订购信息
Ordering Information

类型 Type	色温 Color temperature	光通量[第 20 页1)] Luminous Flux[1) page 20] I_F = 350 mA Φ_V(lm)	发光强度[第 20 页 2)] Luminous Intensity[2) page 20] I_F = 350 mA I_V (cd)	订购代码 Ordering Code
LCW CP7P-KPKR-5R8T-35 LCW CP7P-KQKS-5R8T-35 LCW CP7P-KRKT-5R8T-35	3000 K	71.0 ... 89.2 76.3 ... 97.0 82.0 ... 104.2	45（典型值） 49（典型值） 52（典型值）	Q65110A9766 Q65110A9765 承索 on request
LCW CP7P-KQKS-5L7N-35 LCW CP7P-KRKT-5L7N-35	4000 K	76.3 ... 97.0 82.0 ... 104.2	49（典型值） 52（典型值）	Q65110A9864 承索 on request

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 CP7P-KPKR-5R8T-35 表示任何一个卷盘上仅可装运一个亮度组：KP、KQ 或 KR。*
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 CP7P-KPKR-5R8T-35 表示仅可装运从 5R 到 8T 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。

*同样，对于需要测量和分选正向电压组的 LED，每个卷盘上将仅装运一个正向电压组。例如，LCW CP7P-KPKR-5R8T-35 表示仅可装运一个正向电压组：3、4 或 5。为了确保可用性，单个正向电压组将不接受订购（详细说明请参见**第 9 页**）。*

*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 CP7P-KPKR-5R8T-35 means that only one group KP, KQ or KR 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 CP7P-KPKR-5R8T-35 means that only 1 chromaticity coordinate group -5R to -8T will be shippable (see **page 5** for explanation).*
In order to ensure availability, single chromaticity coordinate groups will not be orderable.

*In a similar manner for LED, where forward voltage groups are measured and binned, single forward voltage groups will be shipped on any one reel. E.g. LCW CP7P-KPKR-5R8T-35 means that only 1 forward voltage group -3, -4 or -5 will be shippable. In order to ensure availability, single forward voltage groups will not be orderable(see **page 9** for explanation).*

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 … + 110	°C
储存温度范围 Storage temperature range	T_{stg}	– 40 … + 110	°C
结点温度 Junction temperature	T_j	125	°C
正向电流 （最小值）/ (min.) Forward current （最大值）/ (max.) (T_S = 25°C)	I_F I_F	100 700	mA mA
脉冲电流 Surge current t ≤ 50 ms, D = 0.016, TS = 25°C	I_{FM}	2000	mA
反向电压 Reverse voltage (T_S = 25°C)	V_R	非为反向运行而设计 not designed for reverse operation	V

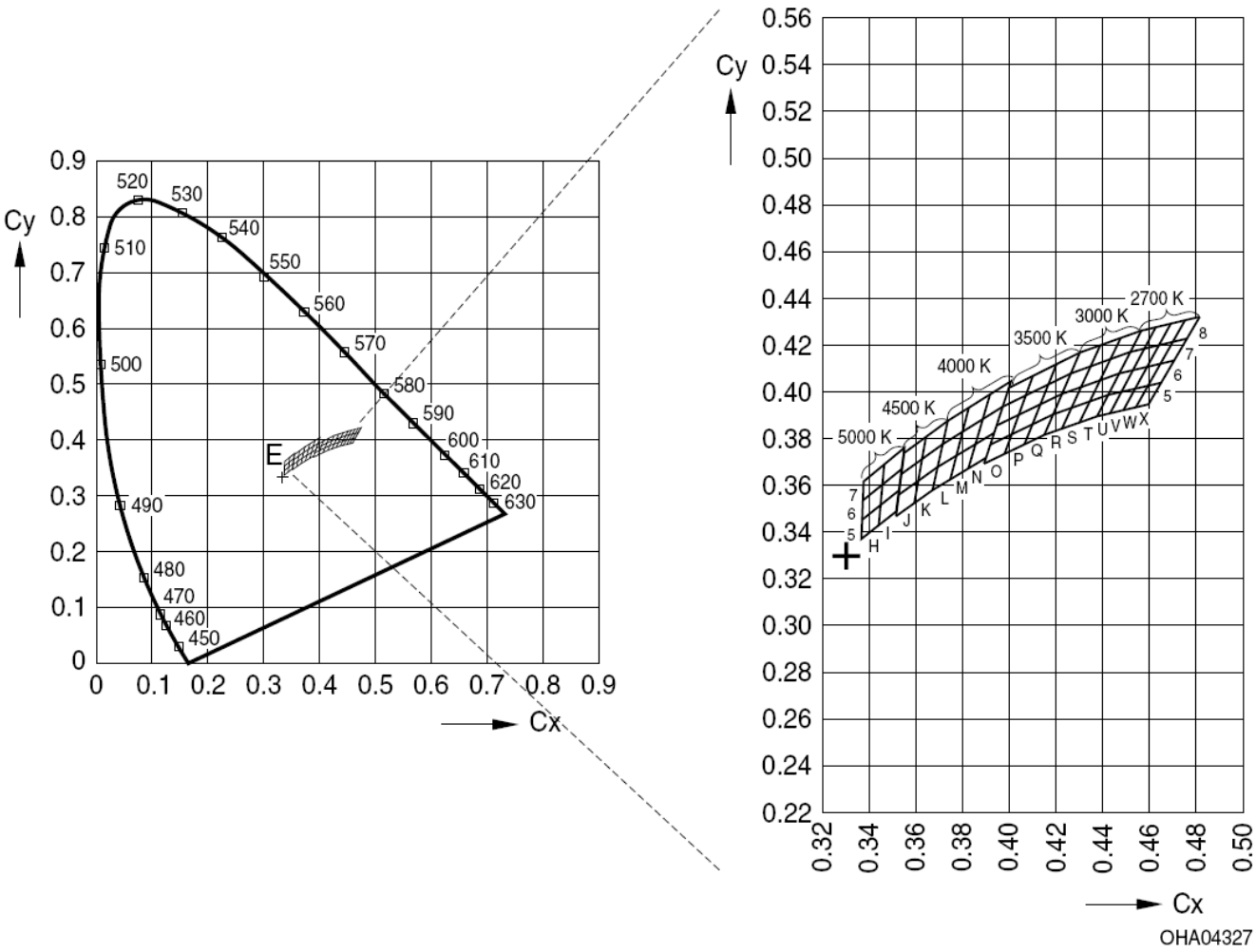
特性
Characteristics

(T_S = 25 °C)

参数 Parameter		符号 Symbol	值 Value	单位 Unit
CIE 1931色度坐标 x 第 20 页 3) Chromaticity coordinate x acc. to CIE 1931 3) page 21 I_F = 350 mA	（典型值）/ (typ.)	x	0.42	–
CIE 1931色度坐标 y 第 20 页 3) Chromaticity coordinate y acc. to CIE 1931 3) page 21 I_F = 350 mA	（典型值）/ (typ.)	y	0.40	–
色温 第 21 页 2) Color temperature 2) page 21 I_F = 350 mA	（最小值）/ (min.) （最大值）/(max.)	T T T	2700 5000	K K K
50% I_V 时的全视角 Viewing angle at 50 % I_V	（典型值）/ (typ.)	2φ	80	度 deg.
正向电压 4) 第21页 Forward voltage 4) page 21 I_F = 350 mA	（最小值）/ (min.) （典型值）/ (typ.) （最大值）/(max.)	V_F V_F V_F	2.75 3.2 3.75	V V V
反向电流 Reverse current	（最大值）/(max.)	I_R	非为反向运行而设计 not designed for reverse operation	µA
结点-焊点热阻 Thermal resistance Junction/solder point	（典型值）/ (typ.) （最大值）/(max.)	$R_{th\ JS}$ $R_{th\ JS}$	7 9.4*	K/W K/W

