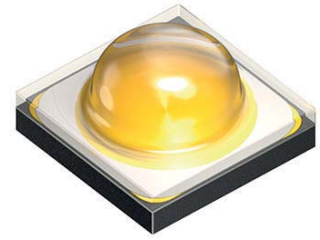


GW CSSRM1.EC



Higher performance. Lower thermal resistance.
Extended range of driving conditions. This is the
second generation OSLON Square.

Features:

- **Package:** SMT ceramic package with silicone resin and silicone lens
- **Viewing angle at 50 % I_v:** 120°
- **Color:** 2400 K - 5000 K (warm and neutral white)
- **CRI:** min. 80 (typ. 82)
- **Luminous Flux:** typ. 202 lm @ 3000 K, 85 °C
- **Luminous efficacy:** typ. 100 lm/W @ 3000 K, 85 °C
- **Corrosion Robustness:** Superior Corrosion Robustness
- **Lumen Maintenance:** Test results according to IESNA LM-80 available

Applications

- Accent and effect lighting
- Museum lighting
- Shop lighting
- Spot lights
- Stage lighting
- Retrofits and fixtures

更高的性能。更低的熱阻。擴展更寬的驅動條件。這
是第二代的 OSLON Square。

性能：

- **封装：**贴片陶瓷封装，备硅树脂透镜
- **视角 at 50 % I_v:** 120°
- **色温：**2400 K - 5000 K (暖白和中性白)
- **显色指数：**min. 80 (typ. 82)
- **典型光通量：**typ. 202 lm @ 3000 K, 85 °C
- **发光效率：**typ. 100 lm/W @ 3000 K, 85 °C
- **耐腐蚀性：**出众的耐腐蚀性
- **光通维持率：**根据 IESNA LM-80 的测试报告已经可以提供

应用

- 重点和效果照明
- 博物馆照明
- 商场照明
- 射灯
- 舞台照明
- 替换灯和灯具

Ordering Information 订购信息

Type: 类型 :	Color Temperature 色温 [K]	Luminous Flux ^{1) page 27} 光通量 ^{1) 第 27} $I_F = 700 \text{ mA}$, $T_S = 85 \text{ °C}$ $\Phi_V [\text{lm}]$	Ordering Code 订购代码
GW CSSRM1.EC-LTMP-5YC8-1	2400	150 ... 194	Q65111A5207
GW CSSRM1.EC-LUMQ-5U8X-1	2700	164 ... 210	Q65111A5206
GW CSSRM1.EC-LUMQ-5R8T-1	3000	164 ... 210	Q65111A4788
GW CSSRM1.EC-MPMR-5R8T-1	3000	180 ... 224	Q65111A5205
GW CSSRM1.EC-MPMR-5O8Q-1	3500	180 ... 224	Q65111A5231
GW CSSRM1.EC-MQMS-5L7N-1	4000	194 ... 240	Q65111A5268
GW CSSRM1.EC-MQMS-5J7K-1	4500	194 ... 240	Q65111A5269
GW CSSRM1.EC-MQMS-5H7I-1	5000	194 ... 240	Q65111A5270

Note: The above Type Numbers represent the order groups which include only a few brightness groups (see page). Only one group will be shipped on each packing unit (there will be no mixing of two groups on each packing unit). E. g. GW CSSRM1.EC-LUMQ-5R8T-1 means that only one group LU, MP, MQ will be shippable for any packing unit. In order to ensure availability, single brightness groups will not be orderable.

In a similar manner for colors where color chromaticity coordinate groups are measured and binned, single groups will be shipped on any one packing unit. GW CSSRM1.EC-LUMQ-5R8T-1 means that the device will be shipped within the specified limits. In order to ensure availability, single color chromaticity groups will not be orderable (see page).

In a similar manner for colors where forward voltage groups are measured and binned, single forward voltage groups will be shipped on any packing unit. E. g. GW CSSRM1.EC-LUMQ-5R8T-1 means that only one forward voltage group K2,L1,L2,M1,M2 will be shippable. In order to ensure availability, single forward voltage groups will not be orderable (see page).

注释: 上述类型编号代表仅包含几个亮度组的订购组 (参见第 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, GW CSSRM1.EC-LUMQ-5R8T-1 表示任何一个卷盘上仅可装运一个亮度组: LU, MP, MQ。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, GW CSSRM1.EC-LUMQ-5R8T-1 表示仅可装运特定范围内的一个色度坐标组 (参见第 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, GW CSSRM1.EC-LUMQ-5R8T-1 表示每卷盘上仅可装运正向电压组 K2,L1,L2,M1,M2 中的一个。为了确保可用性, 单个正向电压组将不接受订购 (参见第 页)。

Maximum Ratings

最大额定值

Parameter 参数	Symbol 符号	Values 值	Unit 单位
Operating temperature range 工作温度范围	T_{op}	-40 ... 125	°C
Storage temperature range 储存温度范围	T_{stg}	-40 ... 110	°C
Junction temperature absolute * 绝对结温 *	$T_{j, abs}$	150	°C
Junction temperature 结点温度	T_j	135	°C
Forward current 正向电流 ($T_s = 85\text{ °C}$)	I_F	200 ... 1800	mA
Surge current 冲击电流	I_{FM}	2000	mA
Reverse current ^{2) page 27} 反向电流 ^{2) 第 27}	I_R	200	mA
ESD withstand voltage ESD 耐压 (acc. to ANSI/ESDA/JEDEC JS-001 - HBM, Class 3B)	V_{ESD}	8	kV

Note: * This is verified by testing 30 pieces. Pass criteria: No catastrophic failures allowed, luminous flux must be better than L70B50 after 1000 h.

注释: * 基于测试 30 个 LED 样品。合格标准：在 1000 小时后，不允许有灾难性故障，光通维持率优于 L70/B50。

Characteristics ($T_S = 85\text{ }^\circ\text{C}$; $I_F = 700\text{ mA}$)

特性

Parameter 参数		Symbol 符号	Values 值	Unit 单位
Viewing angle at 50 % I_V 50 % I_V 时的全视角	(typ.)	2ϕ	120	$^\circ$
Forward voltage ^{3) page 27} 正向电压 ^{3) 第 27}	(min.) (typ.) (max.)	V_F V_F V_F	2.70 2.90 3.20	V V V
Reverse voltage 反向电压 ($I_R = 20\text{ mA}$)	(max.)	V_R	1.2	V
Color reproduction index ^{4) page 27} 显色指数 ^{4) 第 27} (2700 K - 5000 K)	(typ.) (min.)	R_a R_a	82 80	- -
Real thermal resistance junction / solder point ^{5) page 27} 结点 - 焊点热阻 ^{5) 第 27}	(typ.) (max.)	$R_{th\text{ JS real}}$ $R_{th\text{ JS real}}$	3 3.9	K/W K/W
"Electrical" thermal resistance junction / solder point ^{5) page 27} “电学”热阻 (结点 / 焊点) ^{5) 第 27} (with efficiency $\eta_e = 31\text{ \%}$)	(typ.) (max.)	$R_{th\text{ JS el}}$ $R_{th\text{ JS el}}$	2.1 2.7	K/W K/W

Note: Individual forward voltage groups see next page

注释: 具体的正向电压分组参见下一页

Brightness Groups
亮度组

Group 组	Luminous Flux ^{1) page 27} 光通量 ^{1) 第 27} (min.) Φ_V [lm]	Luminous Flux ^{1) page 27} 光通量 ^{1) 第 27} (max.) Φ_V [lm]	Luminous Intensity ^{6) page 27} 发光强度 ^{6) 第 27} (typ.) I_V [cd]
LT	150	164	52
LU	164	180	57
MP	180	194	62
MQ	194	210	67
MR	210	224	72
MS	224	240	77

