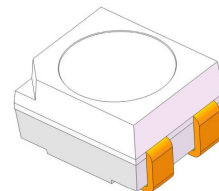


## LSP4FS



采用表贴式封装，便于集成，良好的散热性能；采用垂直结构芯片，亮度高，高温下颜色漂移小；硅胶密封，透过率高，抗紫外和高温性能好；  
SMD package, easy to be integrated, good heat dissipation; Vertical flip-chip technology, high optical output efficiency, small excursion of wave length at high temperature; Silicone sealed, high transmittance, excellent UV protection and thermal stability;

### 特点 | Features:

- ▲ 封装：白色 SMD 封装  
Package: White SMD Package
- ▲ 视角：120°  
Viewing angle: 120°
- ▲ 颜色： $\lambda_{\text{dom}} = 632 \text{ nm}$  (super red)  
Color:  $\lambda_{\text{dom}} = 632 \text{ nm}$  (super red)
- ▲ ESD：2 千伏，HBM Class 2  
ESD: 2 kV, HBM Class 2
- ▲ 认证：AEC-Q102  
Qualifications: AEC-Q102
- ▲ MSL：等级 2  
MSL: Level 2

### 应用 | Applications:

- ▲ 汽车信号灯  
Automotive lights
- ▲ 电器指示灯  
Signaling lamp of apparatus
- ▲ 灯具  
Lanterns
- ▲ 仪器、仪表盘背光显示  
Dashboard backlight

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## 器件最大允许值 | Maximum Ratings

参数 Parameter	符号 Symbol	值 Values	单位 Unit
工作温度 Operating temperature	$T_{op}$	-40-110	°C
存储温度 Storage temperature	$T_{stg}$	-40-110	°C
结温 P/N junction temperature	$T_j$	125	°C
正向电流 Forward current	$I_f$	70	mA
脉冲峰值电流 Surge current ( $t \leq 10\mu S$ ; $D=0.005$ ; $T_s=25^\circ C$ )	$I_{fm}$	100	mA
反向击穿电压 Reverse voltage	$V_R$	12	V
抗静电电压 ESD withstand voltage (acc. To ANSI/ESDA/JEDEC JS-001-HBM, Class 2)	$V_{ESD}$	2	kV

## 关键指标参数 | Characteristics (Ts=25°C, If=50mA)

参数 Parameter	符号 Symbol	值 Values	单位 Unit
峰值波长 Peak wavelength	$\lambda_p$	typ. 640	nm
主波长 Dominant wavelength	$\lambda_d$	min. 625 typ. 632 max. 640	nm
发光角度 Viewing angle at 50% I <sub>v</sub>	2 $\theta$	typ. 120	deg. [ ° ]
正向电压 Forward voltage	V <sub>f</sub>	min. 1.90 typ. 2.28 max. 2.65	V
反向漏电流 Reverse current (V <sub>R</sub> =10V)	I <sub>R</sub>	max. 1	μA
光通量 Luminous flux	Φ	typ. 4.5	lm
实际热阻 (P/N 结到焊接点) Thermal resistance (P/N junction to soldering point)	R <sub>thJs real</sub>	max. 93	K/W
电热阻 (P/N 结到焊接点) Thermal resistance (P/N junction to soldering point)	R <sub>thJs ele</sub>	max. 53	K/W

## 亮度分档 | Brightness Groups (Ts=25°C, If=50mA)

组 Group	符号 Symbol	最小值 Min.	最大值 Max.	单位 Unit
B1	$\Phi_V$	2.6	3.9	lm
B2	$\Phi_V$	3.9	5.2	lm
B3	$\Phi_V$	5.2	6.5	lm
B4	$\Phi_V$	6.5	8.1	lm

\*Ts: soldering point temperature

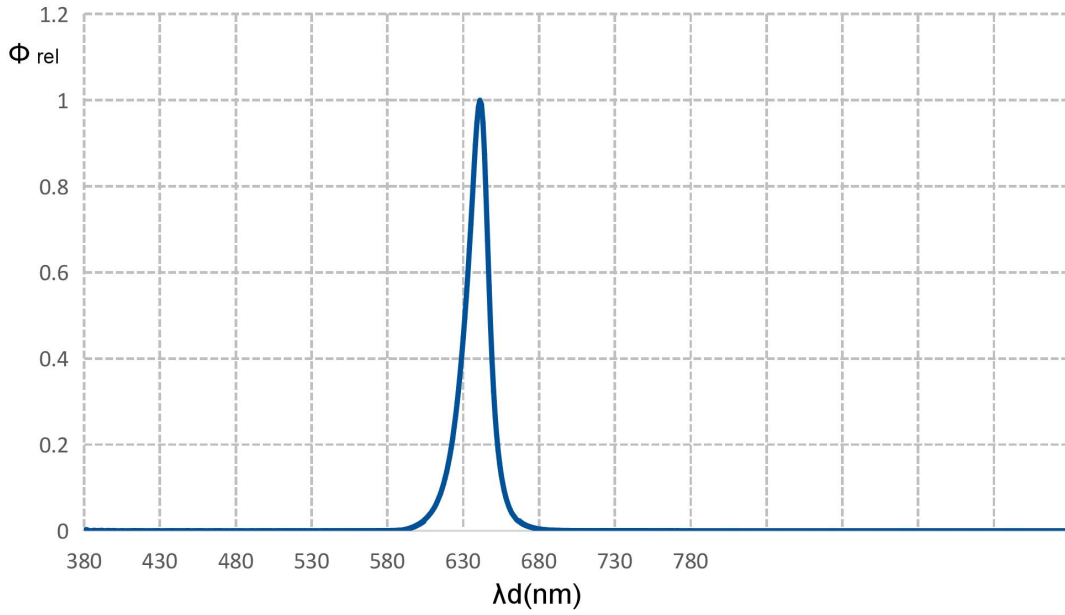
## 电压分档 | Forward Voltage Groups (Ts=25°C, If=50mA)

