceptable only for some application (e.g., interior).
色坐标Cx & Cy Colour coordinates Cx and Cy	Cx & Cy 变化 $\leq$ $\pm$ 0.01,备注：对于硫化氢和混合气体腐蚀的变化 $\leq$ $\pm$ 0.02（如内饰） Cx & Cy shift $\leq$ $\pm$ 0.01,Note: $\pm$ 0.02 may be acceptable for H2S & FMG for some application (e.g., interior).
外观 Visual	无迁移，腐蚀，分层等 No migration, corrosion, delamination, other

## 卷带与卷盘 / Tape and Reel



前端空带: 最小400 mm; 尾端空带: 最小160 mm; 尺寸符合: IEC 60286-3, EIA 481-D标准

Leader: min. 400 mm; Trailer: min. 160 mm; Requirement acc. to IEC 60286-3, EIA 481-D

## 卷带尺寸 / Tape Dimensions ( mm )

W	P0	P1	P2	D0	E	F
8±0.1	4±0.1	4±0.1	2±0.05	1.50±0.05	1.75±0.1	3.50±0.05

## 卷盘尺寸 / Reel Dimensions ( mm )

A	W1	W2	N	R
178.0±0.2	8.0±0.5	8.0±0.5	60.0±0.4	13.5±0.3

## 数量 (颗/卷) / Quantity ( pcs/reel )

4000

## 条形码标签 / Barcode-Product-Label (BPL)

**HONGLI TRONIC**  
鸿利光电

**RoHS**

Device No:HVX-XXXXXXX  
BIN:XX-XX-XX

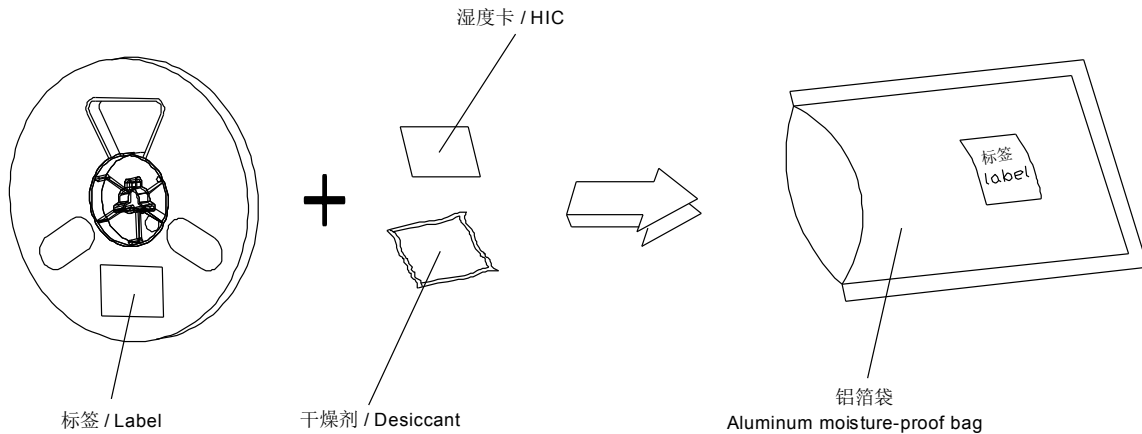
Lot No:XXXX-XXXXXXXX  
IV:XXXX-XXXX mcd

Product No:XXXXXXXXXXXX  
WLD:XXX-XXX nm

Qty:XXXXPCS D/C:XXXX  
VF:XXX-XXX V

MSL:2

## 包装材料及过程 / Dry Packing Process and Materials



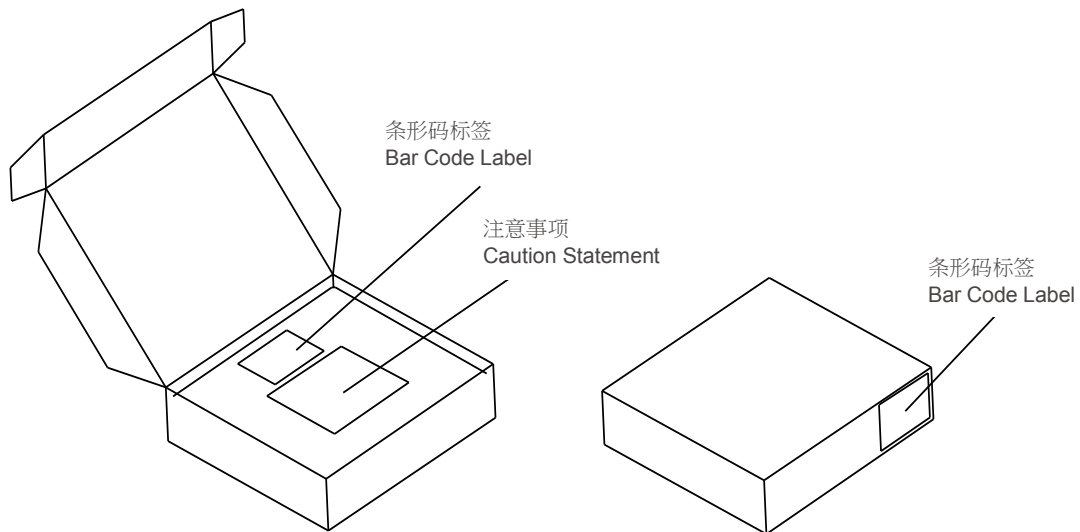
### 备注

产品包装在一个干燥的铝箔袋里，同时内附有干燥剂和湿度卡。  
对于干燥包装，您可以从网络或JEDEC标准里获取。

### NOTE

Moisture-sensitive product is packed in a dry bag containing desiccant and HIC (humidity indicator card).  
Regarding dry pack you may find further information in the internet or JEDEC.

## 出货包装及材料 / Transportation Packing and Materials



## 出货箱尺寸 / Dimensions of Transportation Box (mm)

宽度 / Width	长度 / Length	高度 / Height