*R_{th}（最大值）取自统计值
R_{th} (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 2700 K

组 Group	Cx 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
6P	0.401	0.381
	0.404	0.390
	0.413	0.394
	0.410	0.386
7P	0.404	0.390
	0.407	0.398
	0.416	0.403
	0.413	0.394
8P	0.407	0.398
	0.410	0.406
	0.420	0.412
	0416	0.403

组 Group	Cx	Cy
5Q	0.406	0.377
	0.410	0.386
	0.419	0.390
	0.415	0.381
6Q	0.410	0.386
	0.413	0.394
	0.422	0.399
	0.419	0.390
7Q	0.413	0.394
	0.416	0.403
	0.426	0.408
	0.422	0.399
8Q	0.416	0.403
	0.420	0.412
	0.430	0.417
	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
6M	0.377	0.373
	0.380	0.383
	0.388	0.388
	0.385	0.376
7M	0.380	0.383
	0.383	0.393
	0.392	0.399
	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
6N	0.385	0.378
	0.388	0.388
	0.397	0.393
	0.393	0.383
7N	0.388	0.388
	0.392	0.399
	0.401	0.404
	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

色温 5000 K
Color temperature 5000 K

组 Group	Cx	Cy
5H	0.350	0.337
	0.351	0.347
	0.359	0.352
	0.357	0.343
6H	0.351	0.347
	0.352	0.356
	0.361	0.362
	0.359	0.352
7H	0.352	0.356
	0.354	0.365
	0.363	0.371
	0.361	0.362
8H	0.354	0.365
	0.355	0.374
	0.364	0.381
	0.363	0.371

组 Group	Cx	Cy
5I	0.355	0.374
	0.356	0.383
	0.366	0.390
	0.364	0.381
6I	0.357	0.343
	0.359	0.352
	0.367	0.358
	0.365	0.348
/I	0.359	0.352
	0.361	0.362
	0.369	0.368
	0.367	0.358
8I	0.359	0.352
	0.361	0.362
	0.369	0.368
	0.367	0.358

正向电压组[第 18 页 6)]
Forward Voltage Groups[6) page 18]

组 Group	正向电压 Forward voltage		单位 Unit
	最小值/min.	最大值/max.	
3	2.75	3.0	
4	3.0	3.25	V
5	3.25	3.5	V
6	3.5	3.75	V

亮度组
Brightness Groups

亮度组 Brightness Group	光通量[第 20 页 1)] Luminous Flux[1) page 20] Φ_V (lm)	发光强度[第 21 页 2)] Luminous Intensity[2) page 21] I_V (cd)
KP	71.0 ... 76.3	41.0（典型值）/ (typ.)
KQ	76.3 ... 82.0	45.0（典型值）/ (typ.)
KR	82.0 ... 89.2	48.0（典型值）/ (typ.)
KS	89.2 ... 97.0	52.0（典型值）/ (typ.)
KT	97.0 ... 104.2	56.0（典型值）/ (typ.)

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：KP-5R
Example: KP-5R

亮度组 Brightness Group	色度坐标组 Chromaticity Coordinate Group
KP	5R

注释：每个包装单元/卷带均仅包含一个亮度组。

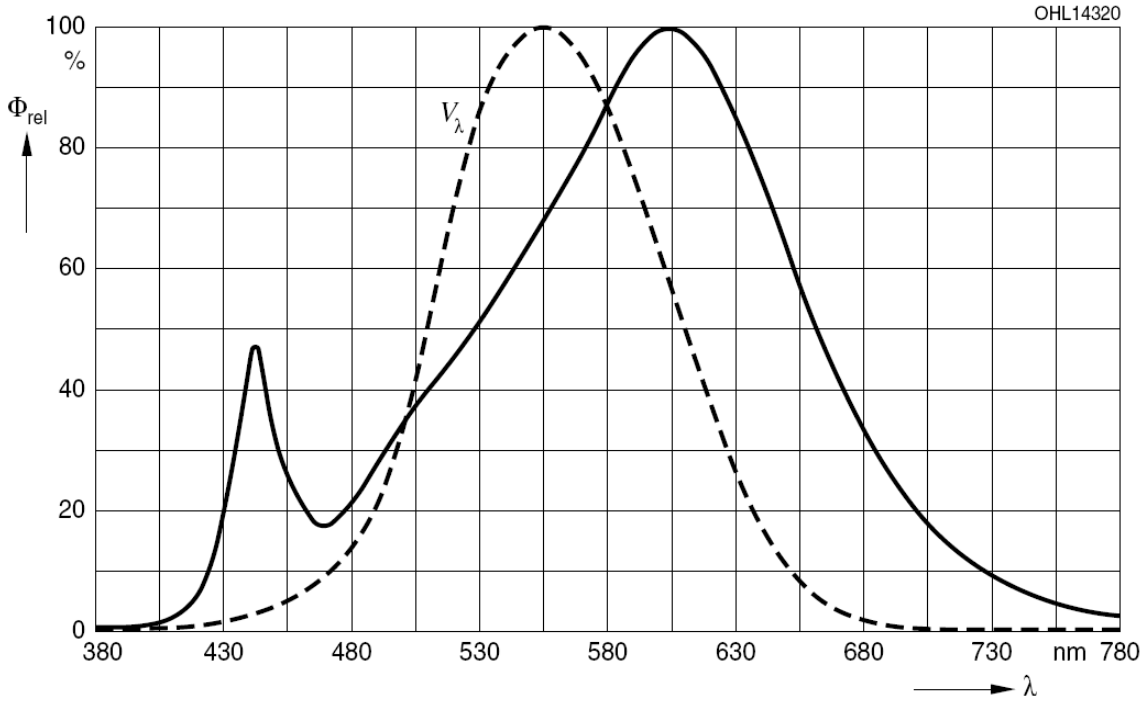
Note: No packing unit / tape ever contain more than one brightness group.

