

Golden DRAGON oval Plus

无铅设计，符合 RoHS 标准

Golden DRAGON oval Plus

Lead (Pb) Free Product - RoHS Compliant

LCW W5PM



初步数据 / Preliminary Data

特点

- **封装:** 白色 SMD 封装，备透明硅树脂透镜
- **典型光通量:** 73 lm (工作电流为 350 mA、色温为 3500 K 时)，最大 161 lm (工作电流为 1 A、色温为 3500 K 时)
- **装置特点:** 小尺寸高效光源
- **色温:** 2500 K 至 4800 K
- **显色指数:** 80
- **视角:** 水平 120°，垂直 70°
- **技术:** ThinGaN
- **光效:** 80 lm/W (工作电流为 100 mA、色温为 3500 K 时)
- **分组参数:** 光通量、颜色坐标
- **组装方式:** 适用于所有表面封装方式
- **焊接方式:** 回流焊接
- **预处理:** 符合 JEDEC 4 级标准
- **卷带封装:** 24-mm 卷带，200/卷，直径为 180 mm
- **ESD 耐压:** ≥ 2 kV (符合 JESD22-A114-D 标准)

应用

- **室外照明:** 街道、隧道、停车场、步行区、公共场所、加油站照明和泛光灯
- **线性室内应用:** 替代荧光灯、地灯照明、零售照明/商铺照明和办公室照明

Features

- **Package:** white SMD package with clear silicone lens
- **Typical Luminous Flux:** 73 lm at 350 mA up to 161 lm at 1 A (3500 K)
- **Feature of the device:** high efficient light source at low space
- **Color temperature:** 2500 K to 4800 K
- **Color reproduction index:** 80
- **Viewing angle:** horizontal 120°, vertical 70°
- **Technology:** ThinGaN
- **Optical efficiency:** 80 lm/W at 100 mA (3500 K)
- **Grouping parameter:** luminous flux, color coordinates
- **Assembly methods:** suitable for all SMT assembly methods
- **Soldering methods:** reflow soldering
- **Preconditioning:** acc. to JEDEC Level 4
- **Taping:** 24 mm tape with 200/reel, \varnothing 180 mm
- **ESD-withstand voltage:** up to 2 kV acc. to JESD22-A114-D

Applications

- **Outdoor lighting:** streets, tunnels, parking lots, pedestrian areas, public places, petrol stations, flood light
- **Linear indoor applications:** fluorescent replacement, floor lighting, retail/shop and office lighting

订购信息

Ordering Information

类型 Type	色温 Color temperature	光通量 ^{第 21 页 1)} Luminous Flux ^{1) page 21} $I_F = 350 \text{ mA}$ $\Phi_V \text{ (mlm)}$	订购代码 Ordering Code
LCW W5PM-JYKX-5U8X	2700 K	52.000 ... 82.000	Q65110A9012
LCW W5PM-JYKY-5R8T	3000 K	52.000 ... 97.000	Q65110A9005
LCW W5PM-JYKY-5O8Q	3500 K	52.000 ... 97.000	Q65110A9009
LCW W5PM-JZKY-5L7N	4000 K	61.000 ... 97.000	Q65110A9001
LCW W5PM-JZKZ-5J7K	4500 K	61.000 ... 112.000	Q65110A9003

注释: 上述类型编号代表仅包含几个亮度组的订购组 (详细说明请参见第 9 页)。每个卷盘上仅装运一个亮度组 (一个卷盘上不会混装两个亮度组)。例如, LCW W5PM-JYKX-5U8X 表示任何一个卷盘上仅可装运一个亮度组: JY、JZ 或 KX。
为了确保可用性, 单个亮度组将不接受订购。

类似地, 对于需要测量和分选色度坐标组的颜色, 每个卷盘上将仅装运单个色度坐标组。例如, LCW W5PM-JYKX-5U8X 表示仅可装运从 4U 到 9X 范围内的一个色度坐标组 (详细说明请参见第 5 页)。
为了确保可用性, 单个色度坐标组将不接受订购。

Note: The above Type Numbers represent the order groups which include only a few brightness groups (see page 9 for explanation). Only one group will be shipped on each reel (there will be no mixing of two groups on each reel). E.g. LCW W5PM-JYKX-5U8X means that only one group JY, JZ or KX will be shippable for any one reel.
In order to ensure availability, single brightness groups will not be orderable.

In a similar manner for colors where chromaticity coordinate groups are measured and binned, single chromaticity coordinate groups will be shipped on any one reel. E.g. LCW W5PM-JYKX-5U8X means that only 1 chromaticity coordinate group 4U to 9X will be shippable on each reel (see page 5 for explanation).
In order to ensure availability, single chromaticity coordinate groups will not be orderable.

最大额定值
Maximum Ratings

参数 Parameter	符号 Symbol	值 Value	单位 Unit
工作温度范围 Operating temperature range	T_{op}	- 40 ... + 125	°C
储存温度范围 Storage temperature range	T_{stg}	- 40 ... + 125	°C
结点温度 Junction temperature	T_j	>150 (短时应用) / for short term applications	°C
结点温度 Junction temperature	T_j	125	°C
正向电流 Forward current ($T_S = 25^\circ\text{C}$)	(最小值) / (min.) I_F (最大值) / (max.) I_F	100 1000	mA mA
脉冲电流 Surge current $t \leq 10 \mu\text{s}, D = 0.005, T_S = 25^\circ\text{C}$	I_{FM}	2000	mA
反向电压 Reverse voltage ($T_S = 25^\circ\text{C}$)	V_R	不设计用于反向运行 not designed for reverse operation	V