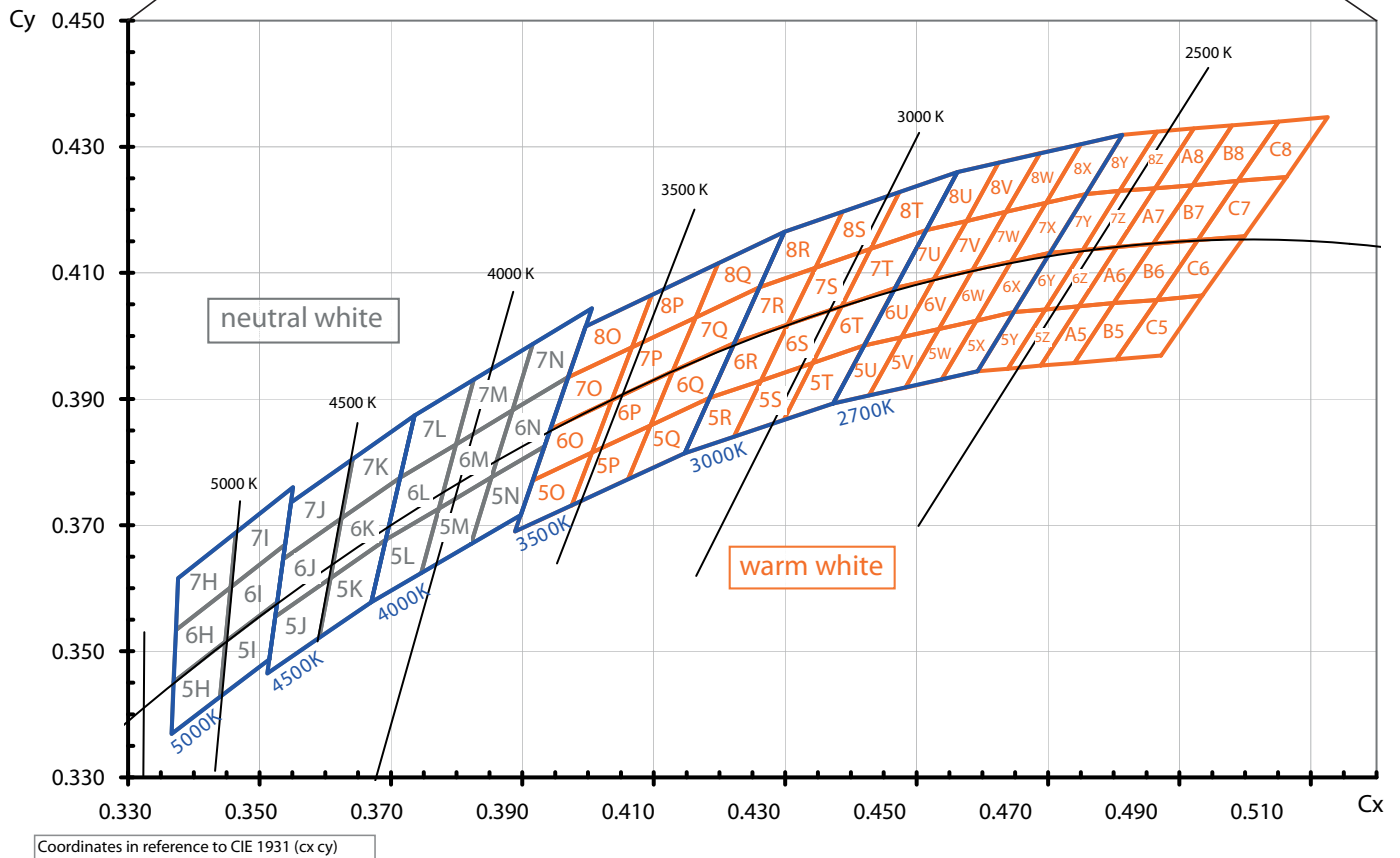
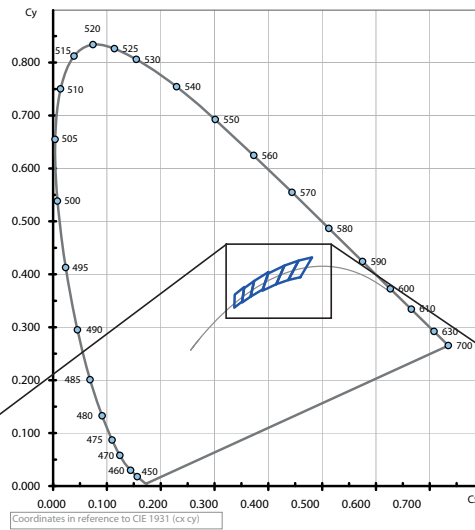
Note: The standard shipping format for serial types includes either a lower family group, an upper family group or a grouping of all individual brightness groups of only a few brightness groups. Individual brightness groups cannot be ordered.

注释：标准的连续类型的运输形式包括以下几种可能，1) 一部分低亮度等级 2) 一部分高亮度等级 3) 一些混合了两至三个亮度等级。单一的亮度等级是不可以在大批量生产是订购的。

Forward Voltage Groups ^{3) page 27}
正向电压组 ^{3) 第 27}

Group 组		
	(min.) V_F [V]	(max.) V_F [V]
K2	2.70	2.80
L1	2.80	2.90
L2	2.90	3.00
M1	3.00	3.10
M2	3.10	3.20

Chromaticity Coordinate Groups ⁷⁾ page 27
 色坐标分组 ⁷⁾ 第 27



Color Chromaticity Groups ⁷⁾ page 27色度坐标组 ⁷⁾ 第 27

Group 组	Cx	Cy	Group 组	Cx	Cy	Group 组	Cx	Cy
A5	0.4689	0.3953	5M	0.3746	0.3624	6T	0.4342	0.3957
	0.4740	0.3957		0.3773	0.3726		0.4386	0.4048
	0.4747	0.4047		0.3822	0.3670		0.4420	0.3985
	0.4800	0.4052		0.3853	0.3776		0.4468	0.4077
A6	0.4747	0.4047	6M	0.3773	0.3726	7T	0.4386	0.4048
	0.4800	0.4052		0.3799	0.3828		0.4430	0.4138
	0.4805	0.4141		0.3853	0.3776		0.4468	0.4077
	0.4860	0.4146		0.3885	0.3882		0.4515	0.4168
A7	0.4805	0.4141	7M	0.3799	0.3828	8T	0.4430	0.4138
	0.4860	0.4146		0.3826	0.3931		0.4474	0.4228
	0.4863	0.4234		0.3885	0.3882		0.4515	0.4168
	0.4920	0.4239		0.3916	0.3987		0.4562	0.4260
A8	0.4863	0.4234	5N	0.3822	0.3670	5U	0.4373	0.3893
	0.4920	0.4239		0.3853	0.3776		0.4420	0.3985
	0.4922	0.4329		0.3898	0.3716		0.4428	0.3906
	0.4980	0.4334		0.3934	0.3825		0.4477	0.3998
B5	0.4740	0.3957	6N	0.3853	0.3776	6U	0.4420	0.3985
	0.4800	0.4052		0.3885	0.3882		0.4468	0.4077
	0.4804	0.3963		0.3934	0.3825		0.4477	0.3998
	0.4866	0.4057		0.3970	0.3935		0.4526	0.4090
B6	0.4800	0.4052	7N	0.3885	0.3882	7U	0.4468	0.4077
	0.4860	0.4146		0.3916	0.3987		0.4515	0.4168
	0.4866	0.4057		0.3970	0.3935		0.4526	0.4090
	0.4928	0.4152		0.4006	0.4044		0.4576	0.4183
B7	0.4860	0.4146	5O	0.3890	0.3690	8U	0.4515	0.4168
	0.4920	0.4239		0.3916	0.3772		0.4562	0.4260
	0.4928	0.4152		0.3975	0.3731		0.4576	0.4183
	0.4989	0.4246		0.4006	0.3815		0.4625	0.4275