相对幅射光谱[第 21 页 2)]

Relative Spectral Emission[2) page 21]

V(λ) = 标准视觉曲线/ Standard eye response curve

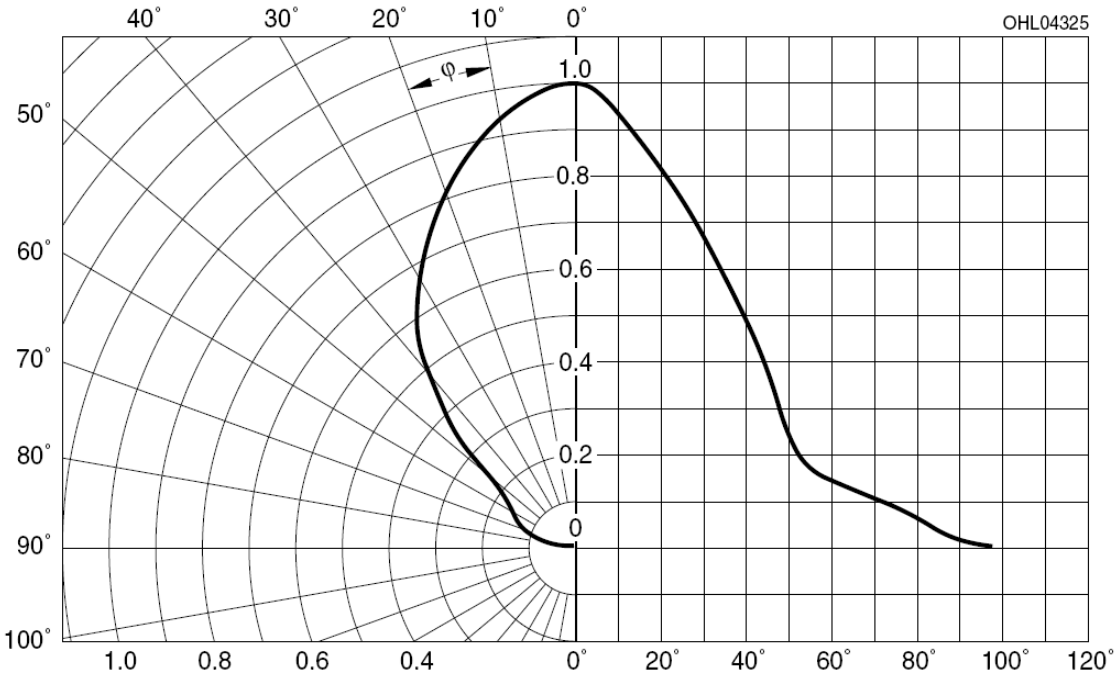
$\Phi_{rel} = f(\lambda)$; $T_S = 25°C$; $I_F = 350$ mA



配光曲线[第 21 页 2)]

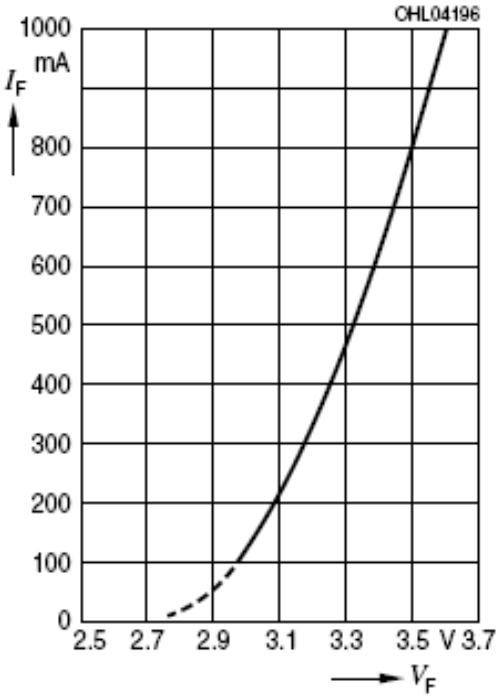
Radiation Characteristic[2) page 21]

$I_{rel} = f(\varphi)$; $T_S = 25°C$

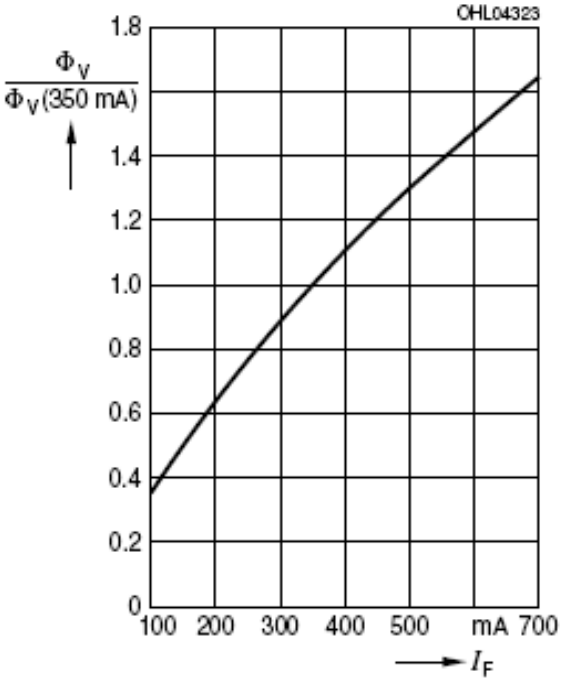


OSRAM Opto Semiconductors

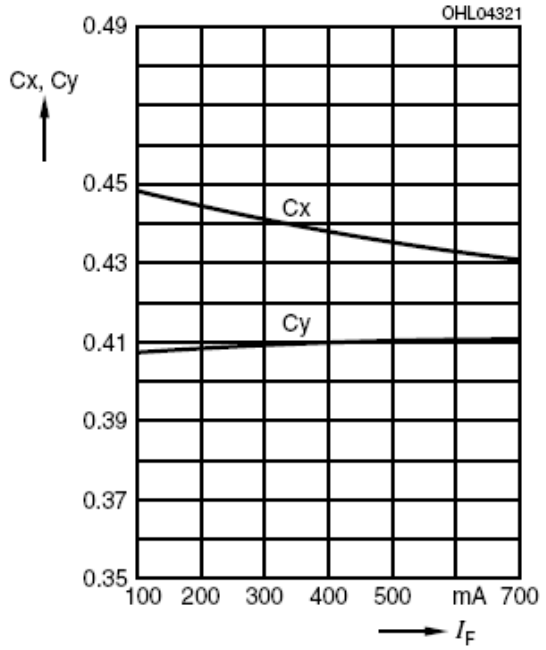
正向电流[第 21 页 2)、4)]
Forward Current[2)4) page 21]
$I_F = f(V_F)$; $T_S = 25°C$
实线：指定直流范围
solid line: specified DC-range



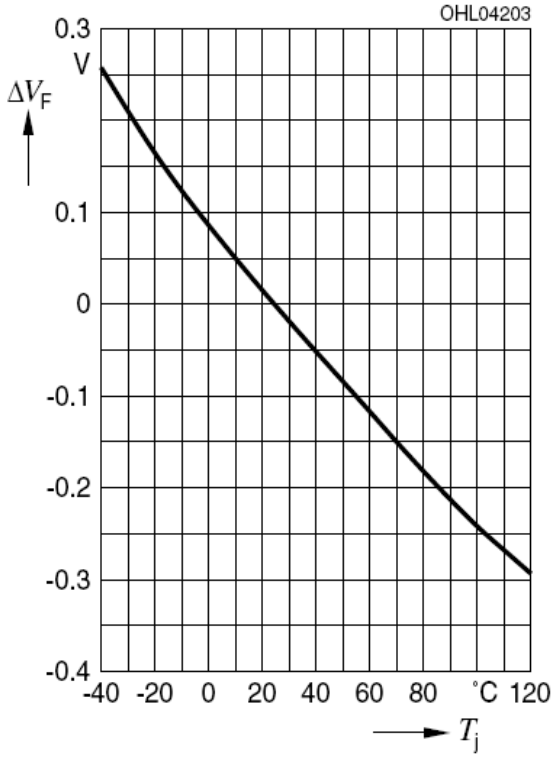
相对光通量[第 21 页 2)]
Relative Luminous Flux[2) page 21]
Φ_V/Φ_V (350 mA) = $f(I_F)$; $T_S = 25°C$