特性

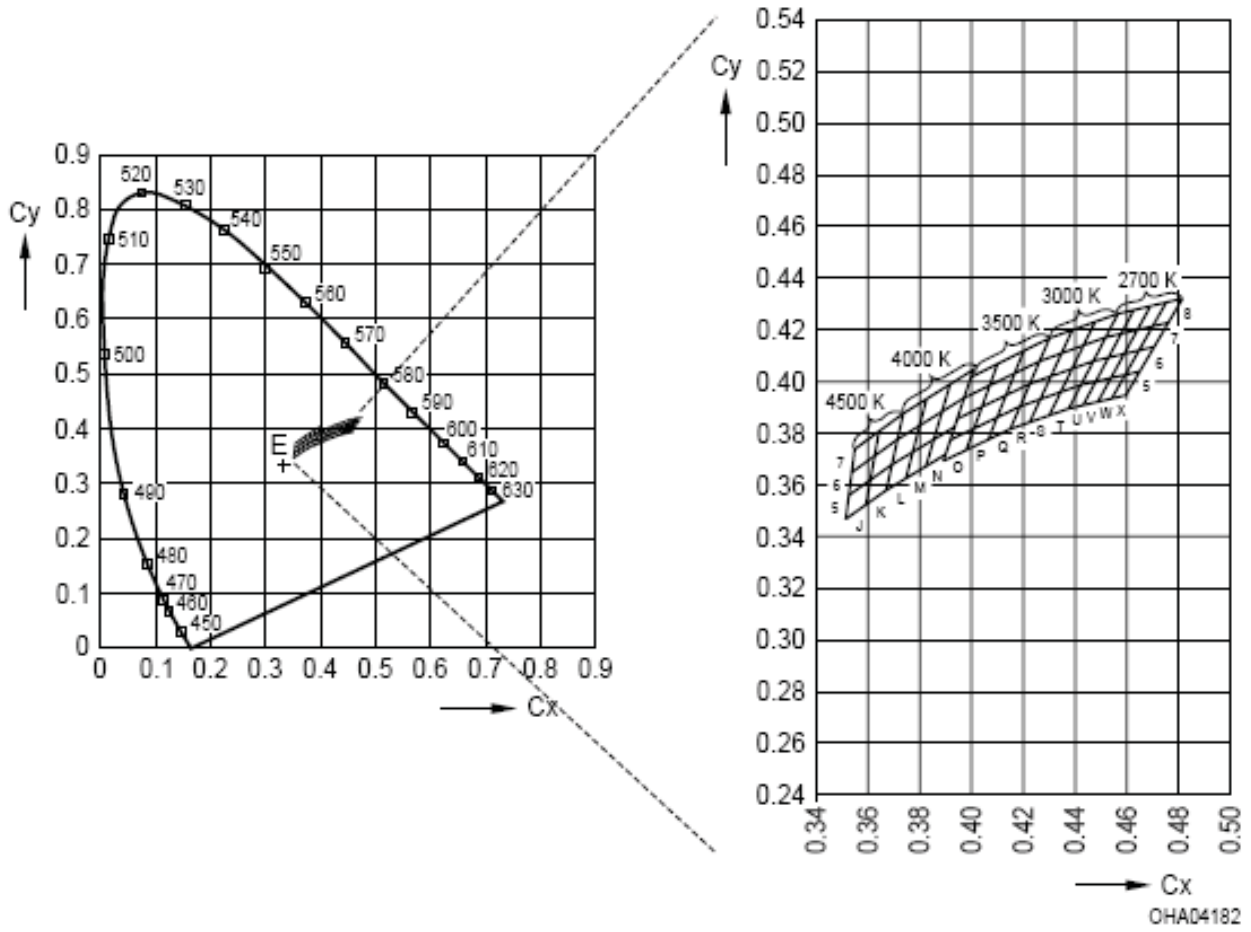
Characteristics

 $(T_S = 25^\circ\text{C})$

参数 Parameter	符号 Symbol	值 Value	单位 Unit
CIE 1931色度坐标 x ^{第 21 页 3)} (典型值) / (typ.) Chromaticity coordinate x acc. to CIE 1931 ^{3) page 21} $I_F = 350 \text{ mA}$	x	0.42	—
CIE 1931色度坐标 y ^{第 21 页 3)} (典型值) / (typ.) Chromaticity coordinate y acc. to CIE 1931 ^{3) page 21} $I_F = 350 \text{ mA}$	y	0.40	—
100% I_V 时的峰值全视角 (典型值) / (typ.) peak. Viewing angle at 100 % I_V	2ϕ	垂直 / vertical 70 水平 / horizontal 120	度 deg.
色温 ^{第 21 页 2)} (最小值) / (min.) Color temperature ^{2) page 21} $I_F = 350 \text{ mA}$	CCT CCT CCT	2500 4800	K K K
正向电压 ^{第 21 页 4)} (最小值) / (min.) Forward voltage ^{4) page 21} $I_F = 350 \text{ mA}$	V_F V_F V_F	2.7 3.2 3.7	V V V
反向电流 (最大值) / (max.) Reverse current	I_R	不设计用于反向运行 not designed for reverse operation	μA
结点-焊点热阻 (典型值) / (typ.) Junction/soldering point (最大值) / (max.)	R_{thJS} R_{thJS}	6.5 11*	K/W K/W

* R_{th} (最大值) 取自统计值 $R_{th}(\text{max})$ is based on statistic values

色度坐标组 第 20 页 3)
 Chromaticity Coordinate Groups ^{3) page 20}



色温 2700 K
Color temperature 2700K

组 Group	Cx	Cy
5U	0.437	0.389
	0.442	0.398
	0.448	0.400
	0.443	0.391
6U	0.442	0.398
	0.447	0.408
	0.453	0.409
	0.448	0.400
7U	0.447	0.408
	0.451	0.417
	0.458	0.418
	0.453	0.409
8U	0.451	0.417
	0.456	0.426
	0.462	0.427
	0.458	0.418
5V	0.443	0.391
	0.448	0.400
	0.453	0.401
	0.448	0.392

组 Group	Cx	Cy
6V	0.448	0.400
	0.453	0.409
	0.459	0.410
	0.453	0.401
7V	0.453	0.409
	0.458	0.418
	0.464	0.420
	0.459	0.410
8V	0.458	0.418
	0.462	0.427
	0.469	0.429
	0.464	0.420
5W	0.448	0.392
	0.453	0.401
	0.459	0.402
	0.454	0.393
6W	0.453	0.401
	0.459	0.410
	0.464	0.412
	0.459	0.402

组 Group	Cx	Cy
7W	0.459	0.410
	0.464	0.420
	0.470	0.421
	0.464	0.412
8W	0.464	0.420
	0.469	0.429
	0.475	0.430
	0.470	0.421
5X	0.454	0.393
	0.459	0.402
	0.465	0.404
	0.459	0.394
6X	0.459	0.402
	0.464	0.412
	0.470	0.413
	0.465	0.404
7X	0.464	0.412
	0.470	0.421
	0.476	0.423
	0.470	0.413

色温 3000 K
Color temperature 3000 K

组 Group	Cx	Cy
5R	0.415	0.381
	0.419	0.390
	0.426	0.393
	0.422	0.384
6R	0.419	0.390
	0.422	0.399
	0.430	0.402
	0.426	0.293
7R	0.422	0.399
	0.426	0.408
	0.435	0.411
	0.430	0.402
8R	0.426	0.408
	0.430	0.417
	0.439	0.420
	0.435	0.411

组 Group	Cx	Cy
5S	0.422	0.384
	0.426	0.393
	0.434	0.396
	0.430	0.387
6S	0.426	0.393
	0.430	0.402
	0.439	0.405
	0.434	0.396
7S	0.430	0.402
	0.435	0.411
	0.443	0.414
	0.439	0.405
8S	0.435	0.411
	0.439	0.420
	0.447	0.423
	0.443	0.414

组 Group	Cx	Cy
5T	0.430	0.387
	0.434	0.396
	0.442	0.398
	0.437	0.389
6T	0.434	0.396
	0.439	0.405
	0.447	0.408
	0.442	0.398
7T	0.439	0.405
	0.443	0.414
	0.451	0.417
	0.447	0.408
8T	0.443	0.414
	0.447	0.423
	0.456	0.426
	0.451	0.417

色温 3500 K
Color temperature 3500 K

组 Group	Cx	Cy
5O	0.389	0.369
	0.392	0.377
	0.401	0.381
	0.398	0.373
6O	0.392	0.377
	0.394	0.385
	0.404	0.390
	0.401	0.381
7O	0.394	0.385
	0.397	0.393
	0.407	0.398
	0.404	0.390
8O	0.397	0.393
	0.400	0.401
	0.410	0.408
	0.407	0.398

组 Group	Cx	Cy
5P	0.398	0.373
	0.401	0.381
	0.410	0.386
	0.406	0.377
	0.406	0.377
6P	0.401	0.381
	0.404	0.390
	0.413	0.394
	0.410	0.386
	0.410	0.386
7P	0.404	0.390
	0.407	0.398
	0.416	0.403
	0.413	0.394
	0.413	0.394
8P	0.407	0.398
	0.410	0.406
	0.420	0.412
	0.416	0.403
	0.416	0.403

组 Group	Cx	Cy
5Q	0.406	0.377
	0.410	0.386
	0.419	0.390
	0.415	0.381
	0.415	0.381
6Q	0.410	0.386
	0.413	0.394
	0.422	0.399
	0.419	0.390
	0.419	0.390
7Q	0.413	0.394
	0.416	0.403
	0.426	0.408
	0.422	0.399
	0.422	0.399
8Q	0.416	0.403
	0.420	0.412
	0.430	0.417
	0.426	0.408
	0.426	0.408

色温 4000 K
Color temperature 4000 K

组 Group	Cx	Cy
5L	0.367	0.358
	0.369	0.368
	0.377	0.373
	0.375	0.362
6L	0.369	0.368
	0.371	0.378
	0.380	0.383
	0.377	0.373
7L	0.371	0.378
	0.374	0.387
	0.383	0.393
	0.380	0.383