Group 组	Cx	Cy	Group 组	Cx	Cy	Group 组	Cx	Cy
B8	0.4920	0.4239	6O	0.3916	0.3772	5V	0.4428	0.3906
	0.4980	0.4334		0.3943	0.3853		0.4477	0.3998
	0.4989	0.4246		0.4006	0.3815		0.4483	0.3919
	0.5051	0.4340		0.4036	0.3898		0.4534	0.4011
C5	0.4804	0.3963	7O	0.3943	0.3853	6V	0.4477	0.3998
	0.4866	0.4057		0.3970	0.3934		0.4526	0.4090
	0.4872	0.3969		0.4036	0.3898		0.4534	0.4011
	0.4935	0.4064		0.4067	0.3982		0.4585	0.4104
C6	0.4866	0.4057	8O	0.3970	0.3934	7V	0.4526	0.4090
	0.4928	0.4152		0.3997	0.4015		0.4576	0.4183
	0.4935	0.4064		0.4067	0.3982		0.4585	0.4104
	0.4999	0.4158		0.4097	0.4065		0.4636	0.4197
C7	0.4928	0.4152	5P	0.3975	0.3731	8V	0.4576	0.4183
	0.4989	0.4246		0.4006	0.3815		0.4625	0.4275
	0.4999	0.4158		0.4061	0.3773		0.4636	0.4197
	0.5063	0.4252		0.4095	0.3858		0.4688	0.4290
C8	0.4989	0.4246	6P	0.4006	0.3815	5W	0.4483	0.3919
	0.5051	0.4340		0.4036	0.3898		0.4534	0.4011
	0.5063	0.4252		0.4095	0.3858		0.4538	0.3931
	0.5126	0.4347		0.4130	0.3944		0.4591	0.4025
5H	0.3366	0.3369	7P	0.4036	0.3898	6W	0.4534	0.4011
	0.3369	0.3451		0.4067	0.3982		0.4585	0.4104
	0.3441	0.3428		0.4130	0.3944		0.4591	0.4025
	0.3448	0.3515		0.4164	0.4029		0.4644	0.4118
6H	0.3369	0.3451	8P	0.4067	0.3982	7W	0.4585	0.4104
	0.3373	0.3534		0.4097	0.4065		0.4636	0.4197
	0.3448	0.3515		0.4164	0.4029		0.4644	0.4118
	0.3456	0.3601		0.4198	0.4115		0.4697	0.4211
7H	0.3373	0.3534	5Q	0.4061	0.3773	8W	0.4636	0.4197
	0.3376	0.3616		0.4095	0.3858		0.4688	0.4290
	0.3456	0.3601		0.4147	0.3814		0.4697	0.4211
	0.3464	0.3688		0.4185	0.3902		0.4750	0.4304

Group 组	Cx	Cy	Group 组	Cx	Cy	Group 组	Cx	Cy
5I	0.3441	0.3428	6Q	0.4095	0.3858	5X	0.4538	0.3931
	0.3448	0.3515		0.4130	0.3944		0.4591	0.4025
	0.3515	0.3487		0.4185	0.3902		0.4593	0.3944
	0.3527	0.3578		0.4223	0.3990		0.4648	0.4038
6I	0.3448	0.3515	7Q	0.4130	0.3944	6X	0.4591	0.4025
	0.3456	0.3601		0.4164	0.4029		0.4644	0.4118
	0.3527	0.3578		0.4223	0.3990		0.4648	0.4038
	0.3539	0.3669		0.4261	0.4077		0.4703	0.4132
7I	0.3456	0.3601	8Q	0.4164	0.4029	7X	0.4644	0.4118
	0.3464	0.3688		0.4198	0.4115		0.4697	0.4211
	0.3539	0.3669		0.4261	0.4077		0.4703	0.4132
	0.3551	0.3760		0.4299	0.4165		0.4758	0.4225
5J	0.3512	0.3465	5R	0.4147	0.3814	8X	0.4697	0.4211
	0.3524	0.3555		0.4185	0.3902		0.4750	0.4304
	0.3591	0.3522		0.4222	0.3840		0.4758	0.4225
	0.3608	0.3616		0.4263	0.3929		0.4813	0.4319
6J	0.3524	0.3555	6R	0.4185	0.3902	5Y	0.4593	0.3944
	0.3536	0.3646		0.4223	0.3990		0.4639	0.3948
	0.3608	0.3616		0.4263	0.3929		0.4648	0.4038
	0.3625	0.3711		0.4305	0.4019		0.4696	0.4042
7J	0.3536	0.3646	7R	0.4223	0.3990	6Y	0.4648	0.4038
	0.3548	0.3736		0.4261	0.4077		0.4696	0.4042
	0.3625	0.3711		0.4305	0.4019		0.4703	0.4132
	0.3642	0.3805		0.4346	0.4108		0.4753	0.4136
5K	0.3591	0.3522	8R	0.4261	0.4077	7Y	0.4703	0.4132
	0.3608	0.3616		0.4299	0.4165		0.4753	0.4136
	0.3670	0.3578		0.4346	0.4108		0.4758	0.4225
	0.3692	0.3677		0.4387	0.4197		0.4809	0.4230
6K	0.3608	0.3616	5S	0.4222	0.3840	8Y	0.4758	0.4225
	0.3625	0.3711		0.4263	0.3929		0.4809	0.4230
	0.3692	0.3677		0.4298	0.3867		0.4813	0.4319
	0.3714	0.3775		0.4342	0.3957		0.4866	0.4324

Group 组	Cx	Cy	Group 组	Cx	Cy	Group 组	Cx	Cy
7K	0.3625	0.3711	6S	0.4263	0.3929	5Z	0.4639	0.3948
	0.3642	0.3805		0.4305	0.4019		0.4689	0.3953
	0.3714	0.3775		0.4342	0.3957		0.4696	0.4042
	0.3736	0.3874		0.4386	0.4048		0.4747	0.4047
5L	0.3670	0.3578	7S	0.4305	0.4019	6Z	0.4696	0.4042
	0.3692	0.3677		0.4346	0.4108		0.4747	0.4047
	0.3746	0.3624		0.4386	0.4048		0.4753	0.4136
	0.3773	0.3726		0.4430	0.4138		0.4805	0.4141
6L	0.3692	0.3677	8S	0.4346	0.4108	7Z	0.4753	0.4136
	0.3714	0.3775		0.4387	0.4197		0.4805	0.4141
	0.3773	0.3726		0.4430	0.4138		0.4809	0.4230
	0.3799	0.3828		0.4474	0.4228		0.4863	0.4234
7L	0.3714	0.3775	5T	0.4298	0.3867	8Z	0.4809	0.4230
	0.3736	0.3874		0.4342	0.3957		0.4863	0.4234
	0.3799	0.3828		0.4373	0.3893		0.4866	0.4324
	0.3826	0.3931		0.4420	0.3985		0.4922	0.4329

Group Name on Label**标签上的组名**

Example: LU-5R-K2

示例 : LU-5R-K2

Brightness 亮度组	Chromaticity Coordinate 色度坐标组	Forward Voltage 正向电压
LU	5R	K2

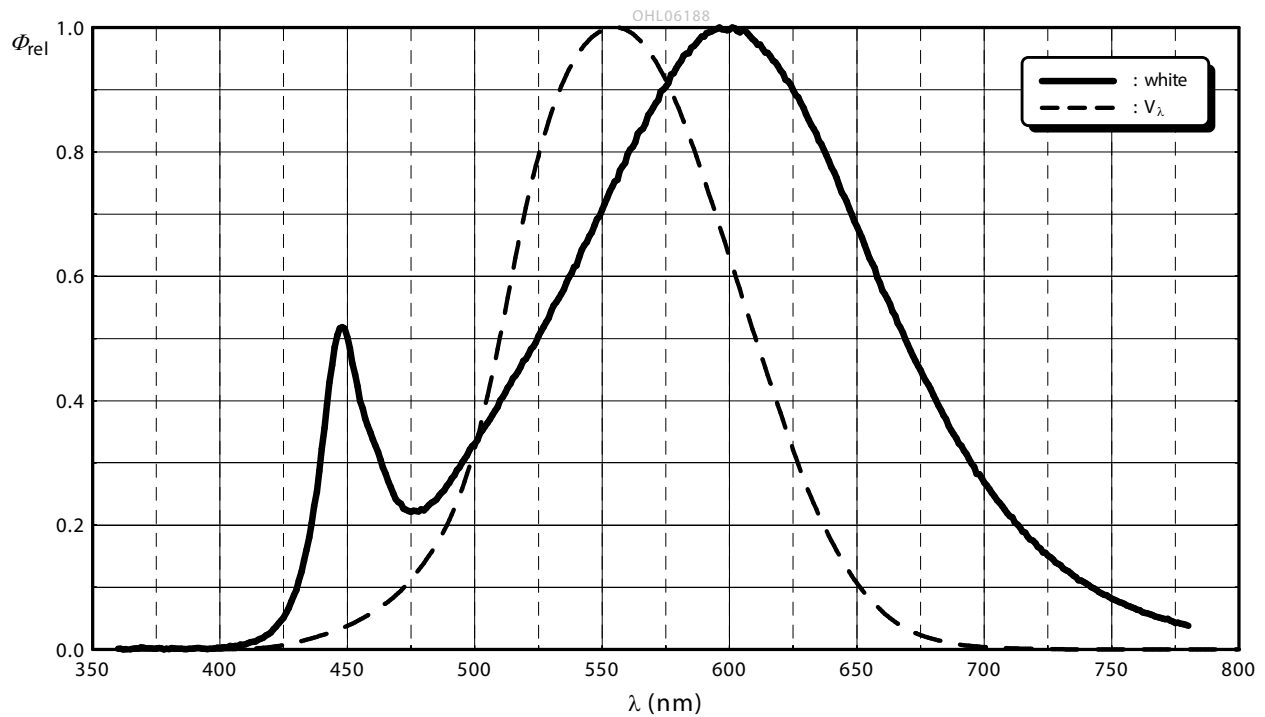
Note: No packing unit / tape ever contains more than one group for each selection.