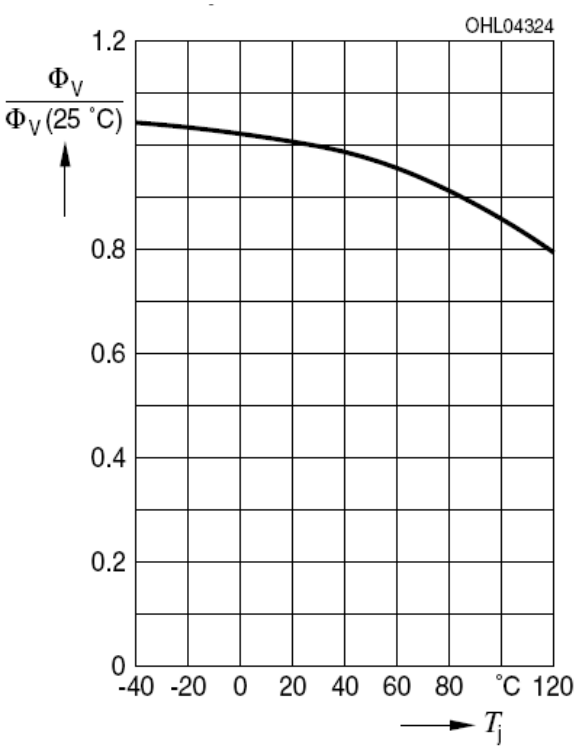
色度坐标偏移[第 17 页 2)]
Chromaticity Coordinate Shift[2) *page 17*]
x, y = $f(I_F)$; $T_S = 25°C$



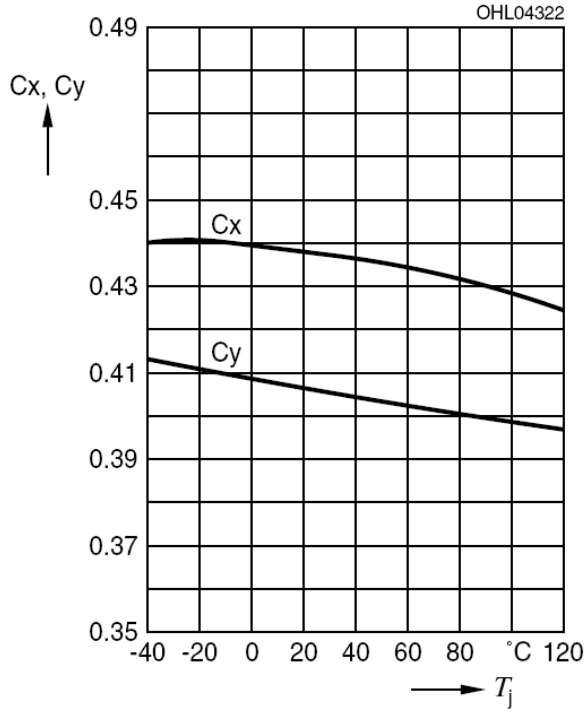
相对正向电压第 17 页 2)、4)
Relative Forward Voltage2)4) *page 17*
$\Delta V_F = V_F - V_F(25°C) = f(T_j)$; I_F = 350 mA



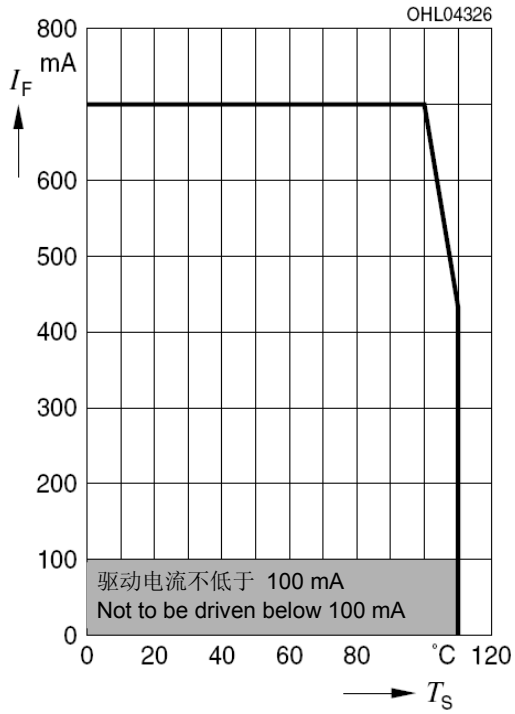
相对光通量第 21 页 2)
Relative Luminous Flux2) page 21
$\Phi_V / \Phi_V(25°C) = f(T_j)$; I_F = 350 mA



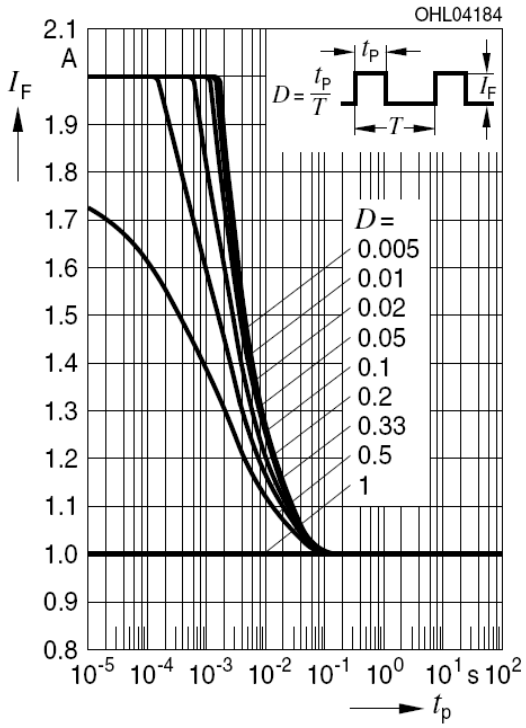
色度坐标偏移第 21 页 2)
Chromaticity Coordinate Shift2) page 21
x, y = $f(T_j)$; I_F = 350 mA



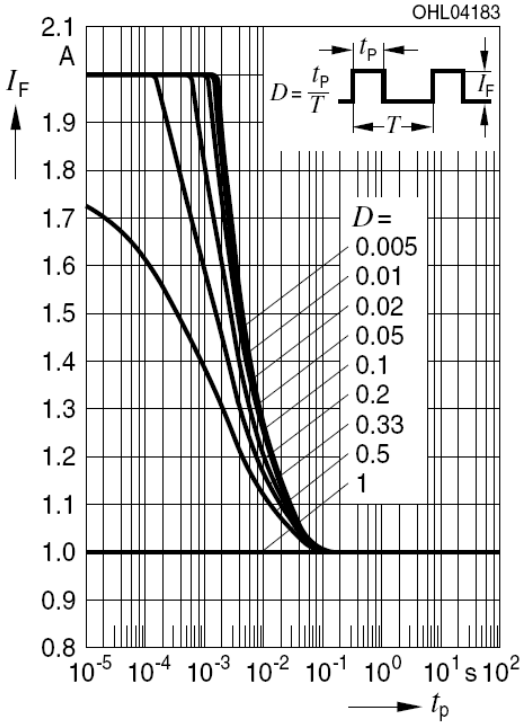
最大容许正向电流
Max. Permissible Forward Current
$I_F = f(T_S)$