组 Group	Cx	Cy
5M	0.375	0.362
	0.377	0.373
	0.385	0.378
	0.382	0.367
	0.382	0.367
6M	0.377	0.373
	0.380	0.383
	0.388	0.388
	0.385	0.376
	0.385	0.376
7M	0.380	0.383
	0.383	0.393
	0.392	0.399
	0.388	0.388
	0.388	0.388

组 Group	Cx	Cy
5N	0.382	0.367
	0.385	0.376
	0.393	0.383
	0.390	0.372
	0.390	0.372
6N	0.385	0.378
	0.388	0.388
	0.397	0.393
	0.393	0.383
	0.393	0.383
7N	0.388	0.388
	0.392	0.399
	0.401	0.404
	0.397	0.393
	0.397	0.393

色温 4500 K
Color temperature 4500 K

组 Group	Cx	Cy
5J	0.351	0.347
	0.352	0.356
	0.361	0.362
	0.359	0.352
6J	0.352	0.356
	0.354	0.365
	0.363	0.371
	0.361	0.362
7J	0.354	0.365
	0.355	0.374
	0.364	0.381
	0.363	0.371

组 Group	Cx	Cy
5K	0.359	0.352
	0.361	0.362
	0.369	0.368
	0.367	0.358
6K	0.361	0.362
	0.363	0.371
	0.371	0.378
	0.369	0.368
7K	0.363	0.371
	0.364	0.381
	0.374	0.387
	0.371	0.378

亮度组
Brightness Groups

亮度组 Brightness Group	光通量 ^{第 21 页 1)} Luminous Flux ^{1) page 21} Φ_v (lm)
JY	52.000 ... 61.000
JZ	61.000 ... 71.000
KX	71.000 ... 82.000
KY	82.000 ... 97.000
KZ	97.000 ... 112.000

注释：系列类型的标准装运格式包括仅由几个单个亮度组组成的产品族亮度组。单个亮度组不接受订购。

Note: The standard shipping format for serial types includes a family group of only a few individual brightness groups. Individual brightness groups cannot be ordered.

标签上的组名
Group Name on Label

示例：JY-5U

Example: JY-5U

亮度组 Brightness Group	色度坐标组 Chromaticity Coordinate Group
JY	5U

注释：每个包装单元/卷带均仅包含一个亮度组。

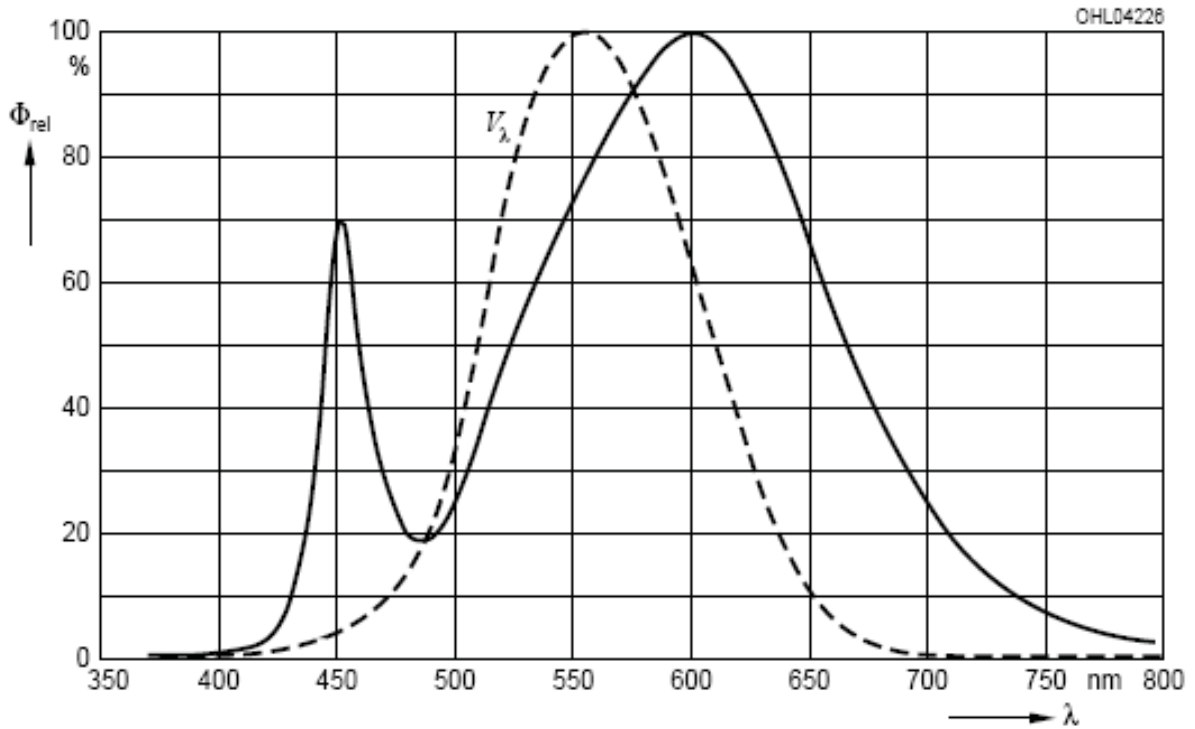
Note: No packing unit / tape ever contain more than one brightness group.

相对辐射光谱 第 21 页 2)

Relative Spectral Emission²⁾ page 21

$V(\lambda) =$ 标准视觉曲线 / Standard eye response curve

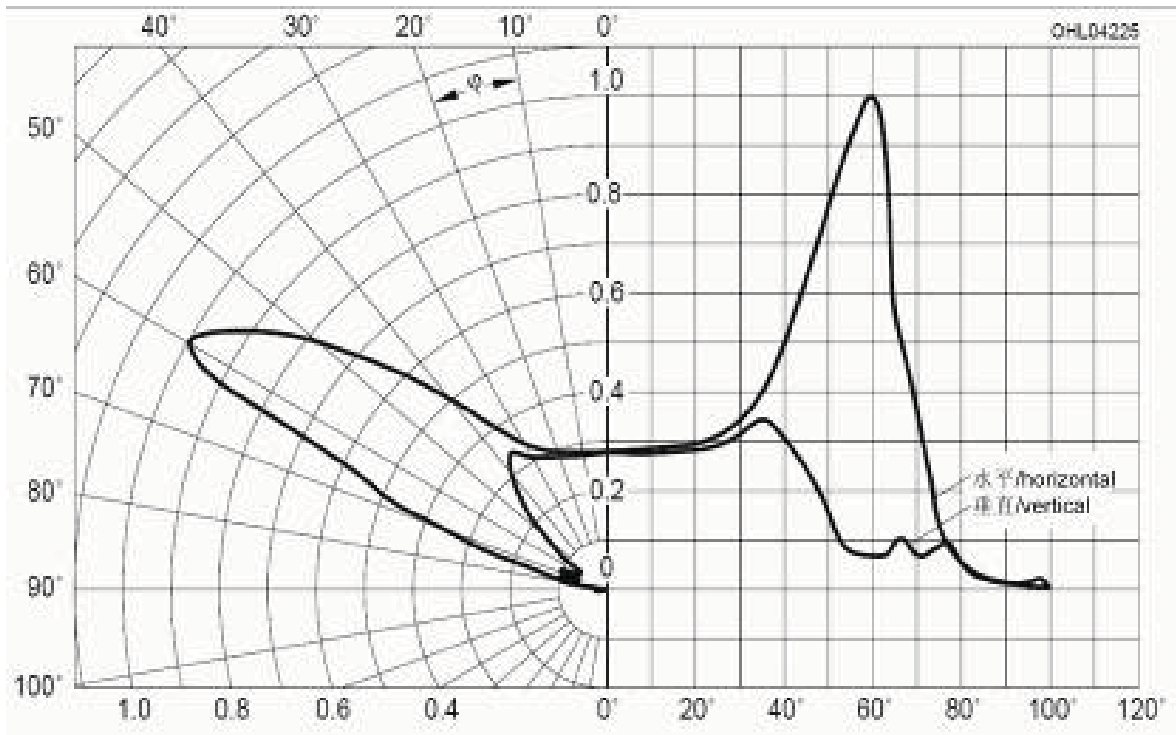
$\Phi_{rel} = f(\lambda); T_S = 25^\circ\text{C}; I_F = 350 \text{ mA}$