注释: 任何一个单独包装都只包括一个亮度和颜色的分组

Relative Spectral Emission - $V(\lambda) =$ Standard eye response curve ^{6) page 27}

相对辐射光谱 ^{6) 第 27}

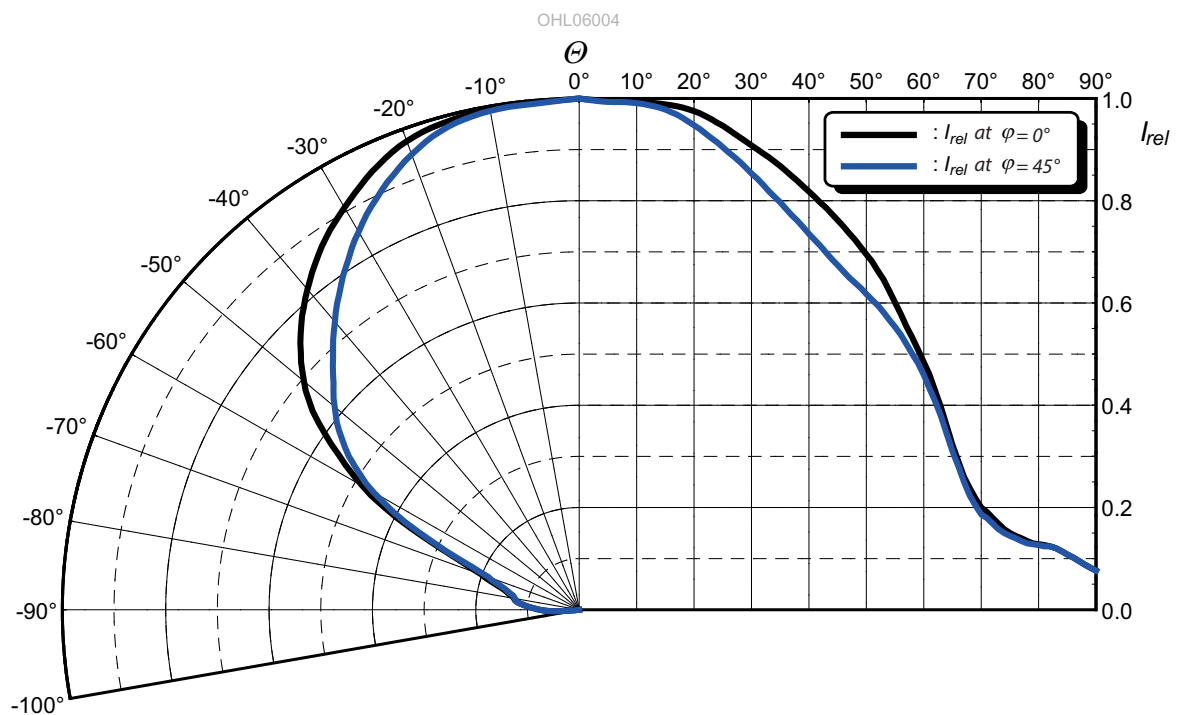
$\Phi_{rel} = f(\lambda)$; $T_S = 85\text{ °C}$; $I_F = 700\text{ mA}$



Radiation Characteristics ^{6) page 27}

配光曲线 ^{6) 第 27}

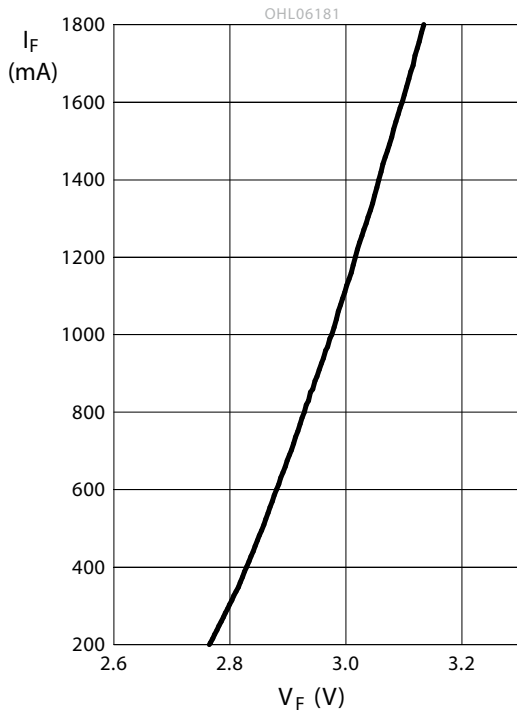
$I_{rel} = f(\phi)$; $T_S = 85\text{ °C}$



Forward Current ^{6) page 27}

正向电流 ^{6) 第 27}

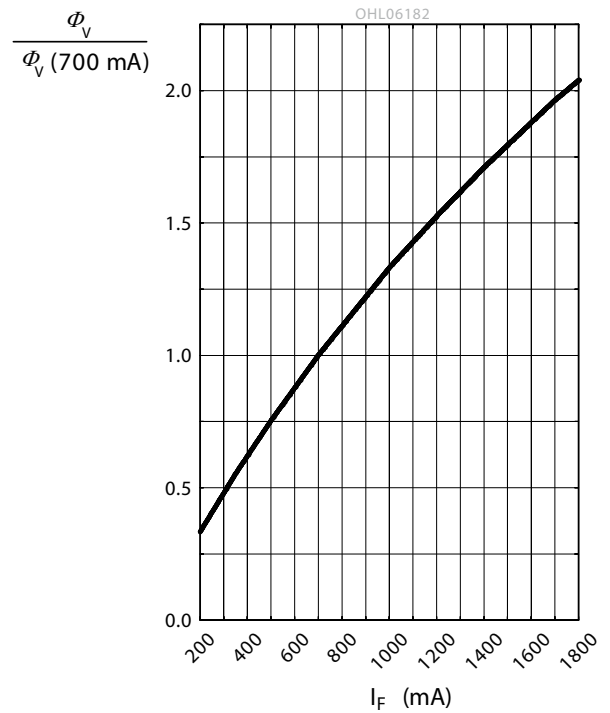
$I_F = f(V_F); T_S = 85\text{ }^\circ\text{C}$



Relative Luminous Flux ^{6) page 27, 8) page 27}

相对光通量 ^{6) 第 27, 8) 第 27}

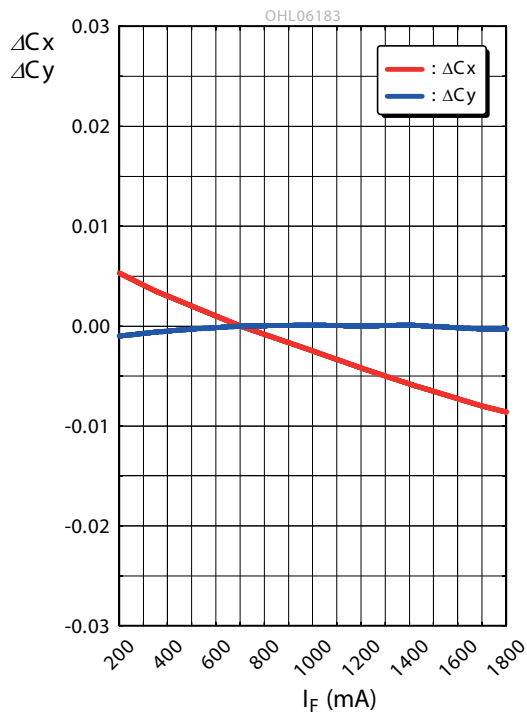
$\Phi_V / \Phi_V(700\text{ mA}) = f(I_F); T_S = 85\text{ }^\circ\text{C}$