组 Group	符号 Symbol	最小值 Min.	最大值 Max.	单位 Unit
V1	Vf	1.90	2.05	V
V2	Vf	2.05	2.20	V
V3	Vf	2.20	2.35	V
V4	Vf	2.35	2.50	V
V5	Vf	2.50	2.65	V

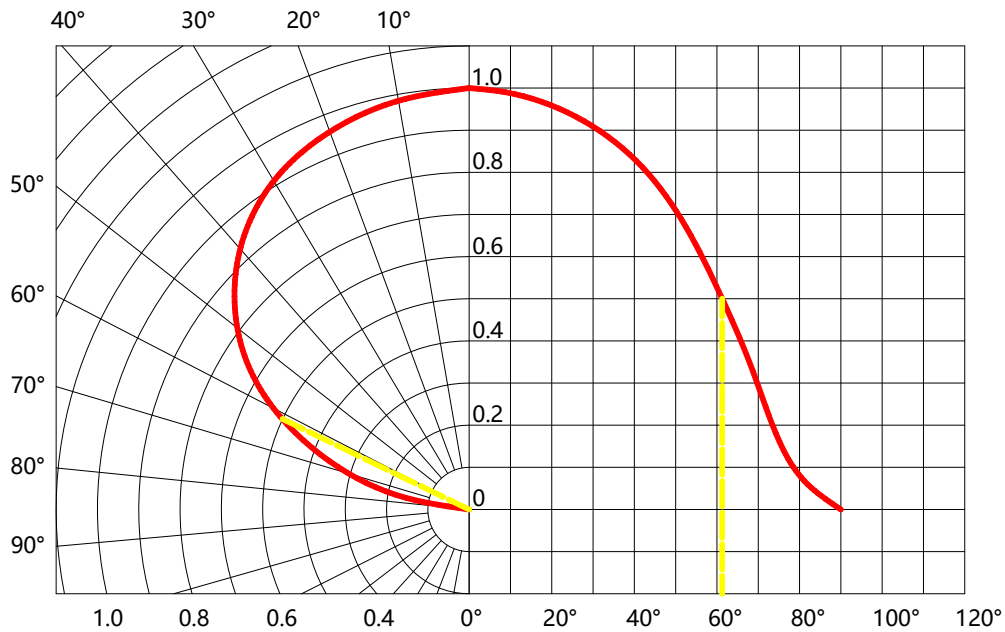
## 色度分档 | Chroma Groups (Ts=25°C, If=50mA)

组 Group	符号 Symbol	最小值 Min.	最大值 Max.	单位 Unit
W1	$\lambda_{dom}$	625	630	nm
W2	$\lambda_{dom}$	630	635	nm
W3	$\lambda_{dom}$	635	640	nm

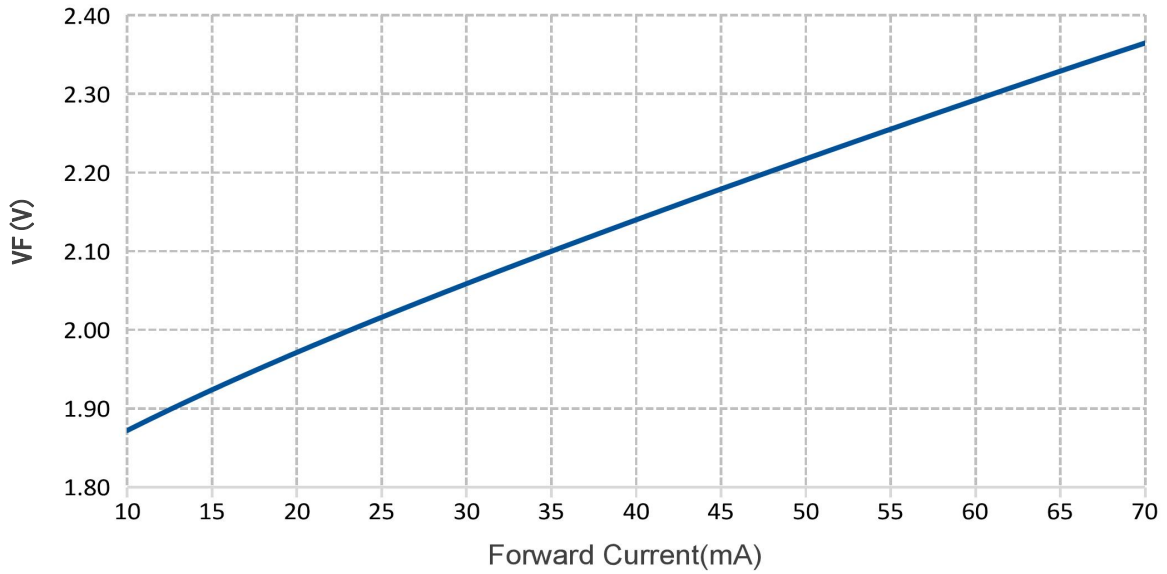
相对光谱分布曲线 | Relative Spectral Emission Curve (Ts=25°C, If=50mA)