配光曲线 第 21 页 2)

Radiation Characteristic²⁾ page 21

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



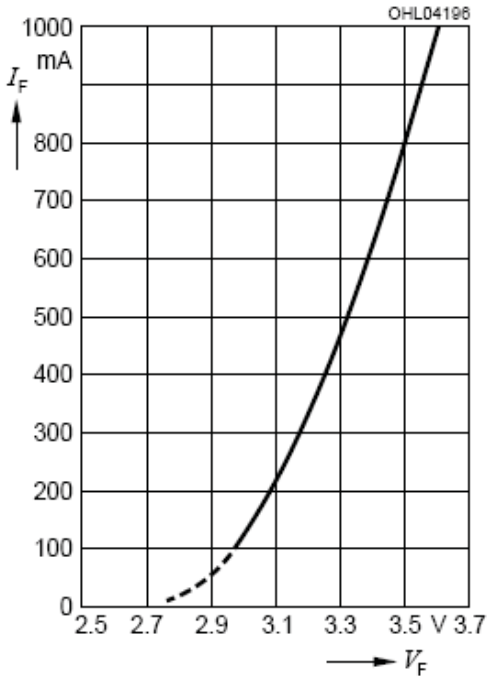
正向电流 第 21 页 2)、4)

Forward Current ⁽²⁾⁴⁾ page 21

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

实线: 指定直流范围

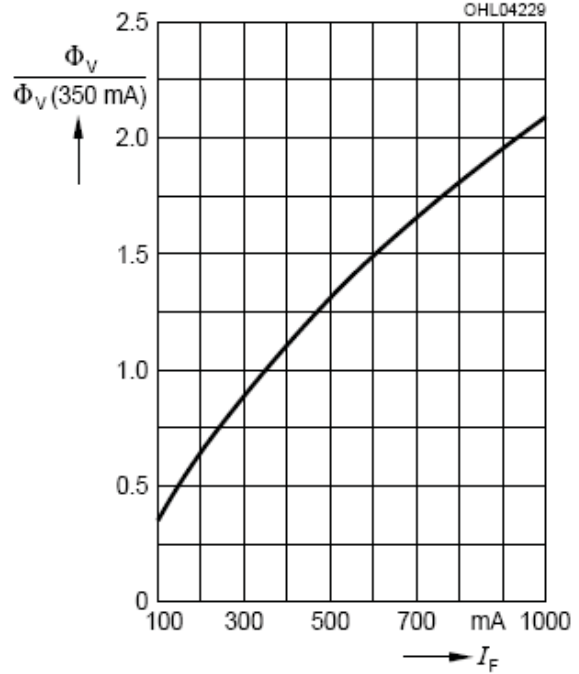
solid line: specified DC-range



相对光通量 第 21 页 2)、5)

Relative Luminous Flux ⁽²⁾⁵⁾ page 21

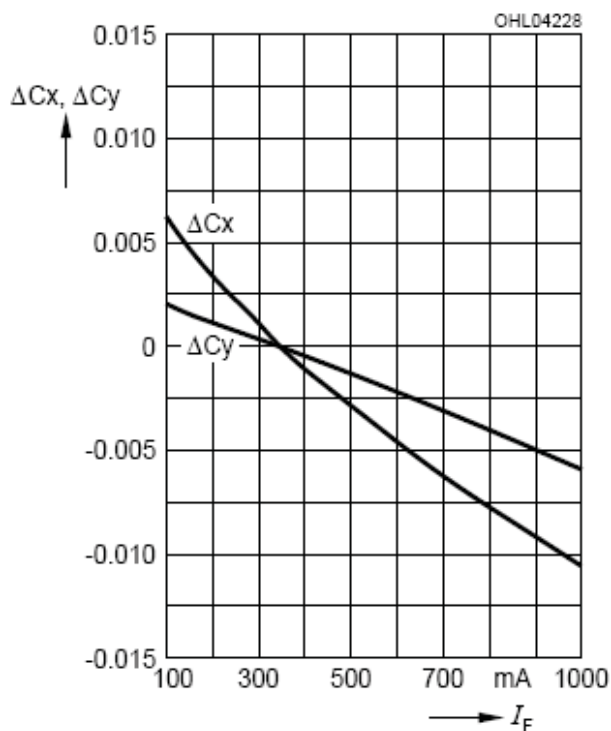
$$\Phi_V / \Phi_V(350 \text{ mA}) = f(I_F); T_S = 25^\circ\text{C}$$



色度坐标偏移 第 17 页 2)

Chromaticity Coordinate Shift ⁽²⁾ page 17

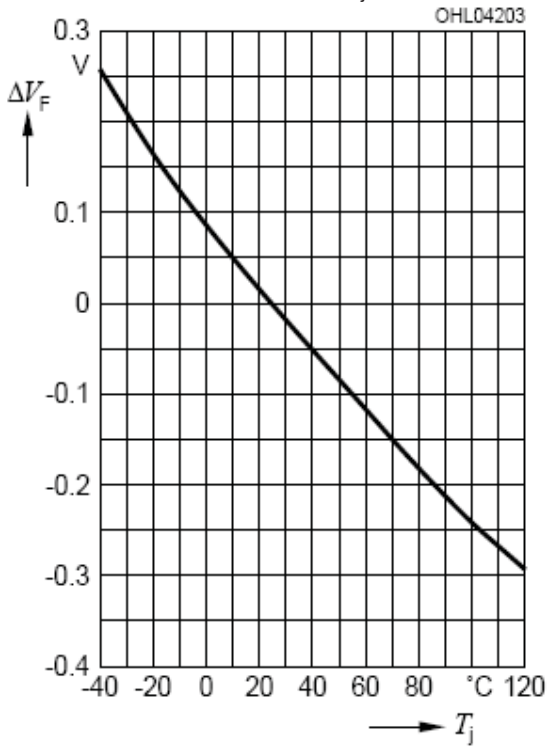
$$x, y = f(I_F); T_S = 25^\circ\text{C}$$



相对正向电压 第 17 页 2)、4)

Relative Forward Voltage^{2)4) page 17}

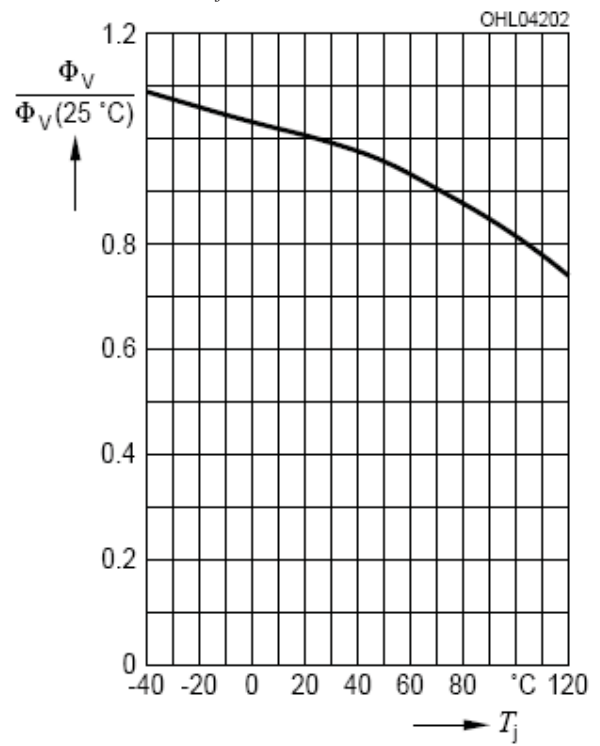
$$\Delta V_F = V_F - V_F(25^\circ\text{C}) = f(T_j); I_F = 350 \text{ mA}$$