Chromaticity Coordinate Shift ^{6) page 27}

色度坐标偏移 ^{6) 第 27}

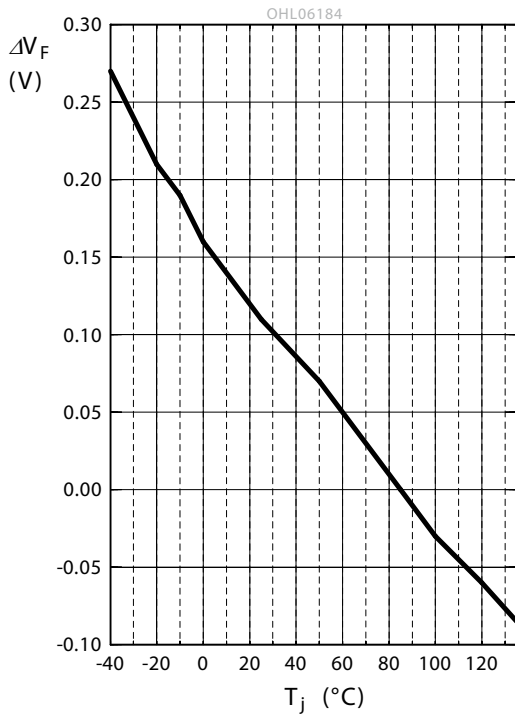
$C_x, C_y = f(I_F); T_S = 85\text{ }^\circ\text{C}$



Relative Forward Voltage ^{6) page 27}

相对正向电压 ^{6) 第 27}

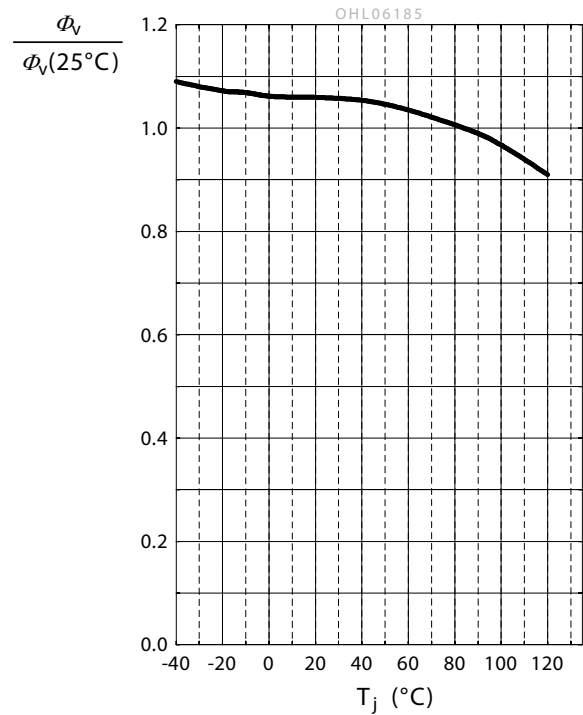
$\Delta V_F = V_F - V_F(85^\circ\text{C}) = f(T_j); I_F = 700 \text{ mA}$



Relative Luminous Flux ^{6) page 27}

相对光通量 ^{6) 第 27}

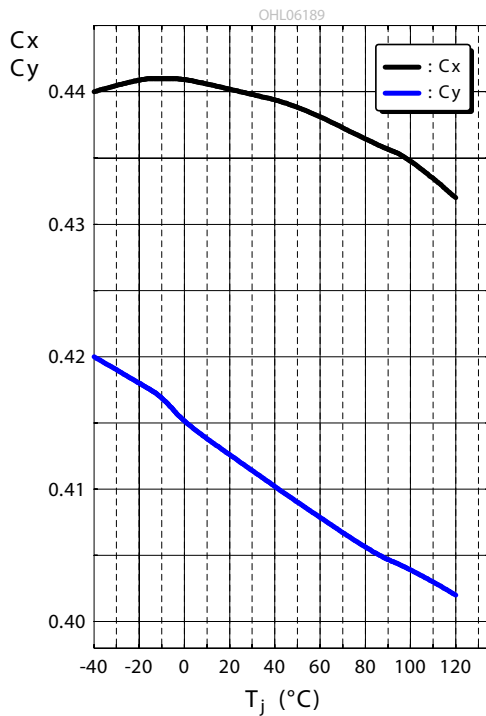
$\Phi_V / \Phi_V(85^\circ\text{C}) = f(T_j); I_F = 700 \text{ mA}$



Chromaticity Coordinate Shift ^{6) page 27}

色度坐标偏移 ^{6) 第 27}

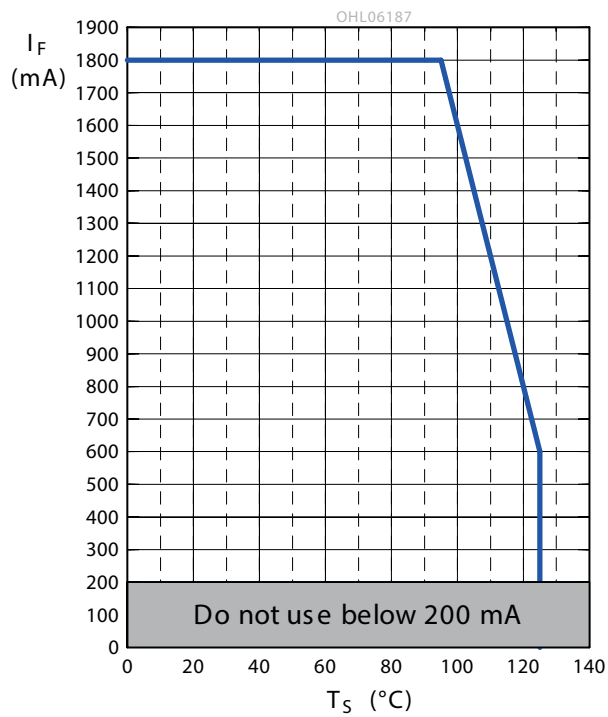
$C_x, C_y = f(T_j); I_F = 700 \text{ mA}$



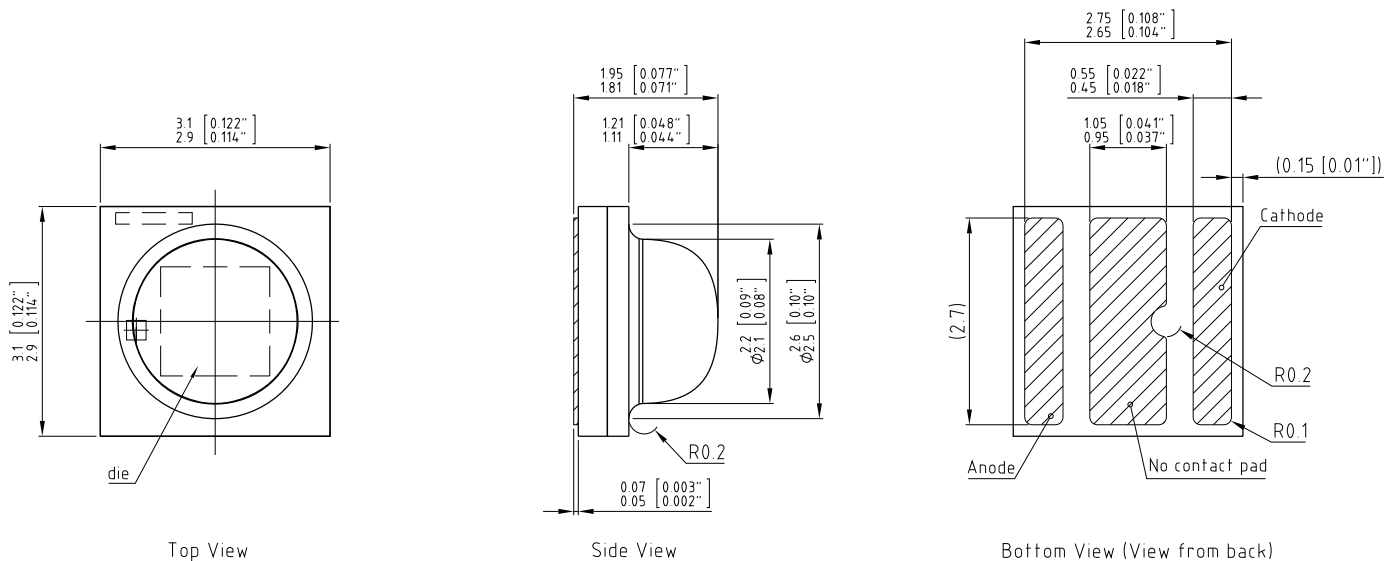
Max. Permissible Forward Current

最大允许正向电流

$$I_F = f(T)$$



Package Outline ⁹⁾ page 27
封装轮廓 ⁹⁾ 第 27



C67062-A0017-A1-06

Approximate Weight:

29 mg

参考重量：

29 mg

Mark:

Cathode

标记：

负极

ESD information:

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

ESD 信息：

LED 由并联的 ESD 器件（齐纳二极管）所保护。

Corrosion robustness:

Test conditions: 40 °C / 90 % rh / 15 ppm H₂S / 336 h
= Stricter than IEC 60068-2-43 (H₂S) [25°C / 75 % rh / 10 ppm H₂S / 21 days]
= Regarding relevant gas (H₂S) stricter than EN 60068-2-60 (method 4) [25 °C / 75 % rh / 200 ppb SO₂, 200 ppb NO₂, 10 ppb Cl₂ / 21 days]

耐腐蚀性：

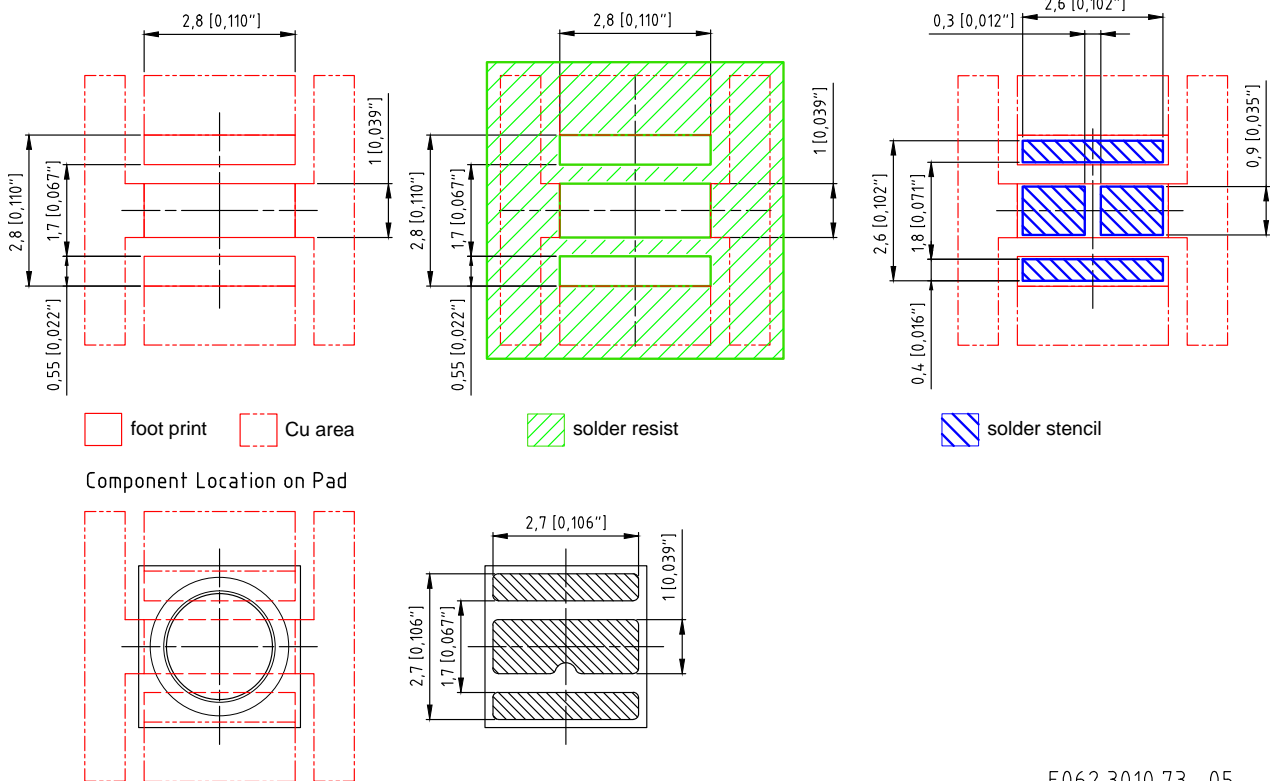
测试条件：40 °C / 90 % 湿度 / 15 ppm 硫化氢 (H₂S)
/ 336 h

= 比 IEC 60068-2-43 (H₂S) 标准更为严格 [25°C / 75 % 湿度 / 10 ppm 硫化氢 (H₂S) / 21 天]

= 对于有关气体硫化氢 (H₂S)，严于标准 EN 60068-2-60(方法) [25°C / 75 % 湿度 / 200 ppb SO₂, 200 ppb NO₂, 10 ppb Cl₂ / 21 天]

Recommended Solder Pad ⁹⁾ page 27
 推荐焊盘 ⁹⁾ 第 27

Reflow soldering
 红外线回流焊接



E062.3010.73 -05

Note:

For superior solder joint connectivity results we recommend soldering under standard nitrogen atmosphere. For further information please refer to our Application Note "Handling and Processing Details for Ceramic LEDs".