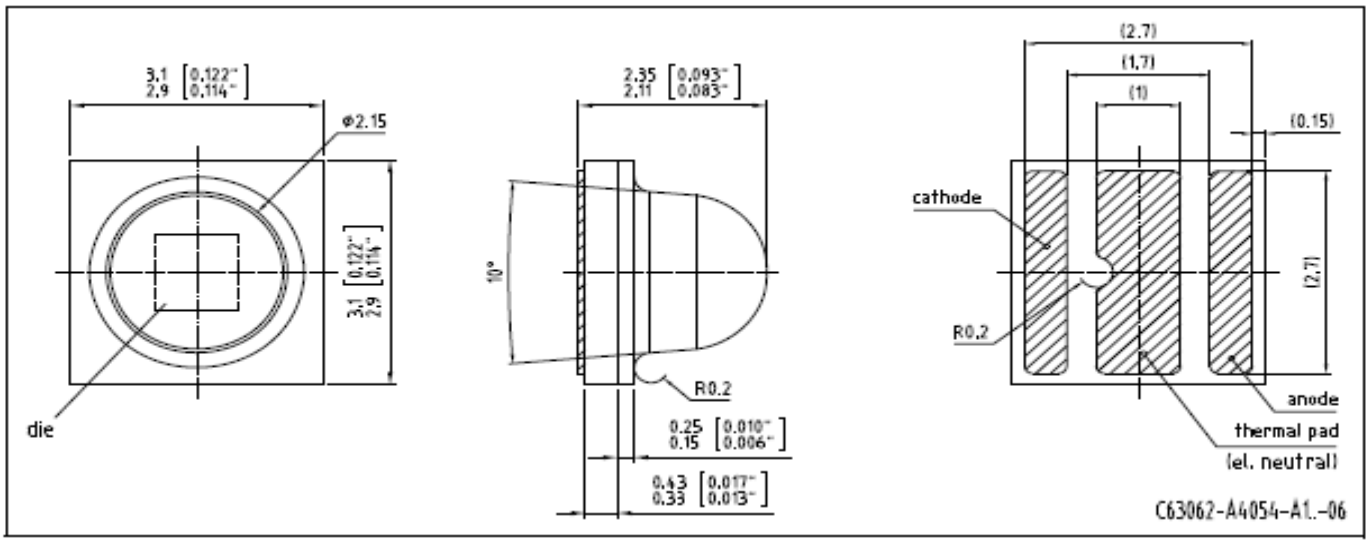
容许脉冲调制能力 $I_F = f(t_p)$
Permissible Pulse Handling Capability
占空比 D = 参数，T_S = 25°C
Duty cycle D = parameter, T_S = 25°C



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°C
Duty cycle D = parameter, T_S = 85°C



封装略图[第 21 页 5)]
Package Outlines[5) page 21]



注释：LED 受与 LED 芯片并联的 ESD 装置保护。

Note: LED is protected by ESD device which is connected in parallel to LED-Chip.

耐腐蚀性优于 EN 60068-2-60（方法 4）：
经强化腐蚀试验： 40°C / 90%rh / 15ppm H_2S / 336h
Corrosion robustness better than EN 60068-2-60 (method 4):
with enhanced corrosion test: 40°C / 90%rh / 15ppm H_2S / 336h

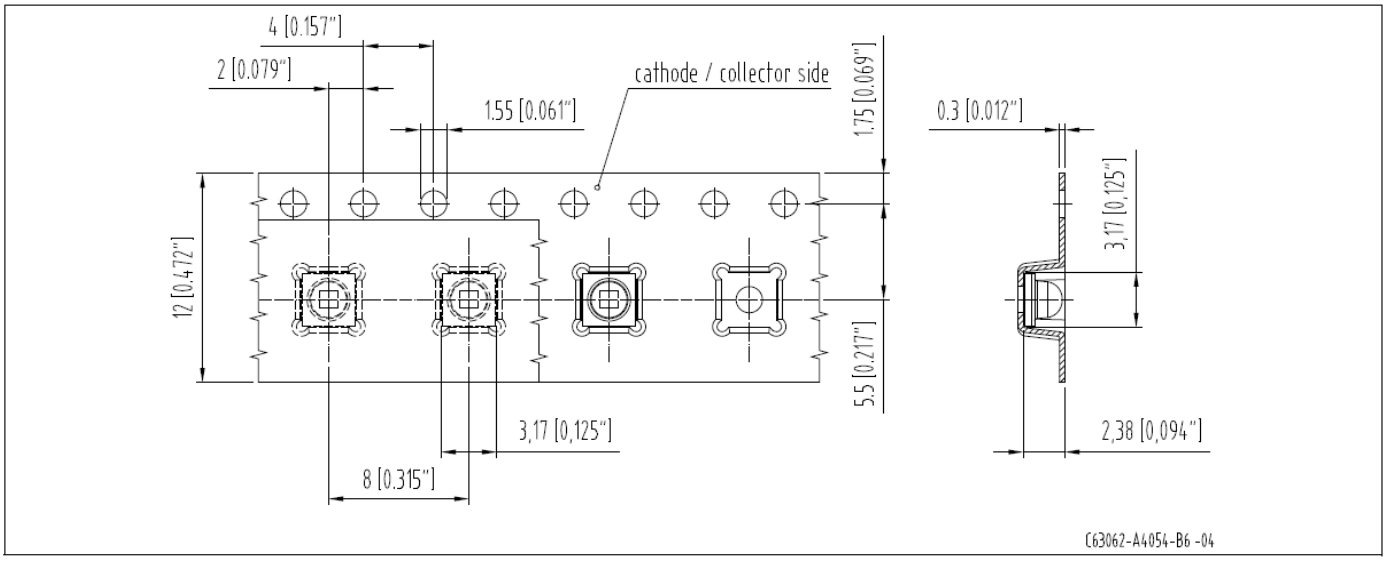
阴极标记：	标记
Cathode mark:	mark
参考重量 / Approx. weight:	250 mg

卷带封装方式/极性和方向*第 21 页* 5)