相对光通量 第 21 页 2)

Relative Luminous Flux^{2) page 21}

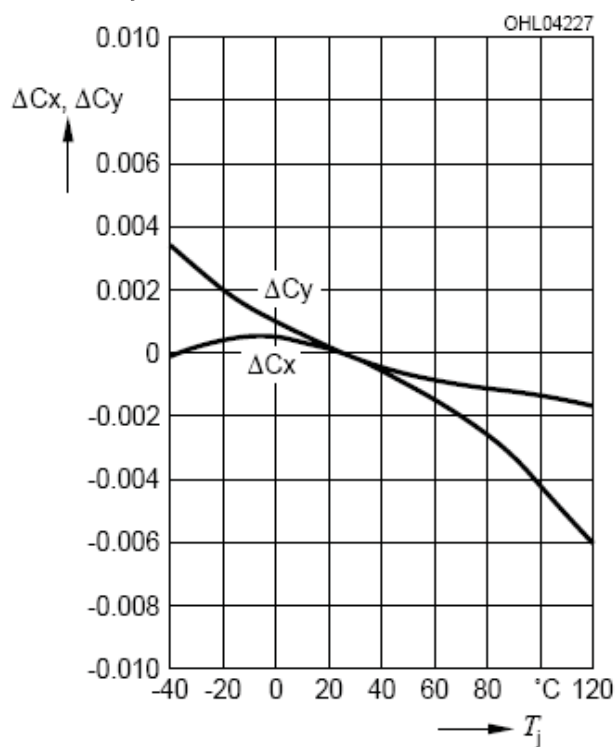
$$\Phi_V / \Phi_V(25^\circ\text{C}) = f(T_j); I_F = 350 \text{ mA}$$



色度坐标偏移 第 21 页 2)