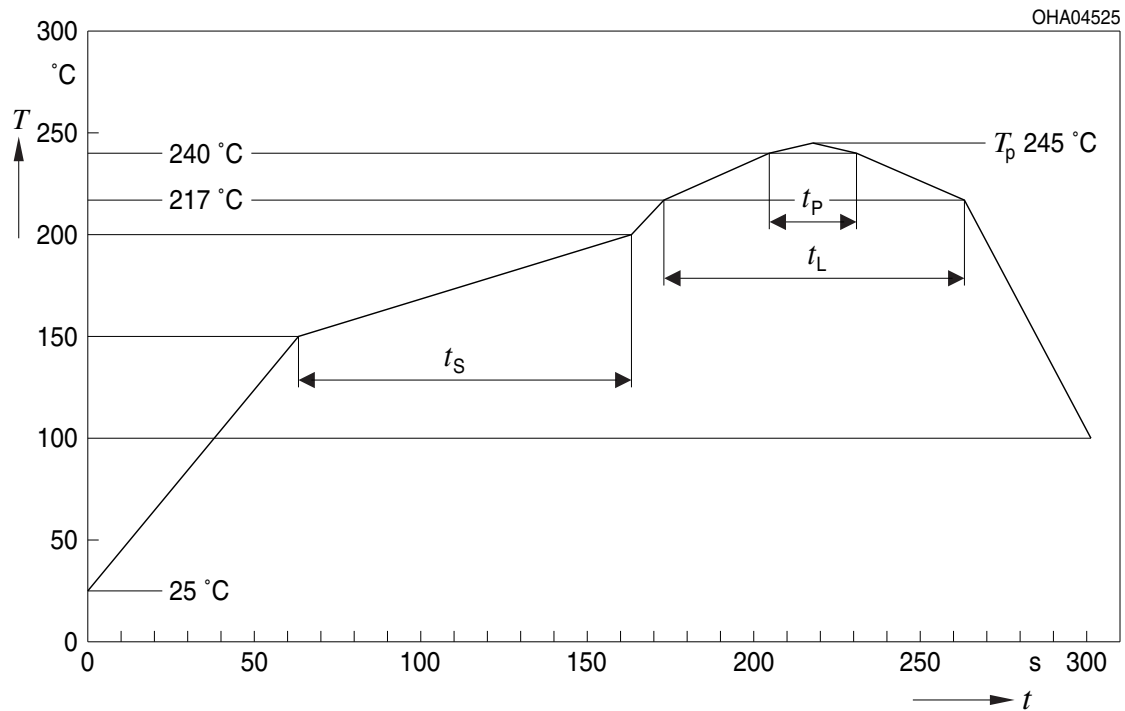
注释：

为达到卓越的焊点连接效果，我们建议在标准氮气环境下焊接。更多信息请参考我们的应用文档“陶瓷 LED 的生产工艺细节”。

Reflow Soldering Profile

回流焊曲线

Preconditioning: JEDEC Level 2 acc. to JEDEC J-STD-020D.01



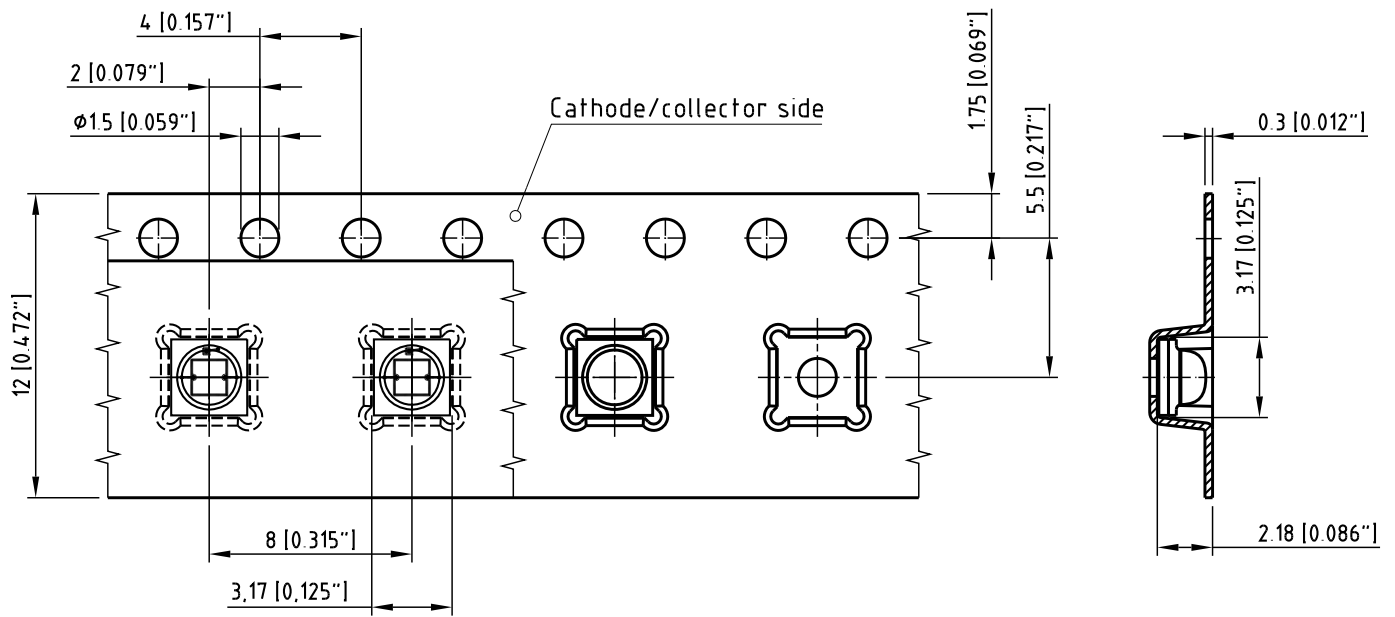
OHA04612

Profile Feature Profil-Charakteristik	Symbol Symbol	Pb-Free (SnAgCu) Assembly			Unit Einheit
		Minimum	Recommendation	Maximum	
Ramp-up rate to preheat*) 25 °C to 150 °C			2	3	K/s
Time t_S T_{Smin} to T_{Smax}	t_S	60	100	120	s
Ramp-up rate to peak*) T_{Smax} to T_P			2	3	K/s
Liquidus temperature	T_L	217			°C
Time above liquidus temperature	t_L		80	100	s
Peak temperature	T_P		245	260	°C
Time within 5 °C of the specified peak temperature $T_P - 5$ K	t_P	10	20	30	s
Ramp-down rate* T_P to 100 °C			3	6	K/s
Time 25 °C to T_P				480	s

All temperatures refer to the center of the package, measured on the top of the component

* slope calculation DT/Dt : Dt max. 5 s; fulfillment for the whole T-range

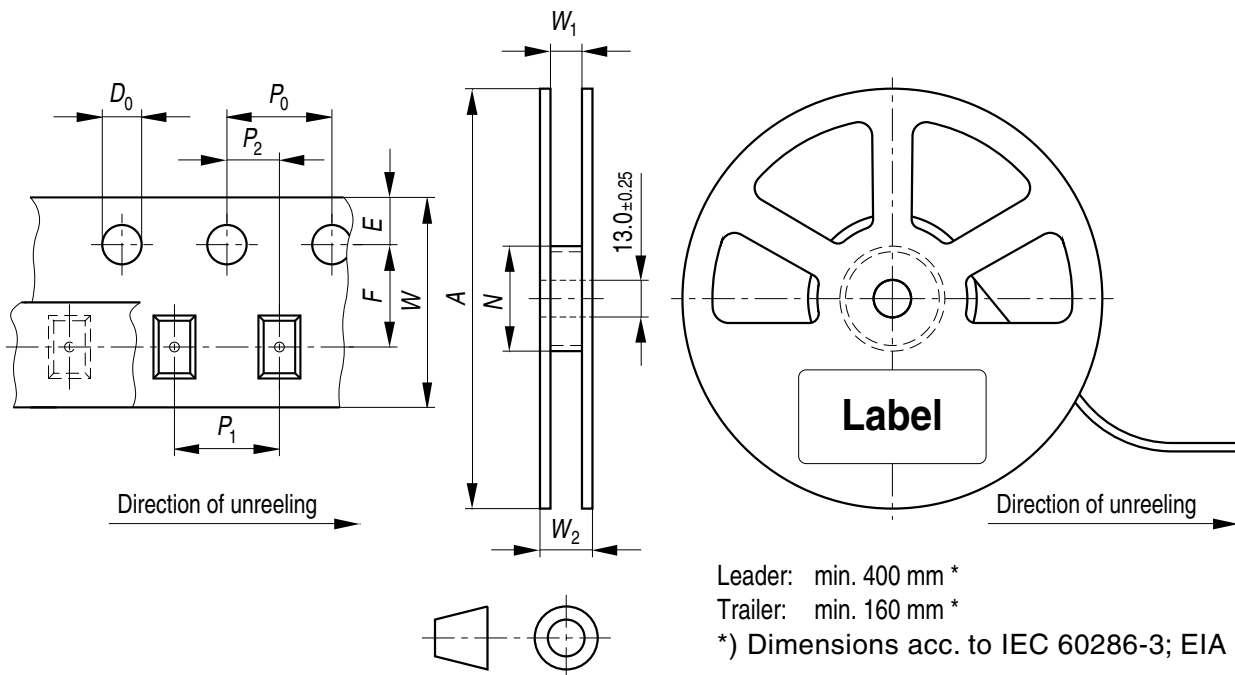
Method of Taping ⁹⁾ page 27
装卷带方法 ⁹⁾ 第 27



C67062-A0017-B5-08

Tape and Reel

卷带和卷盘

12 mm tape with 600 pcs. on \varnothing 180 mm reel

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

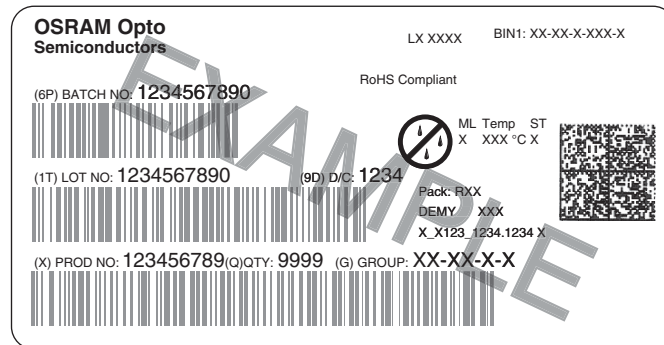
W	P ₀	P ₁	P ₂	D ₀	E	F
12 +0.3/-0.1	4 ± 0.1 (0.157 ± 0.004)	4 ± 0.1 (0.157 ± 0.004) or 8 ± 0.1 (0.315 ± 0.004)	2 ± 0.05 (0.079 ± 0.002)	1.5 ± 0.1 (0.059 ± 0.004)	1.75 ± 0.1 (0.069 ± 0.004)	5.5 ± 0.05 (0.217 ± 0.002)