Method of Taping / Polarity and Orientation[5] *page 21*

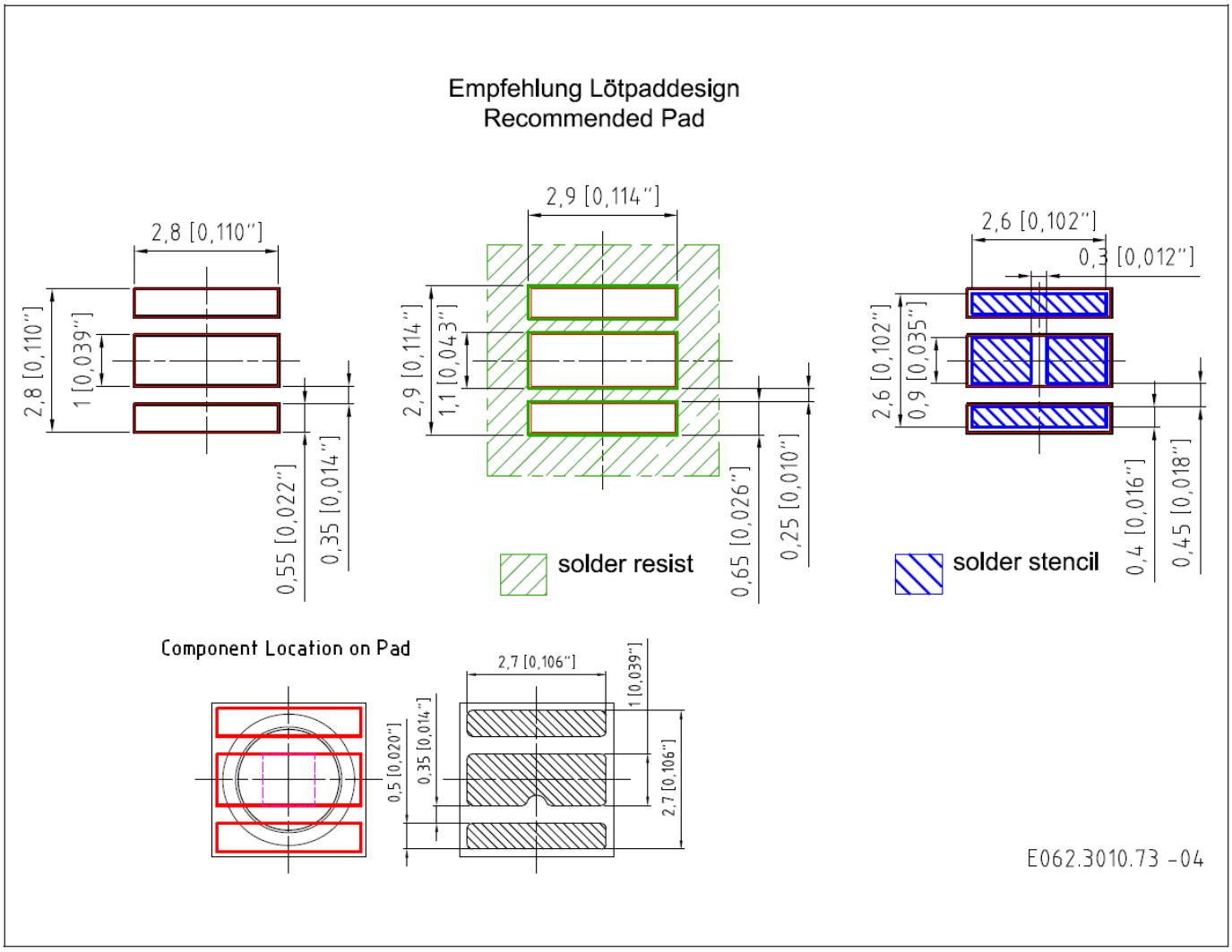
包装单元 600/卷，ø180 mm

Packing unit 600/reel, ø180 mm



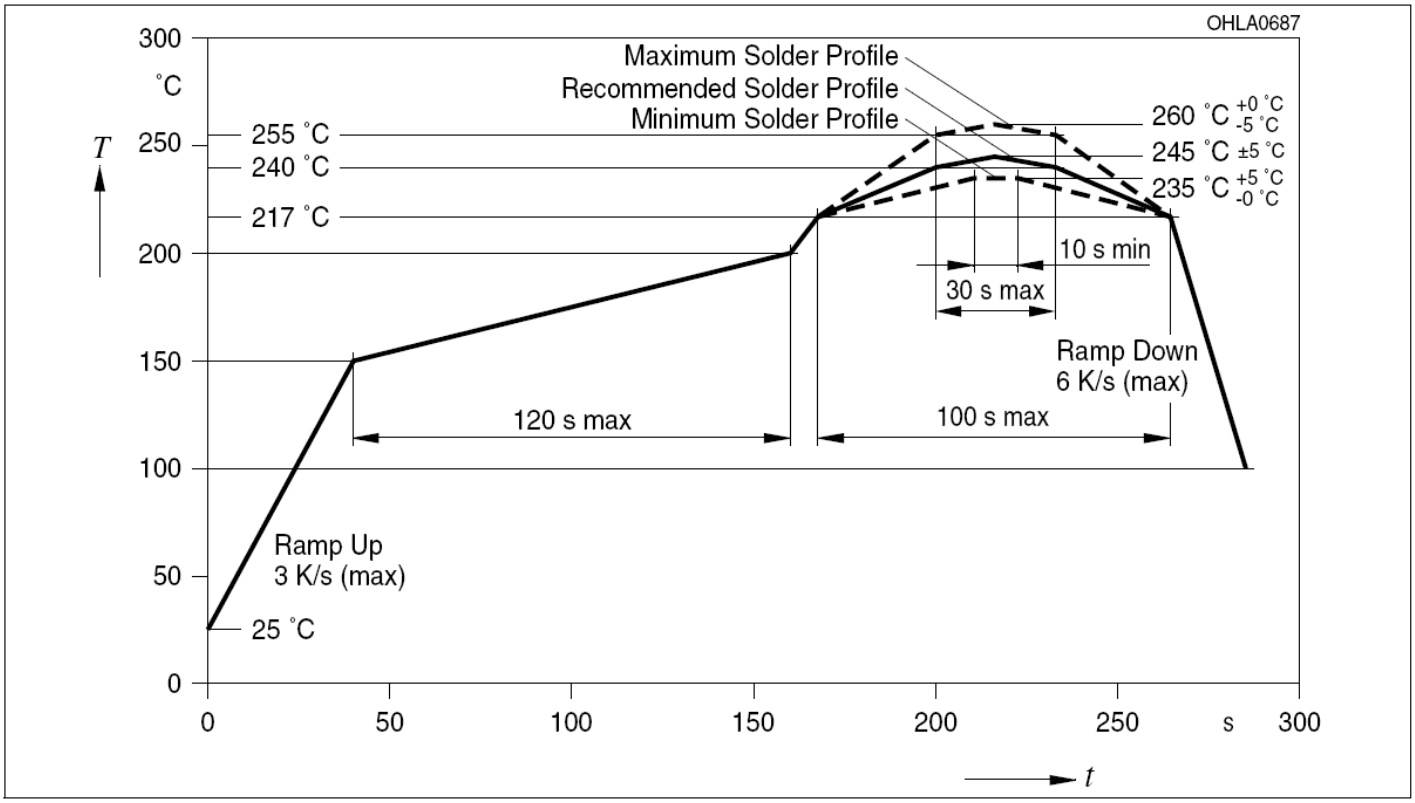
推荐焊盘[第 21 页 5)]
Recommended Solder Pad[5) page 21]

回流焊接
Reflow Soldering



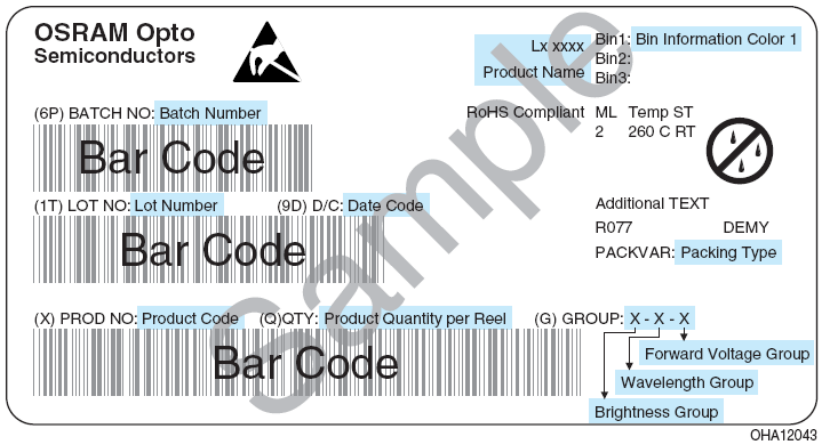
焊接条件
Soldering Conditions
无铅焊接的回流焊接温度曲线简图
Reflow Soldering Profile for lead free soldering