Chromaticity Coordinate Shift^{2) page 21}

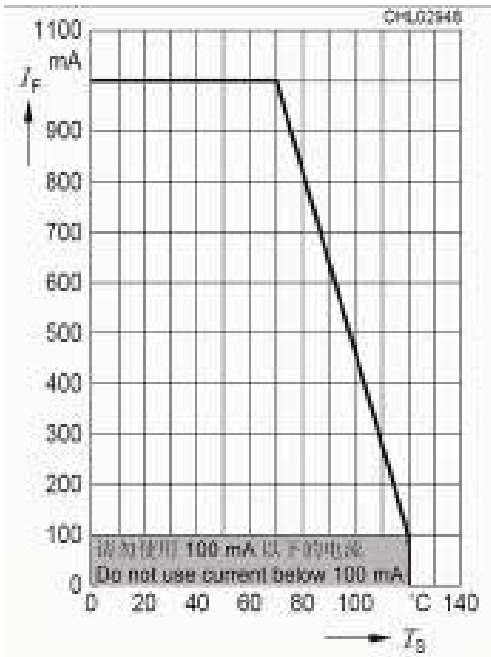
$$x, y = f(T_j); I_F = 350 \text{ mA}$$



最大容许正向电流

Max. Permissible Forward Current

$I_F = f(T_S)$

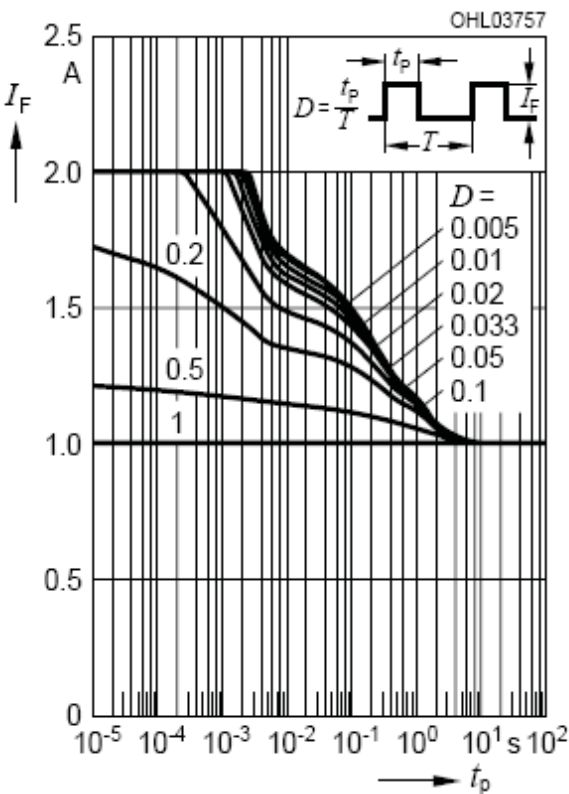


容许脉冲调制能力 $I_F = f(t_p)$

Permissible Pulse Handling Capability

占空比 $D =$ 参数, $T_S = 25^\circ\text{C}^*$

Duty cycle $D =$ parameter, $T_S = 25^\circ\text{C}^*$

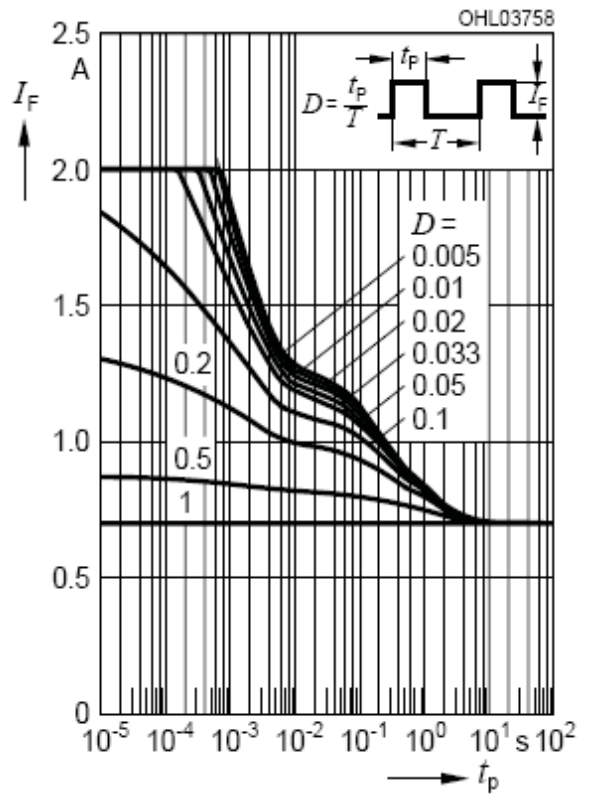


容许脉冲调制能力 $I_F = f(t_p)$

Permissible Pulse Handling Capability

占空比 $D =$ 参数, $T_S = 85^\circ\text{C}$

Duty cycle $D =$ parameter, $T_S = 85^\circ\text{C}$

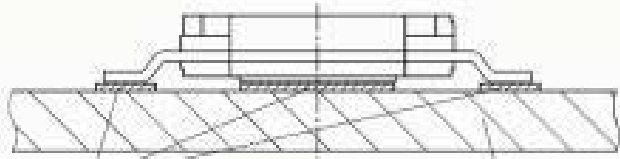


注意：
阳极和散热片之间有电
气连接

Attention:
Anode and
Heatsink are
electrically
connected

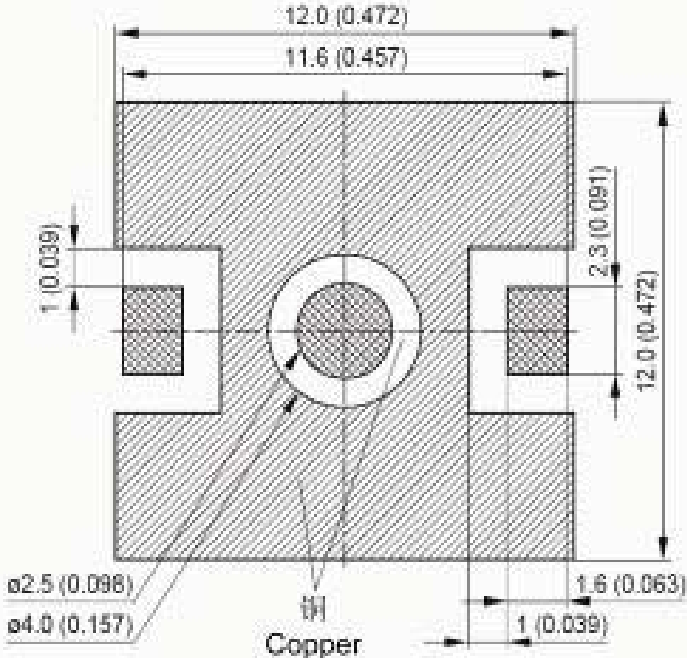
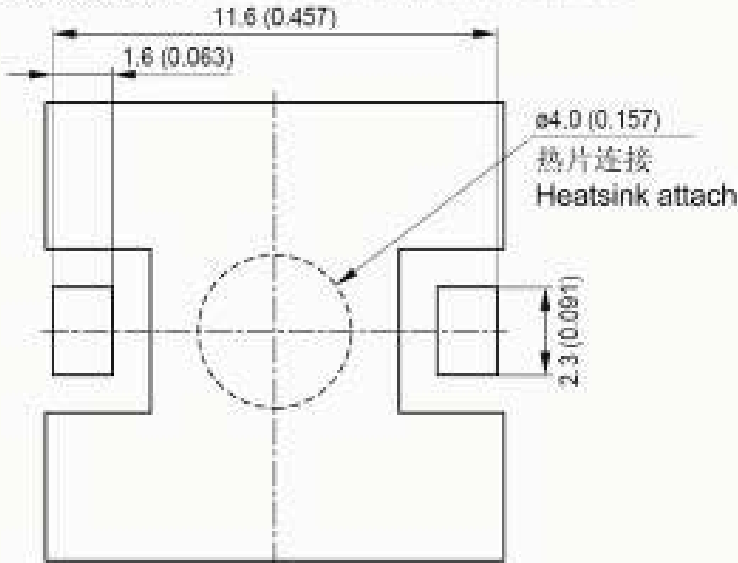
封装尺寸
Footprint

推荐焊盘设计
Recommended
Solder Pad
Design



3 个焊点
3 solder points

热增强型印刷电路板
Thermal enhanced PCB



-  阻焊
Solder resist
-  焊膏漏印模板
Solder paste stencil
-  裸铜
Bare Copper

OHPY3637

焊接条件

Soldering Conditions

无铅焊接的回流焊接温度曲线简图

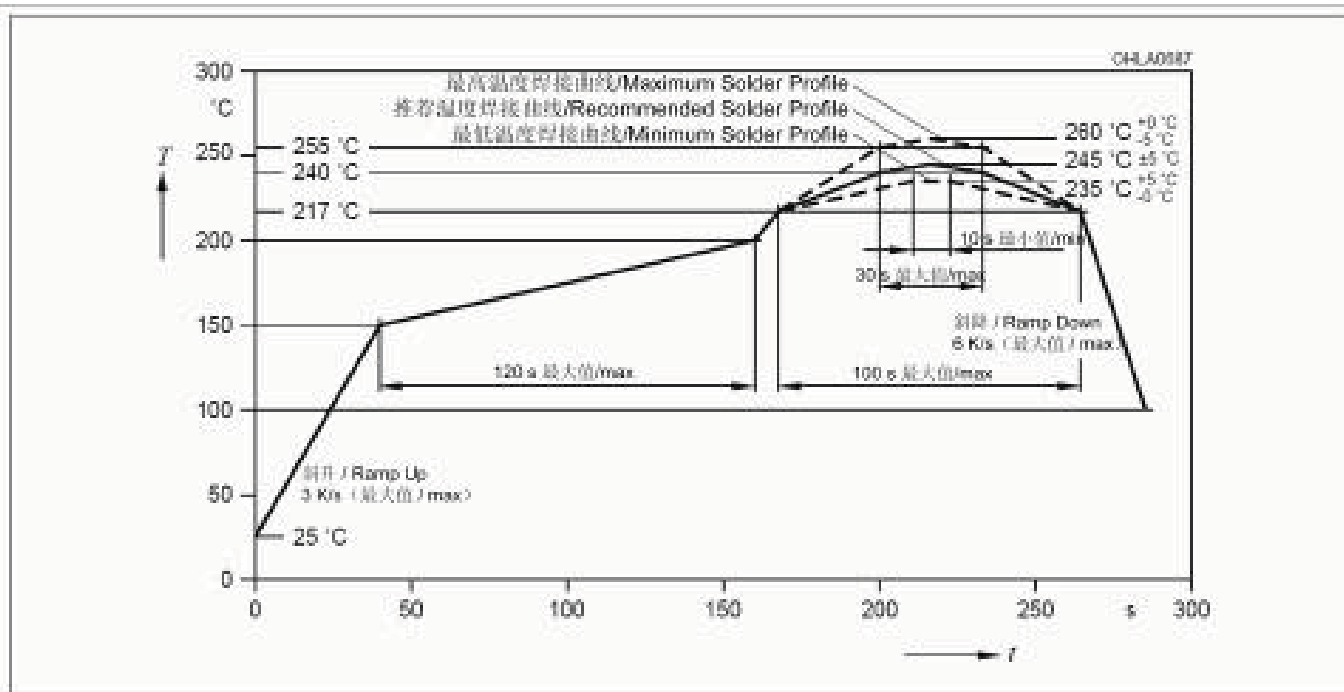
Reflow Soldering Profile for lead free soldering

预处理符合 JEDEC 4 级标准

Preconditioning acc. to JEDEC Level 4

(符合 J-STD-020C 标准)

(acc. to J-STD-020C)