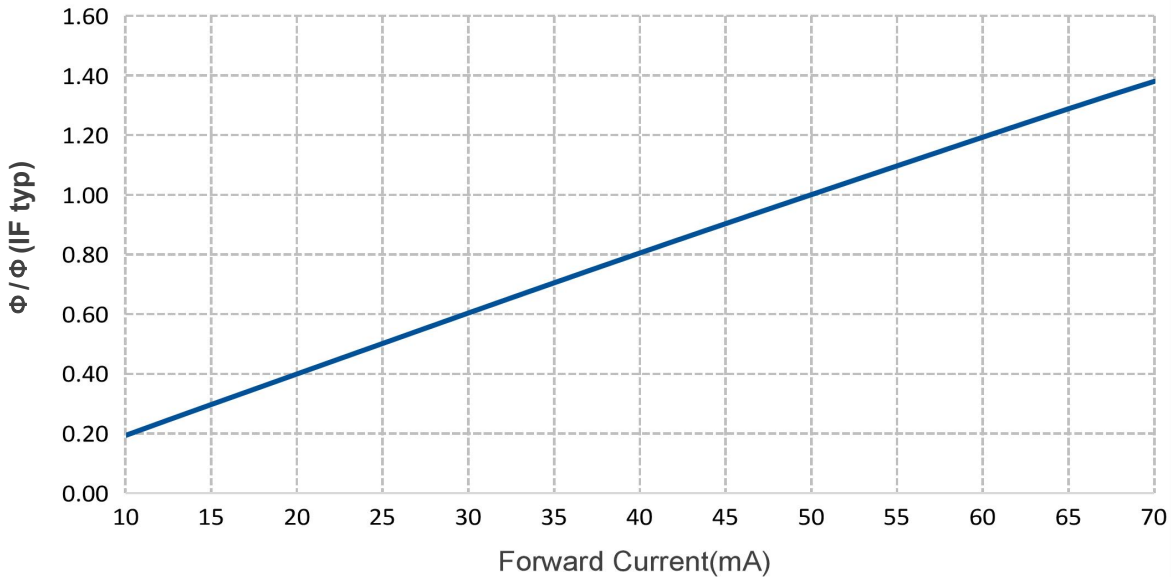
辐射特性 | Radiation Characteristics (Ts=25°C, If=50mA)



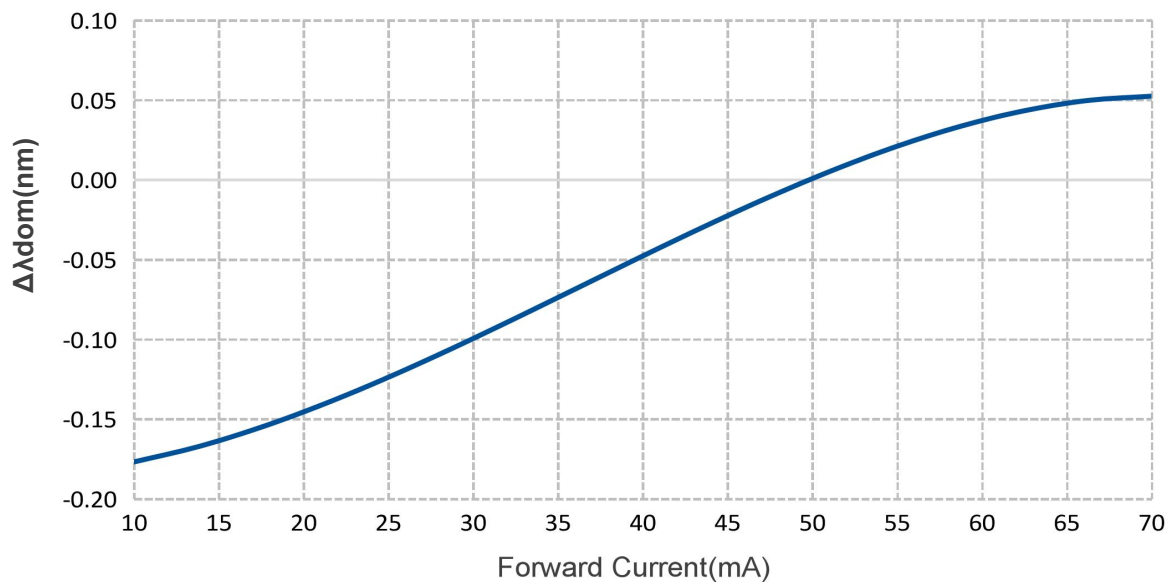
正向电流-正向电压 | Forward current-Forward Voltage (Ts=25°C)