预处理符合 JEDEC 2 级标准
Preconditioning acc. to JEDEC Level 2
（符合 J-STD-020D.01 标准）
(acc. to J-STD-020D.01)

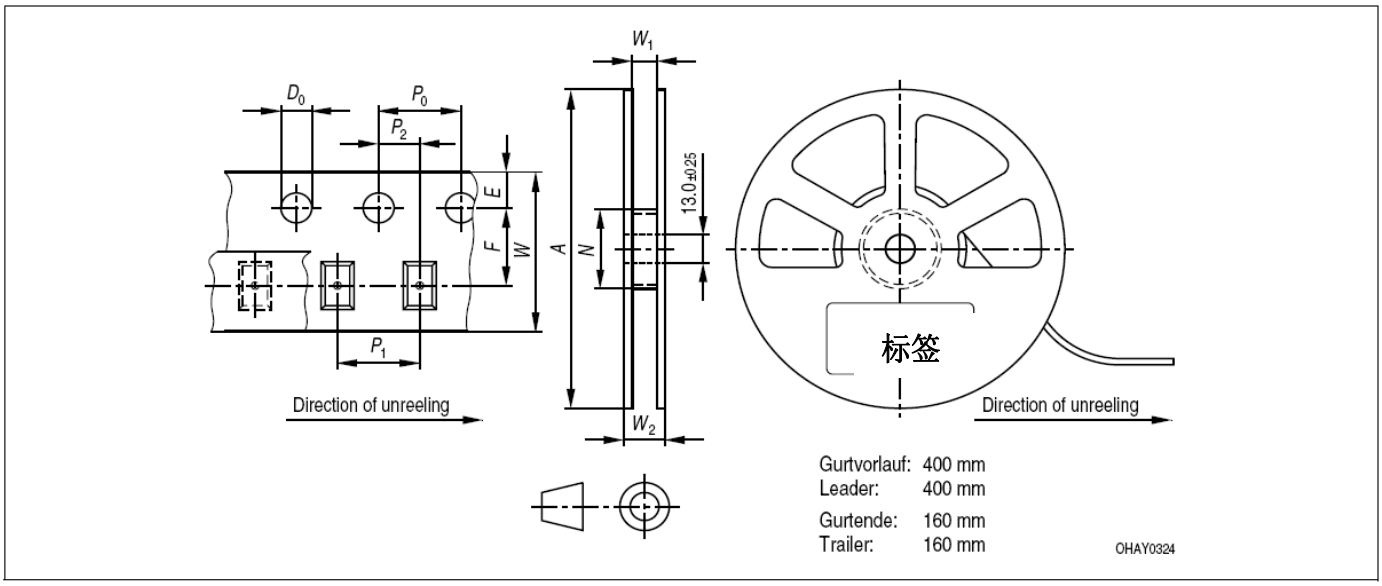


注释：此封装不适宜超声波清洗
Note: Package not suitable for ultra sonic cleaning

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



卷带和卷盘
Tape and Reel



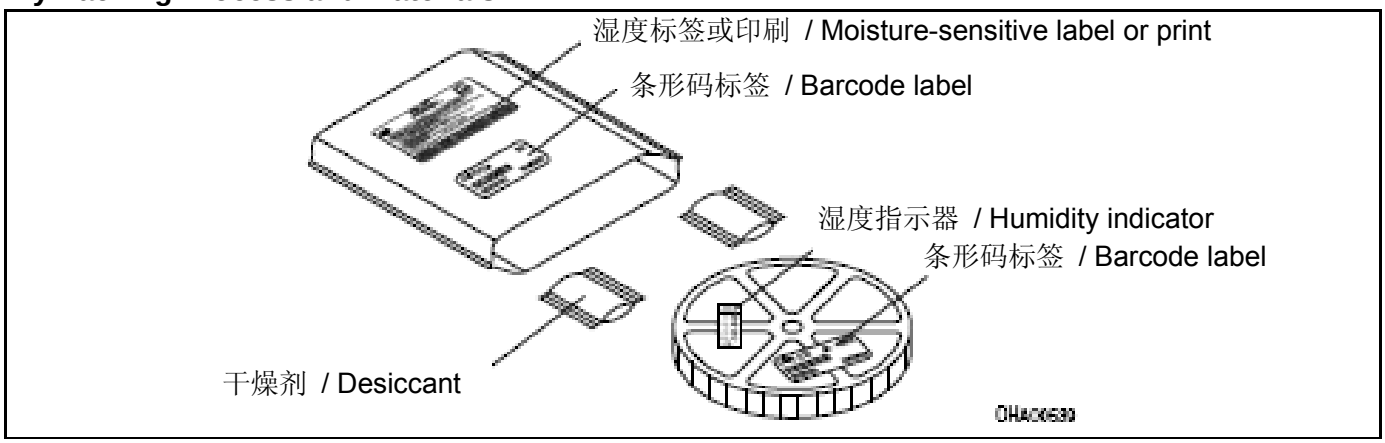
卷带尺寸（单位：mm（英寸））/ Tape dimensions in mm (inch)

W	P_0	P_1	P_2	D_0	*E*	*F*
$8^{+0.3}_{-0.1}$	4 □ 0.1 (0.157 □ 0.004)	4 □ 0.1 (0.157 □ 0.004)	2 □ 0.05 (0.079 □ 0.002)	1.5 0.1 (0.059 0.004)	1.75 □ 0.1 (0.069 □ 0.004)	3.5 □ 0.05 (0.138 □ 0.002)

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)	8 (0.315)	60 (2.362)	8.4 2 (0.331 0.079)	14.4 (0.567)