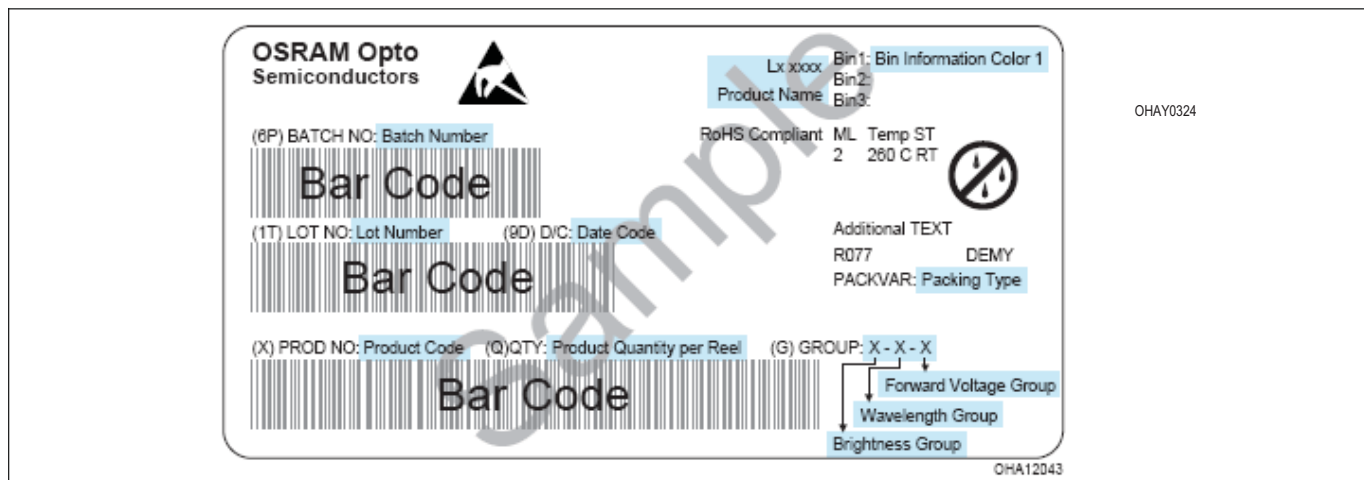
注释：此封装不适宜超声波清洗

Note: Package not suitable for ultra sonic cleaning

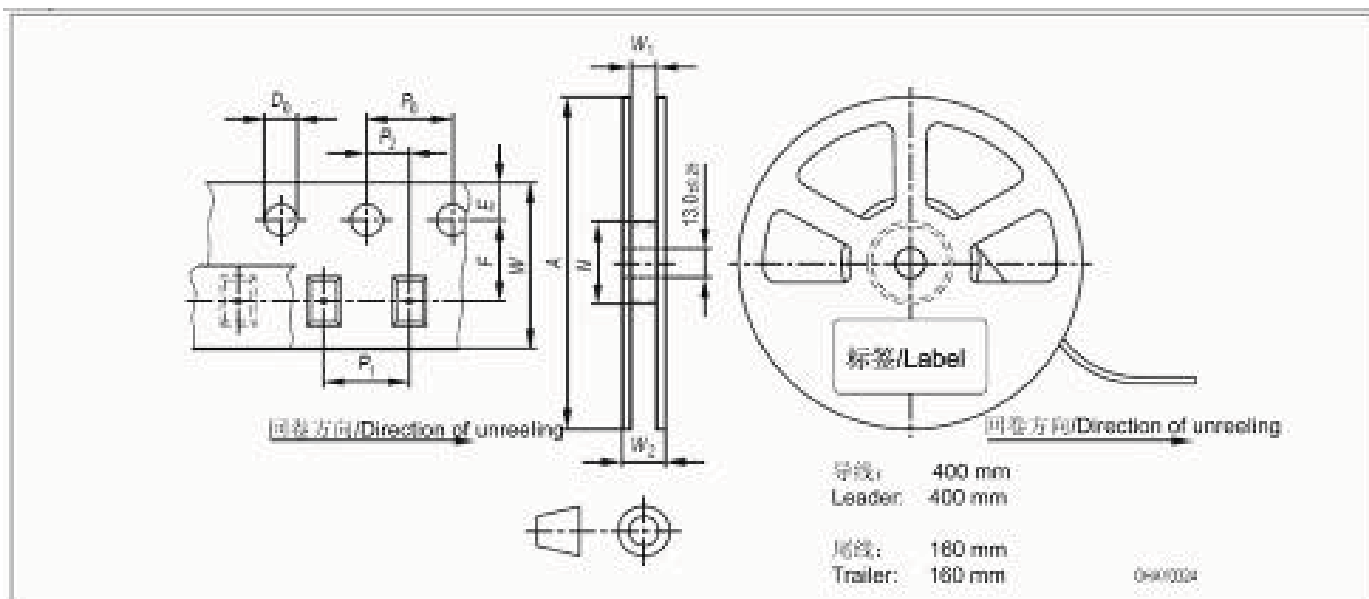
注释：本产品的封装内外均包含镀银金属部件。如果将本产品放置在含有腐蚀性气体（例如含硫化物的气体）的环境中，该镀层可能会出现变色、功能失常或可焊性降低等问题。因此，应避免在此类环境中储存、组装和使用本产品。此外，应防止腐蚀性气体从外部进入最终产品内部，LED 周围应避免放置会挥发腐蚀性气体的材料或元件。由于冷凝可能会加速 LED 腐蚀和老化，因此还应避免出现冷凝现象。

Note: This product contains silver plated metal parts inside and outside the package. This plating may show discoloration, malfunction or reduced solderability if the product is exposed to an environment which contains corrosive gases (e.g. sulfur compounds containing gases). Such environment shall be avoided during storage, assembly and use of this product. Within the end product, entering of such gases from the outside should be prevented and materials or components that emit corrosive gases should be avoided in close proximity to the LEDs. Condensation should be avoided as it could accelerate corrosion and aging effects.

条形码——产品标签 (BPL)
Barcode-Product-Label (BPL)



卷带和卷盘
Tape and Reel



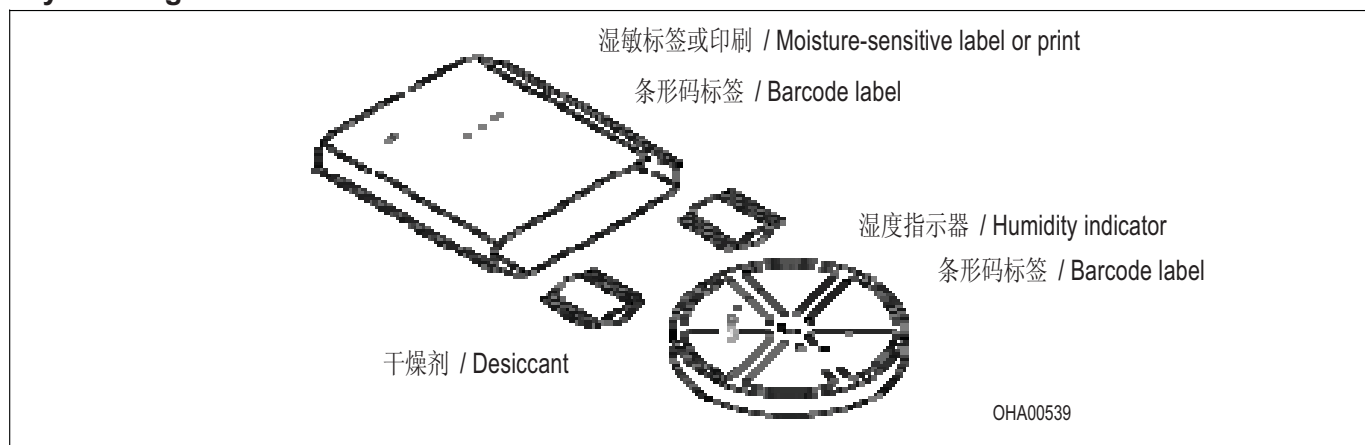
卷带尺寸 (单位: mm (英寸)) / Tape dimensions in mm (inch)

W	P_0	P_1	P_2	D_0	E	F
$24^{+0.3}_{-0.1}$	4 ± 0.1 (0.157 ± 0.004)	8 ± 0.1 (0.315 ± 0.004)	2 ± 0.1 (0.079 ± 0.004)	1.5 ± 0.1 (0.059 ± 0.004)	1.75 ± 0.1 (0.069 ± 0.004)	11.5 ± 0.1 (0.453 ± 0.004)

卷盘尺寸 (单位: mm (英寸)) / Reel dimensions in mm (inch)

A	W	N_{min}	W_1	$W_2 \max$
180 (7)	24 (0.945)	60 (2.362)	$24.4 + 2$ ($0.961 + 0.079$)	30.4 (1.197)