256 ± 5	223 ± 5	62 ± 5
256 ± 5	223 ± 5	124 ± 5

## 注释

**典型值:** 每个产品的实际值可能与这些统计出的典型值不同。

**公差:** 除非图纸中有说明, 公差默认为  $\pm 0.1$  mm。

**正向电压:** 正向电压是在8ms脉冲电流并且内部在线性为  $\pm 0.05$ V和一个  $\pm 0.1$ V的外在不确定性 (按照GUM K=3因子) 来进行测试的。

**波长:** 波长是在25ms脉冲电流并且内部在线性为  $\pm 0.5$ nm和一个  $\pm 1$ nm的外在不确定性 (按照GUM K=3因子) 来进行测试的。

**亮度:** 亮度是在25ms脉冲电流并且内部在线性为  $\pm 8\%$ 和一个  $\pm 11\%$ 的外在不确定性 (按照GUM K=3因子) 来进行测试的。

**特殊声明:** 本版本最终解释权归属鸿利智汇, 当中英文意思发生歧义时, 以中文为准。

## Glossary

**Typical Values:** Actual values of each product may differ from these statistical values .

**Tolerance of Measure:** Unless otherwise noted in drawing, tolerances are specified with  $+/-0.1$ mm.

**Forward Voltage:** The forward voltage is measured during a current pulse of typically 8 ms, with an internal reproducibility of  $\pm 0.05$  V and an expanded uncertainty of  $\pm 0.1$  V (acc. to GUM with a coverage factor of  $k = 3$ ).

**Wavelength:** The wavelength is measured at a current pulse of typically 25 ms, with an internal reproducibility of  $\pm 0.5$  nm and an expanded uncertainty of  $\pm 1$  nm (acc. to GUM with a coverage factor of  $k = 3$ ).

**Brightness:** Brightness values are measured during a current pulse of typically 25 ms, with an internal reproducibility of  $\pm 8\%$  and an expanded uncertainty of  $\pm 11\%$  (acc. to GUM with a coverage factor of  $k = 3$ ).

**Special Statement:** The final interpretation of this specification shall be vested in Honglitronic, in the case of ambiguity, the Chinese version shall prevail.