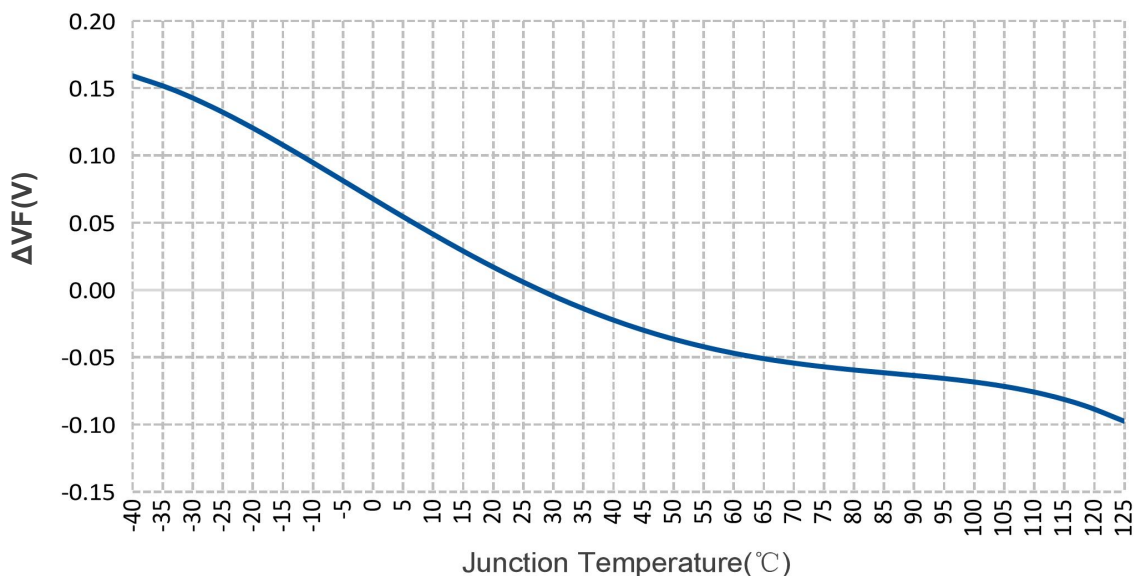
正向电流-相对光通量 | Forward current-Relative Luminous Flux (Ts=25°C)



正向电流-主波长 | Forward current-Dominant Wavelength ( $T_s=25^\circ\text{C}$ )

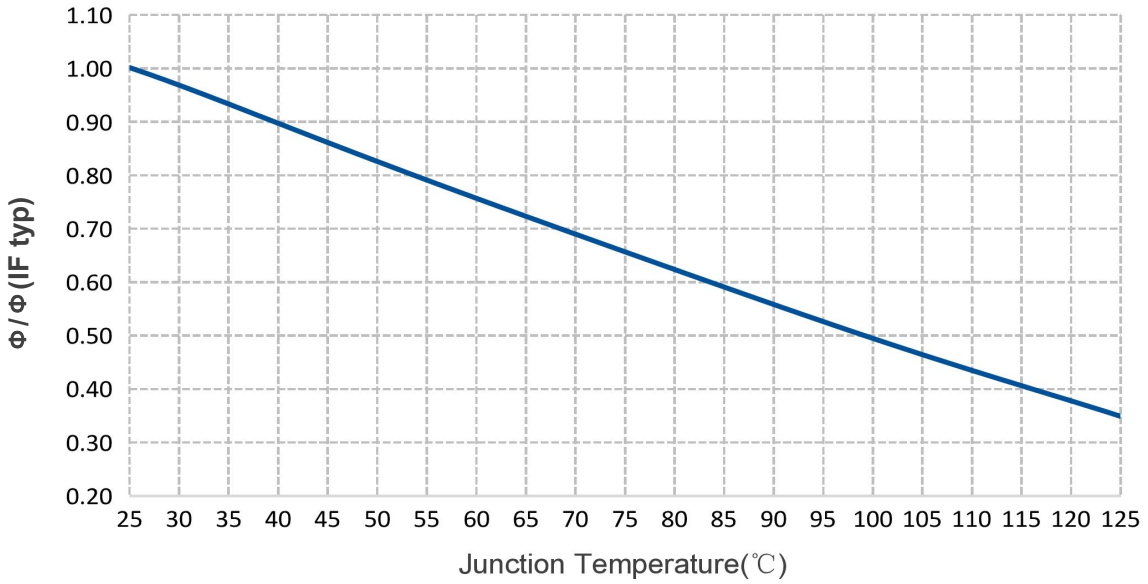


结温-正向电压 | Junction Temperature-Forward Voltage ( $I_f=50\text{mA}$ )