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

A	W	N _{min}	W ₁	W _{2max}
180 (7)	12 (0.472)	60 (2.362)	12.4 + 2 (0.488 + 0.079)	18.4 (0.724)

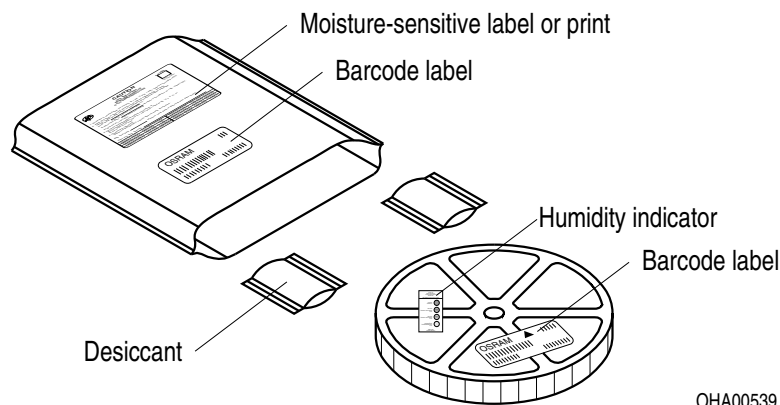
Barcode-Product-Label (BPL)

条码 - 产品 - 标签 (BPL)



Dry Packing Process and Materials

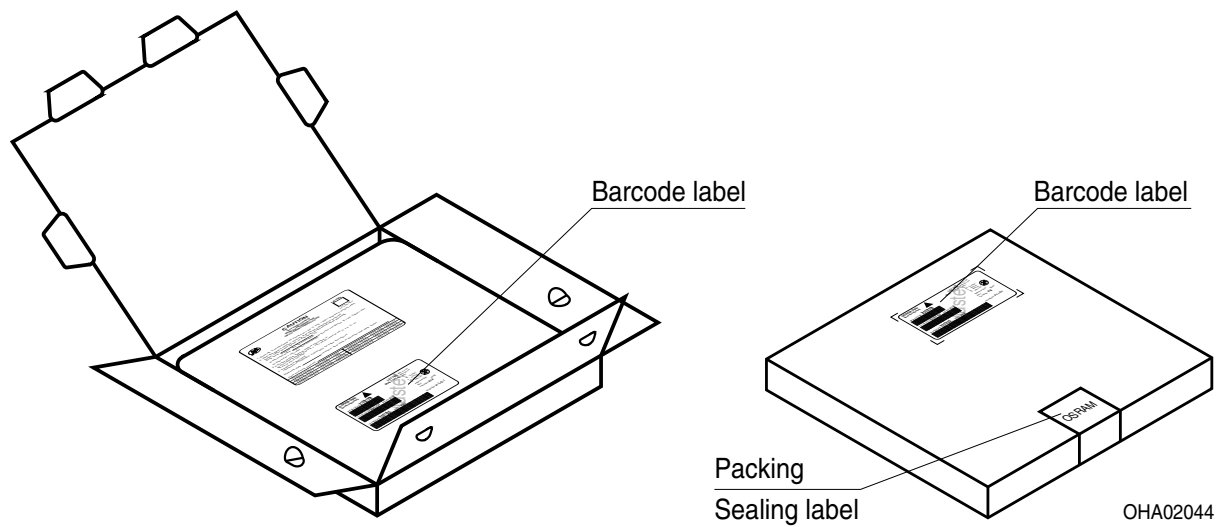
干燥封装过程和材料



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.

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

Transportation Packing and Materials 运输包装和材料



Dimensions of transportation box in mm (inch): / 运输包装的尺寸单位 mm (英寸)

Width / 宽度	Length / 长度	Height / 高度
195 ± 5 (7.677 ± 0.1968)	195 ± 5 (7.677 ± 0.1968)	30 ± 5 (1.181 ± 0.196)

Notes

The evaluation of eye safety occurs according to the standard IEC 62471:2008 ("photobiological safety of lamps and lamp systems"). Within the risk grouping system of this CIE standard, the LED specified in this data sheet fall into the class Moderate risk (exposure time 0.25 s). 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.

Subcomponents of this LED are goldplated. In spite of the improved corrosion stability of this subcomponents, it can be affected by environments that contain very high concentrations of aggressive substances. Therefore, we recommend avoiding aggressive atmospheres during storage, production and use.

Change management for this component is aligned with the requirements of the lighting market.

注释

本产品根据 IEC 62471:2008 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“中风险”组（接触时间为 0.25 秒）。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。

该 LED 的子组件是镀金的，尽管镀金的子组件拥有改进的腐蚀稳定性，它仍然可以受到非常高浓度的腐蚀性环境的影响。因此我们建议，在储存，生产和使用过程中尽量避免腐蚀性环境。

该组件的变更管理是与照明市场的要求相一致的。

Disclaimer

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* may only be used in life-support devices** or systems with the express written approval of OSRAM OS.

*) 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.

**) 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.

声明

请注意!

元件类型的描述性信息不应被视作对特性的保证。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。

如果对类型信息有疑问, 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版本。

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了分类, 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!

仅当获得欧司朗公司的明确书面许可时, 方可将关键元件*用于生命支持装置或系统**。

*) 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。

**) 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。

Glossary

- 1) **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 $k = 3$).
- 2) **Reverse Operation:** A minimum of 10 hours of reverse operation is permissible in total.
- 3) **Forward Voltage:** The forward voltage is measured during a current pulse of typically 8 ms, with an internal reproducibility of $\pm 0.05\text{ V}$ and an expanded uncertainty of $\pm 0.1\text{ V}$ (acc. to GUM with a coverage factor of $k = 3$).
- 4) **Color reproduction index:** Color reproduction index values (CRI-RA) are measured during a current pulse of typically 25 ms, with an internal reproducibility of ± 2 and an expanded uncertainty of ± 3 (acc. to GUM with a coverage factor of $k = 3$).
- 5) **Thermal Resistance:** $R_{th\ max}$ is based on statistic values (6σ).
- 6) **Typical Values:** 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.
- 7) **Chromaticity coordinate groups:** Chromaticity coordinates are measured during a current pulse of typically 25 ms, with an internal reproducibility of ± 0.005 and an expanded uncertainty of ± 0.01 (acc. to GUM with a coverage factor of $k = 3$).
- 8) **Relative Brightness Curve:** In the range where the line of the graph is broken, you must expect higher brightness differences between single LEDs within one packing unit.
- 9) **Tolerance of Measure:** Dimensions are specified as follows: mm (inch).

词汇表

- 1) **亮度:** 亮度值的测量电流脉冲时长为 25 ms (典型值) , 内部重现性为 $\pm 8\%$, 扩展不确定度为 $\pm 11\%$ (依据 GUM , 扩展系数 $k = 3$) 。
- 2) **反向操作:** 总共允许至少 10 小时的方向操作。
- 3) **正向电压:** 正向电压的测量电流脉冲时长为 8 ms (典型值) , 内部重现性为 $\pm 0.05\text{ V}$, 可扩展不确定度为 $\pm 0.1\text{ V}$ (依据 GUM , 扩展系数 $k = 3$) 。
- 4) **显色指数:** 显色指数 (CRI-RA) 是在电流脉冲为 25 毫秒的条件下测试 , 内部再现性为 ± 2 , 扩展不确定度为 ± 3 。 (依据 GUM 在覆盖系数为 $k = 3$) 。
- 5) **热阻:** 最大热阻基于统计数据 (6σ) 。
- 6) **典型值:** 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。
- 7) **色度坐标组:** 色度坐标的测量电流脉冲时长为 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 , 扩展系数 $k = 3$) 。
- 8) **相对亮度曲线:** 在图中的虚线区域 , 你需要考虑到一个包装单位内的不同颗LED之间可能存在亮度差异。
- 9) **测量容差:** 尺寸单位指定为 : mm (英寸) 。

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