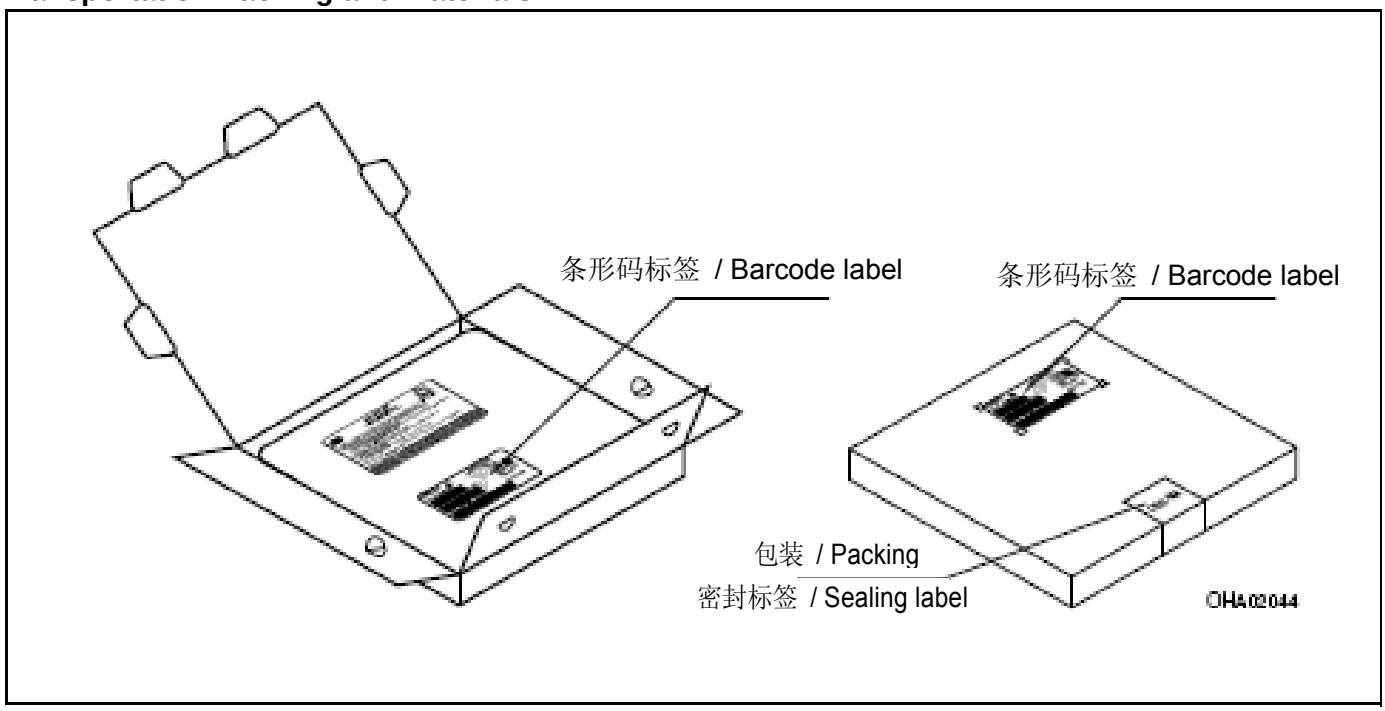
干式充填工艺和材料
Dry Packing Process and Materials



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



运输箱尺寸（单位：mm（英寸））/Dimensions of transportation box in mm (inch)

宽度 / Width	*长度 / length*	*高度 / height*
200 ±5 (7,874 ±0,1968)	200 ±5 (7,874 ±0,1968)	30 ±5 (1,1811 ±0,1968)

修订记录 / Revision History： **2010-09-09**
先前版本 / Previous Version： 2010-08-31

页码 Page	更改内容（自上次修订后的主要更改） Subjects (major changes since last revision)	修改日期 Date of change
全部 / all	创建初步规格书 / Preliminary data sheet created	2009-09-15
2, 9	订购代码改为	2009-11-26
9	添加正向电压组/ Forward Voltage Groups added	2009-11-26
4	更新正向电压/ Forward voltage updated	2009-11-26
1	添加显色指数 / color reproduction index added	2009-12-09
2	添加订购代码 / Ordering code added	2010-02-23
1, 14	其他信息 / Additional information	2010-03-01
8	校正色度坐标组 (5000 K) / Chromaticity Coordinate Groups (5000 K) corrected	2010-06-18
20	添加眼睛安全信息 / eye safety information added	2010-08-03
1, 17	校正预处理 / preconditioning corrected	2010-08-03
1	更新典型光通量、光效 / Typical Luminous Flux, optical efficiency updated	2010-08-19
20	更新眼睛安全信息 / eye safety information updated	2010-08-31
1	校正典型光通量、光效 / Typical Luminous Flux, optical efficiency corrected	2010-09-09
20	校正眼睛安全信息 / eye safety information corrected	2010-09-09

专利列表 / Patent List

专利号 / Patent No.
US 6 066 861
US 6 277 301
US 6 245 259

由于 IEC 60825 标准取消了 LED 部分，所以本产品根据 IEC 62471:2006 标准（“灯和灯系统的光生物安全性”）进行眼睛安全评估。
在该 CIE 标准的风险分组系统中，本数据表中指定的 LED 属于“豁免”组（与接触时间为 10000 秒的可见光谱范围内的装置相关）。在实际环境（包括接触时间、瞳孔、观察距离）中，认为这些装置对人眼没有危害。
但是，作为原则问题，必须提及强烈光源具有致盲效应，因此很可能发生二次曝光。直视其他明亮光源（如车前灯）时也是如此，视敏度可能会暂时下降，也可能会出现余像，从而导致困扰、烦恼、视障甚至意外事故，具体取决于当时的情况。

Due to the cancellation of the LED from IEC 60825, the evaluation of eye safety occurs according to the standard IEC 62471:2006
("photobiological safety of lamps and lamp systems").
Within the risk grouping system of this CIE standard, the LEDs specified in this data sheet fall into the "exempt" group (relating to devices
in the visible spectrum with an exposure time of 10000s). Under real circumstances (for exposure time, eye pupils, observation distance),
it is assumed that no endangerment to the eye exists from these devices.
As a matter of principle, however, it should be mentioned that intense light sources have a high secondary exposure potential due to their blinding effect. As is also true when viewing other bright light sources (e.g. headlights), temporary reduction in visual acuity and afterimages can occur, leading to irritation, annoyance, visual impairment, and even accidents, depending on the situation.

请注意！
元件类型的描述性信息不应被视作对特许的保证。
欧司朗保留交货条件和变更设计的权力。因技术需要，元件可能包含危险物质。如果对相关信息有疑问，请联系我们的销售部门。
如需打印或下载，请到公司网站寻找最新的版本。
封装
请使用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。
生命支持装置或系统所采用的元件必须获取该目的的明确授权！仅当获得欧司朗光电半导体的明确书面许可时，方可将关键元件[第 21 页 6)] 用于生命支持装置或系统[第 21 页 7)]。

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.
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.
Components used in life-support devices or systems must be expressly authorized for such purpose! Critical components[6) page 21] may only be used in life-support devices or systems[7) page 21] with the express written approval of OSRAM OS.

备注：

1) 亮度值的测量是当电流脉冲为 25 ms（典型值），内部重现性为 +/-8%，扩展不确定度为 +/-11%（依据 GUM，膨胀系数 k = 3）。

2) 由于 LED 制造工艺的条件特殊，典型或计算得出的技术参数数据仅能反映统计数据，而不等同于各产品的实际参数，它们可能与典型或计算得出的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) 色度坐标的测量是当电流脉冲为 25 ms（典型值），内部重现性为 +/-0.005，可扩展不确定度为 +/-0.01（依据 GUM，膨胀系数 k = 3）。

4) 正向电压的测量是当电流脉冲为 8 ms（典型值），内部重现性为 +/-0.05 V，可扩展不确定度为 +/-0.1 V（依据 GUM，膨胀系数 k = 3）。

5) 尺寸单位指定为：mm（英寸）

6) 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。

7) 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 values are measured during a current pulse of typical 25 ms, with an internal reproducibility of +/- 8 % and an expanded uncertainty of +/- 11 % (acc. to GUM with an expansion factor of k = 3).

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 coordinates are measured during a current pulse of typical 25 ms, with an internal reproducibility of +/- 0,005 and an expanded uncertainty of +/- 0,01 (acc. to GUM with an expansion factor of k = 3).

4) The forward voltage is measured during a current pulse of typical 8 ms, with an internal reproducibility of +/- 0,05 V and an expanded uncertainty of +/- 0,1 V (acc. to GUM with an expansion factor of k=3).

5) Dimensions are specified as follows: mm (inch).

6) 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.

7) 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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按照中国的相关法规和标准，不含有毒有害物质或元素。

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