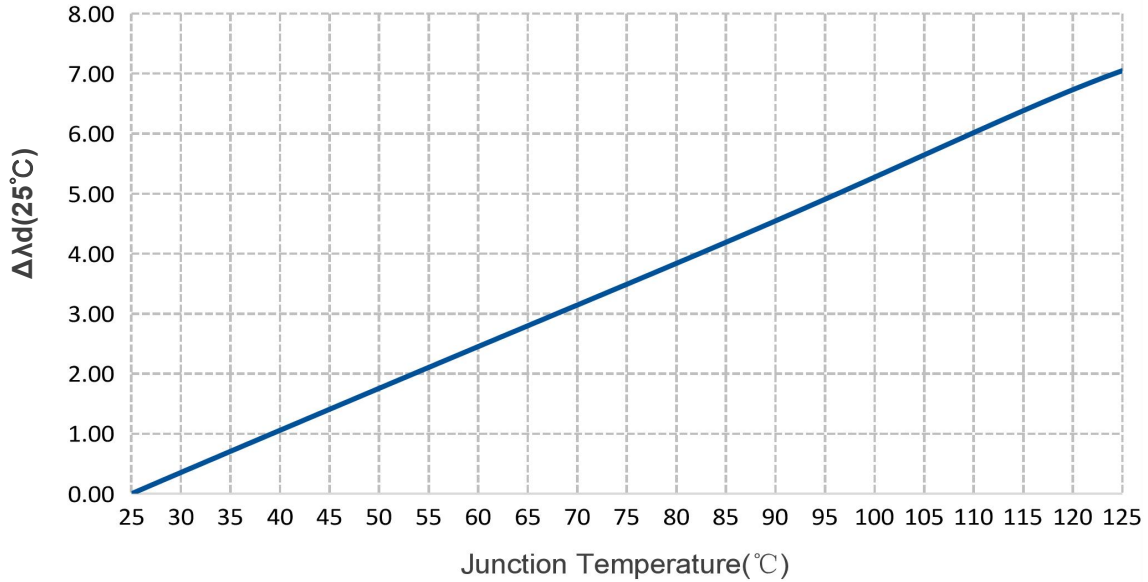




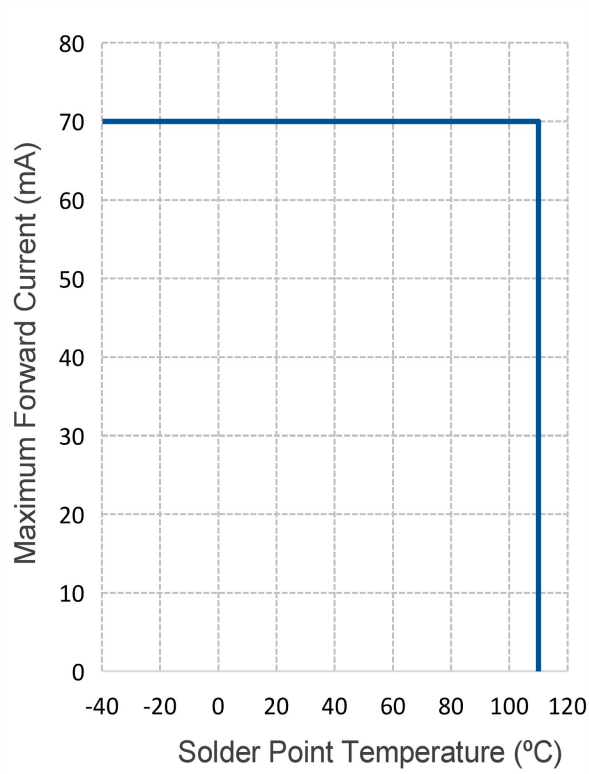
结温-相对光通量 | Junction Temperature-Relative Luminous Flux (If=50mA)



结温-主波长 | Junction Temperature-Dominant Wavelength (If=50mA)