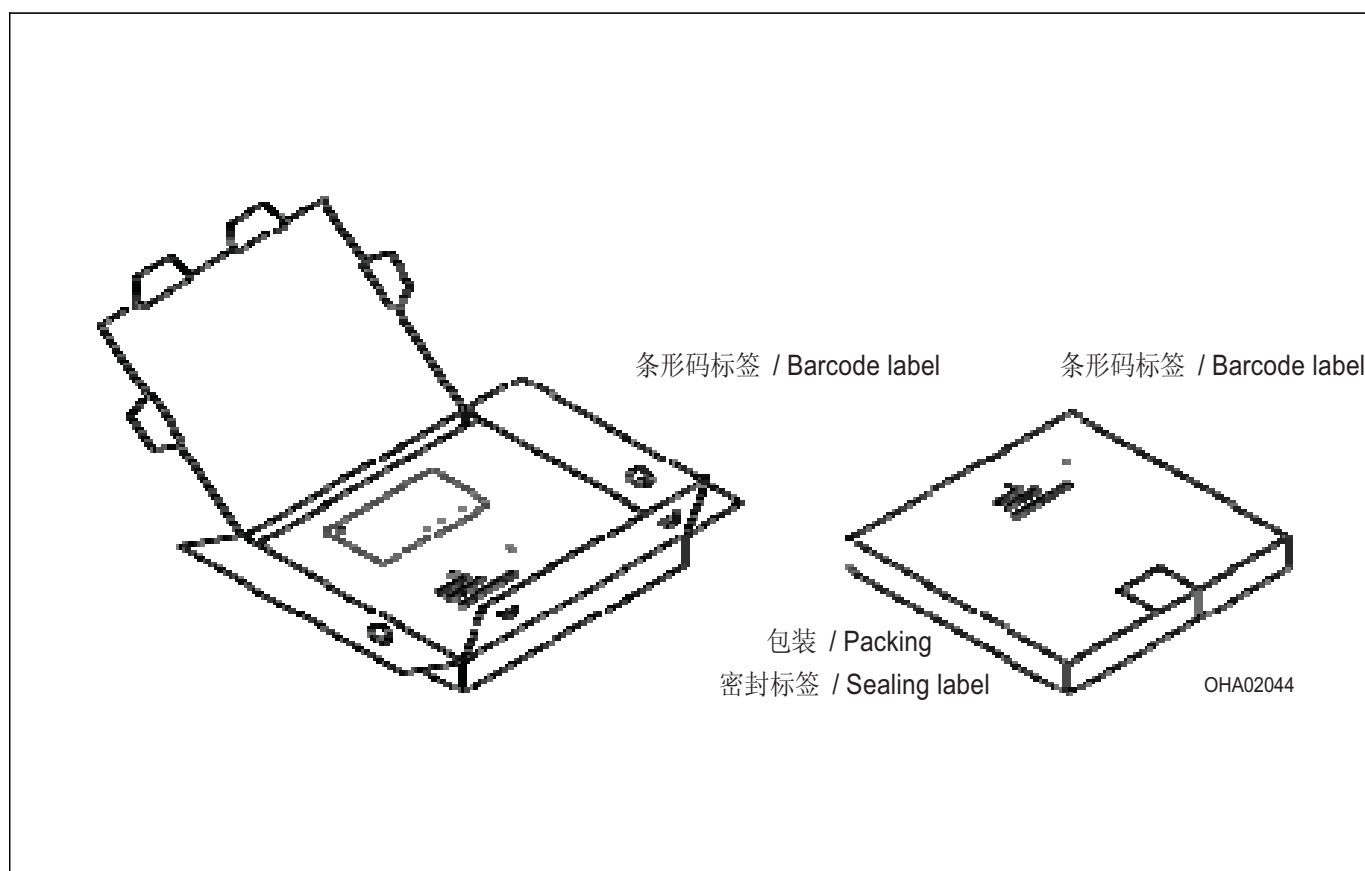
干式充填工艺和材料
Dry Packing Process and Materials



注释： 湿敏产品包装在装有干燥剂和湿度卡的干燥袋子中。
 关于干式充填的详细信息，请参阅网站资料和简明版产品目录中“干式充填”标题下的“卷带和卷盘”章节。您还可以找到 JEDEC 等规范性参考。

Note: Moisture-sensitive product is packed in a dry bag containing desiccant and a humidity card.
 Regarding dry pack you will find further information in the internet and in the Short Form Catalog in chapter "Tape and Reel" under the topic "Dry Pack". Here you will also find the normative references like JEDEC.

运输包装和材料
Transportation Packing and Materials



专利列表 / Patent List

专利号 / Patent No.

US 6 066 861
US 6 277 301
US 6 245 259

请注意!

元件类型的描述性信息不应被视作对特性的保证。

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Attention please!

The information describes the type of component and shall not be considered as assured characteristics.

Terms of delivery and rights to change design reserved. Due to technical requirements components may contain dangerous substances. For information on the types in question please contact our Sales Organization.

If printed or downloaded, please find the latest version in the Internet.

封装

请联系您所熟悉的物资回收公司。我们也可以帮助您联系最近的销售办事处。如果您已对包装材料进行分类，我们将根据协议进行回收，所产生的运输费用须由您承担。对于未经分类即退回本公司或我们没有责任接受的包装材料，我们将开具发票由您支付因此产生的一切费用。

Packing

Please use the recycling operators known to you. We can also help you – get in touch with your nearest sales office. By agreement we will take packing material back, if it is sorted. You must bear the costs of transport. For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.

生命支持装置或系统所采用的元件必须获取该目的明确授权! 仅当获得欧司朗公司的明确书面许可时，方可将关键元件^{第 21 页 8)}用于生命支持装置或系统^{第 21 页 7)}。

Components used in life-support devices or systems must be expressly authorized for such purpose! Critical components^{7) page 21} may only be used in life-support devices or systems^{8) page 21} with the express written approval of OSRAM OS.

备注:

- 1) 亮度组的测试电流脉冲时长为 25 ms，容差为 $\pm 11\%$ 。
- 2) 由于 LED 制造工艺的条件特殊，典型数据或计算得出的技术参数相关性仅能反映统计数字，而不等同于各产品的实际参数，它们可能与典型数据和计算得出的相关性或典型特征线数据不同。如果需要（如由于技术改进），这些典型数据将有所变更，恕不另行通知。
- 3) 色度坐标组的测试电流脉冲时长为 25 ms，容差为 ± 0.01 。
- 4) 正向电压的测试电流脉冲时长为 1 ms，容差为 ± 0.1 V。
- 5) 在虚线范围内，单个包装单元内的不同 LED 之间的明暗差别会更大。
- 6) 尺寸单位指定为：mm（英寸）
- 7) 关键元件指用在生命支持装置或系统中、一旦发生故障即会引起装置或系统故障或影响其安全性或有效性的元件。
- 8) 生命支持装置或系统拟用于 (a) 植入人体或 (b) 支持和/或维持人的生命。如果发生故障，即会威胁使用者的健康和生命。

Remarks:

- 1) Brightness groups are tested at a current pulse duration of 25 ms and a tolerance of $\pm 11\%$.
- 2) Due to the special conditions of the manufacturing processes of LED, the typical data or calculated correlations of technical parameters can only reflect statistical figures. These do not necessarily correspond to the actual parameters of each single product, which could differ from the typical data and calculated correlations or the typical characteristic line. If requested, e.g. because of technical improvements, these typ. data will be changed without any further notice.
- 3) Chromaticity coordinate groups are tested at a current pulse duration of 25 ms and a tolerance of ± 0.01 .
- 4) Forward voltages are tested at a current pulse duration of 1 ms and a tolerance of ± 0.1 V.
- 5) In the range where the line of the graph is broken, you must expect higher brightness differences between single LEDs within one packing unit.
- 6) Dimensions are specified as follows: mm (inch).
- 7) A critical component is a component used in a life-support device or system whose failure can reasonably be expected to cause the failure of that life-support device or system, or to affect its safety or the effectiveness of that device or system.
- 8) Life support devices or systems are intended (a) to be implanted in the human body, or (b) to support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health and the life of the user may be endangered.

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EU RoHS and China RoHS compliant product



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