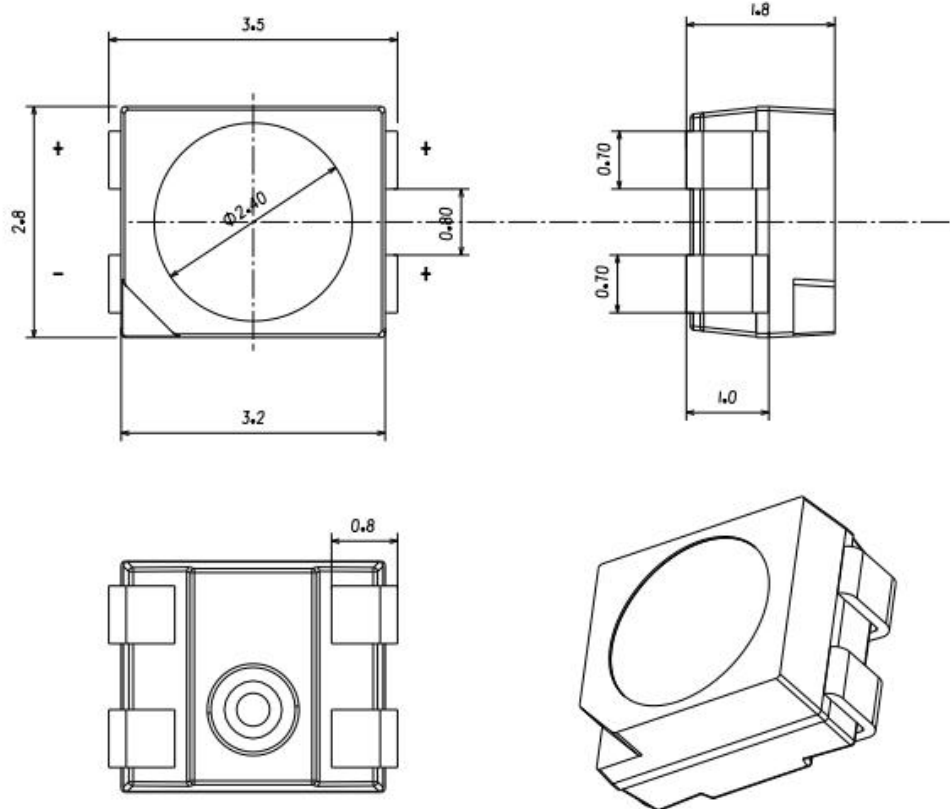


最大容许正向电流 | Max. Permissible Forward Current



外形尺寸 | Mechanical Dimensions

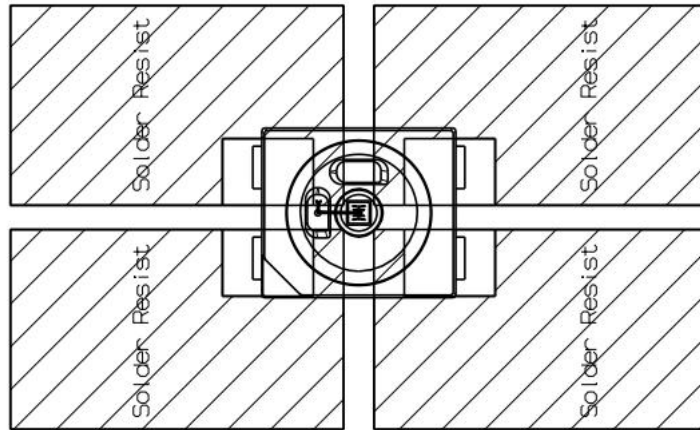
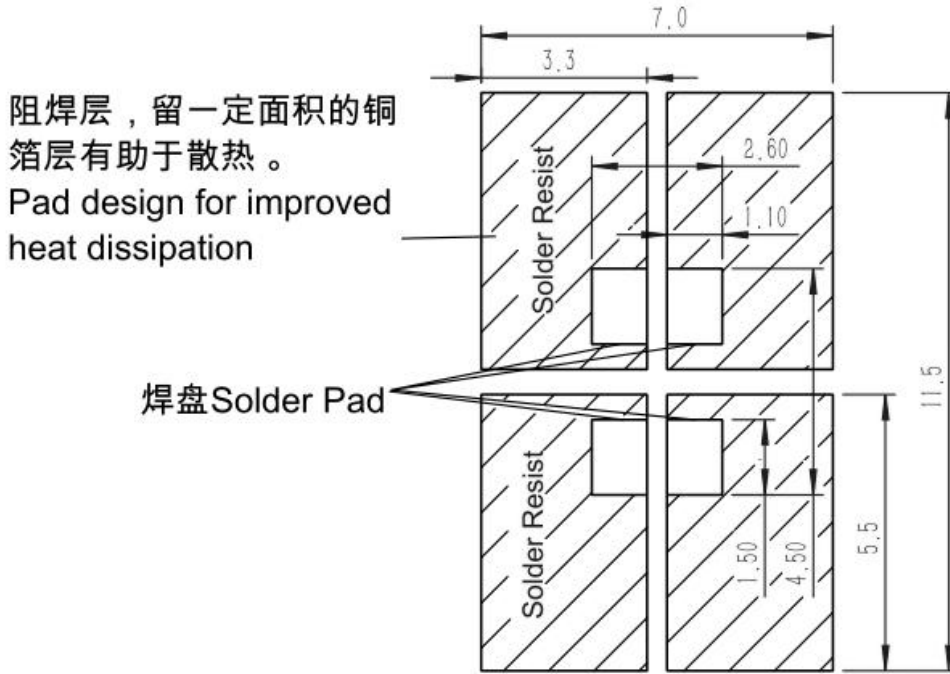
单位 | Unit: mm



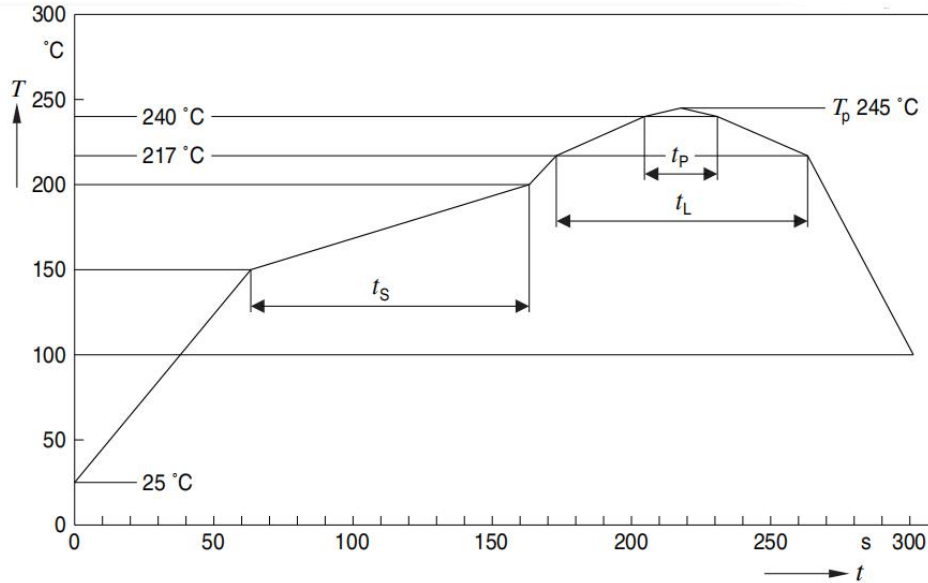
尺寸   Size	公差   Tolerance
*. *	$\pm 0.1\text{mm}$
*. **	$\pm 0.05\text{mm}$

推荐焊盘 | Recommended Solder Pad

单位 | Unit: mm



## 回流焊曲线 | Reflow Soldering Profile

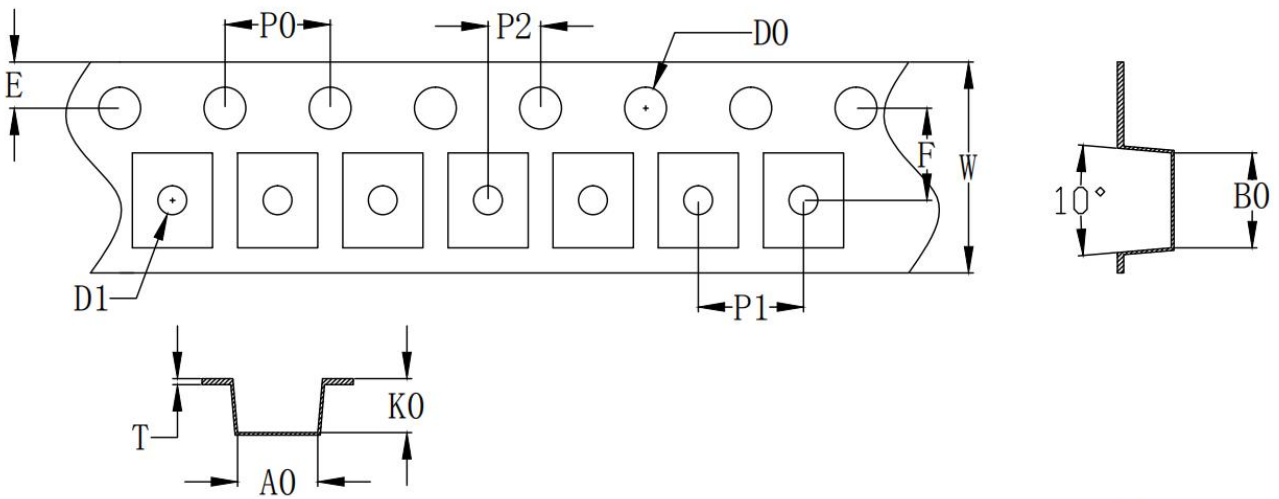
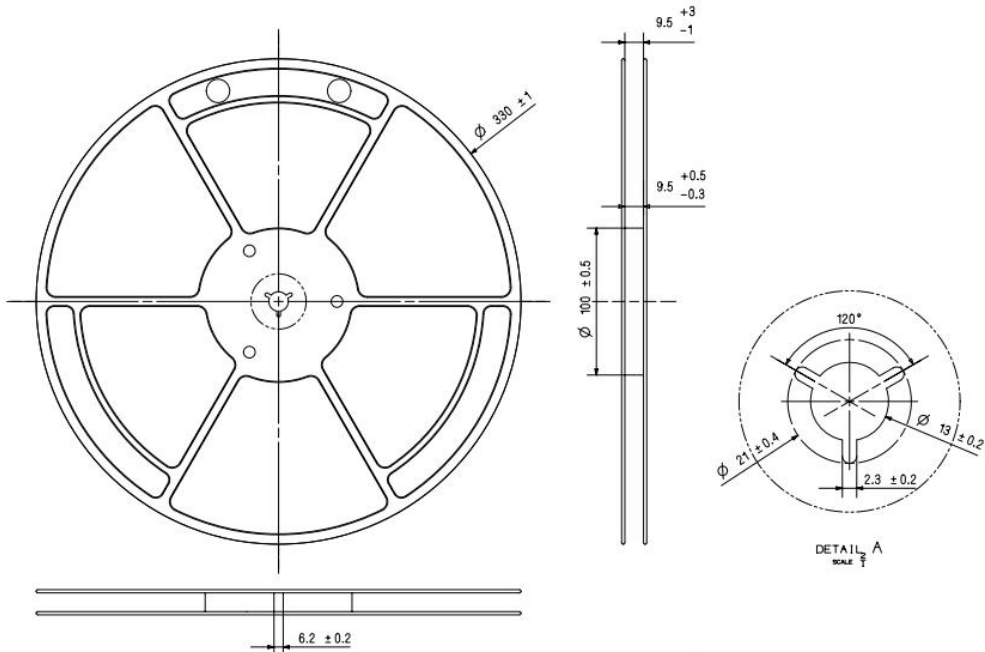


回流焊步骤 Profile Feature	符号 Symbol	无铅回流焊 (SnAgCu) Pb-Free (SnAgCu) Assembly			单位 Unit
		最小值 Min.	设定值 Reco.	最大值 Max.	
预热升温速率 25 °C to 150 °C Ramp-up rate to preheat			2	3	K/s
升温时间 ( $T_{smin}$ - $T_{smax}$ )	$t_s$	60	100	120	s
从 $T_{smax}$ 升温到最高温度的速率 Ramp-up rate to peak			2	3	K/s
达到液相的温度 Liquidus temperature			217		°C
在液相温度以上的时间 Time above liquidus temperature	$t_L$		80	100	s
最高温度 Peak temperature	$T_p$		245	260	°C
在高于最高温度 5°C 范围内停留的时间 Time within 5 °C of the specified peak temperature $T_p - 5$ K	$t_p$	10	20	30	s
降到 100°C 的速率 Ramp-down rate* $T_p$ to 100 °C			3	6	K/s
从最高温降到 25°C 的时间 Time 25 °C to $T_p$				480	s

\*LED complies to MSL Level 2 (JEDEC J-STD-020E)

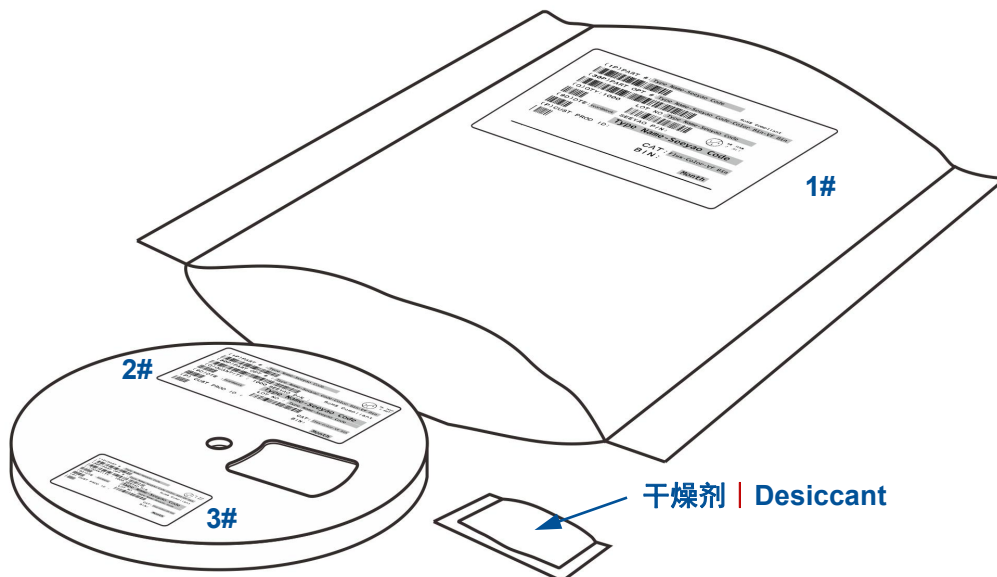
编带 | Taping

单位 | Unit: mm



ITEM	W	A0	B0	K0	E	F	D0	D1	P0	P1	P2	T
DIM	8.00	3.05	3.70	2.05	1.75	3.50	1.50	1.10	4.00	4.00	2.00	0.22
TOLE	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.03 -0.03

包装信息-产品标签 | Packaging Information- Product Label



标签 1# | Label 1#

标签 2# | Label 2#

标签 3# | Label 3#

SEEYAO PN: Type Name-See Yao Code	
BATCH NO: SALME0123456789	
(Q)QUANTITY: QTY Seal Date:YYMMDD	
(9D)DATE CODE: YYWW	
(33P)CAT CODE: Flux-Color-Vf	
(1T)LOT NO: Bin012345678K601234	Month

SEEYAO PN: Type Name-See Yao Code	
BATCH NO: SALME0123456789	
(Q)QUANTITY: QTY Seal Date:YYMMDD	
(9D)DATE CODE: YYWW	
(33P)CAT CODE: Flux-Color-Vf	
(1T)LOT NO: Bin012345678K601234	Month

DT:012345K60123	
Qty:qty	
Bin:CAT CODE	
Type Name-See Yao Code	
SALME0123456789	
Bin012345678K601234	