OSRAM KY CWLNM2.FY

Datasheet

Published by ams-OSRAM AG
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OSLON™ Compact PL

KY CWLNM2.FY

Compact light source with improved heat dissipation and small z-tolerance (+/- 35 µm). This special device in the OSLON Compact PL family combines the advantages of a ceramic package with outstanding efficiency.

Applications

- Dynamic Signaling
- Static Signaling

Features

- Package: Ceramic package
- Chip technology: UX:3
- Typ. Radiation: 120° (Lambertian emitter)
- Color: Cx = 0.566, Cy = 0.420 acc. to CIE 1931 (● converted yellow)
- Corrosion Robustness Class: 3A
- Qualifications: AEC-Q102 Qualified
- ESD: 8 kV acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 3B)

Ordering Information

Type	Luminous Flux [1)] I_F = 1000 mA Φ_V	Ordering Code
KY CWLNM2.FY-Y4Y7-5F5G-2686	265 ... 325 lm	Q65115A1773

Maximum Ratings

Parameter	Symbol		Values
Operating Temperature [2)]	T_{op}	min. max.	-40 °C 135 °C
Storage Temperature	T_{stg}	min. max.	-40 °C 135 °C
Junction Temperature	T_j	max.	150 °C
Junction Temperature for short time applications*	T_j	max.	175 °C
Forward current T_S = 25 °C	I_F	min. max.	50 mA 1500 mA
Forward current pulsed D = 0.005 ; T_S = 25 °C	$I_{F\ pulse}$	max.	2500 mA
Surge current t ≤ 10 µs; D = 0.005 ; T_S = 25 °C	I_{FS}	max.	3000 mA
ESD withstand voltage acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 3B)	V_{ESD}		8 kV
Reverse current [3)]	I_R	max.	200 mA

* The median lifetime (L70/B50) for Tj = 175°C is 100h.

Characteristics

I_F = 1000 mA; T_S = 25 °C

Parameter	Symbol		Values
Chromaticity Coordinate [4]	Cx	typ.	0.566
	Cy	typ.	0.420
Viewing angle at 50% I_V	2φ	typ.	120 °
Forward Voltage [5] I_F = 1000 mA	V_F	min.	2.80 V
		typ.	3.10 V
		max.	3.40 V
Reverse voltage (ESD device)	$V_{R\ ESD}$	min.	45 V
Reverse voltage [3] I_R = 20 mA	V_R	max.	1.2 V
Real thermal resistance junction/solderpoint [6]	$R_{thJS\ real}$	typ.	6.5 K / W
		max.	7.8 K / W
Electrical thermal resistance junction/solderpoint [6] with efficiency η_e = 27 %	$R_{thJS\ elec.}$	typ.	4.7 K / W
		max.	5.7 K / W

The Rth of this LED is valid on an aluminium MC-PCB.

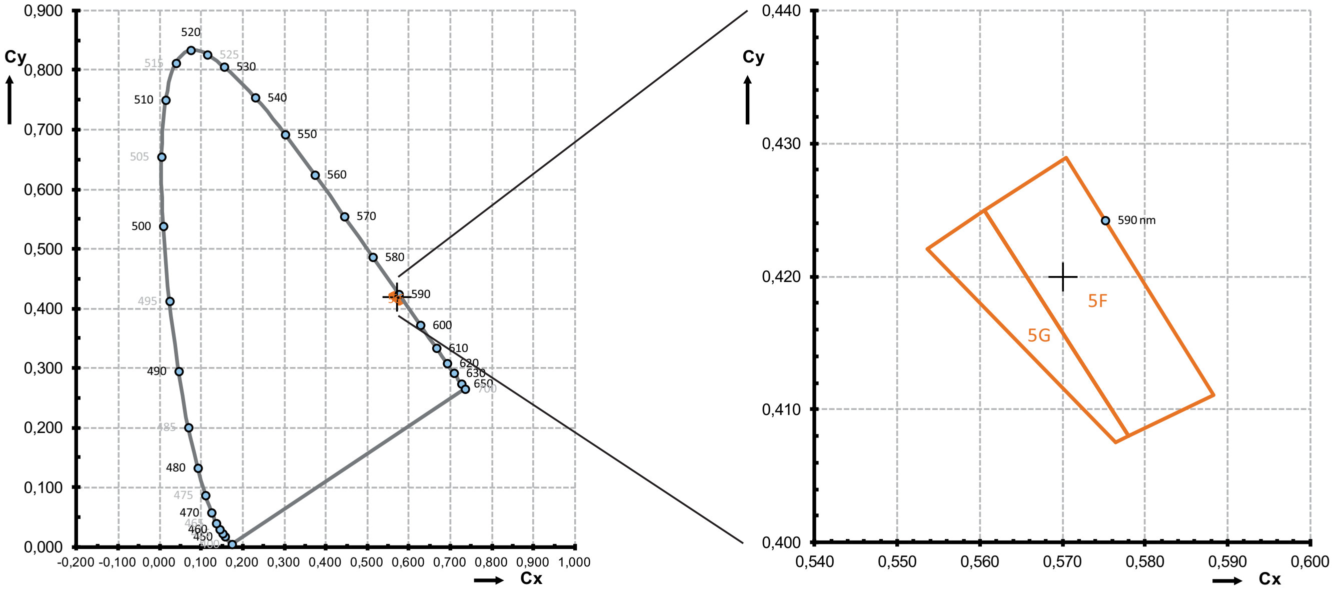
Brightness Groups

Group	Luminous Flux [1] I_F = 1000 mA min. Φ_V	Luminous Flux [1] I_F = 1000 mA max. Φ_V
Y4	265 lm	280 lm
4Y	270 lm	280 lm
Y5	280 lm	295 lm
Y6	295 lm	310 lm
Y7	310 lm	325 lm

Forward Voltage Groups

Group	Forward Voltage [5] I_F = 1000 mA min. V_F	Forward Voltage [5] I_F = 1000 mA max. V_F
26	2.80 V	3.10 V
86	3.10 V	3.40 V

Chromaticity Coordinate Groups



Chromaticity Coordinate Groups [4]

Group	Cx	Cy	Group	Cx	Cy
5F	0.5606	0.4250	5G	0.5536	0.4221
	0.5705	0.4289		0.5606	0.4250
	0.5883	0.4111		0.5780	0.4080
	0.5780	0.4080		0.5765	0.4075

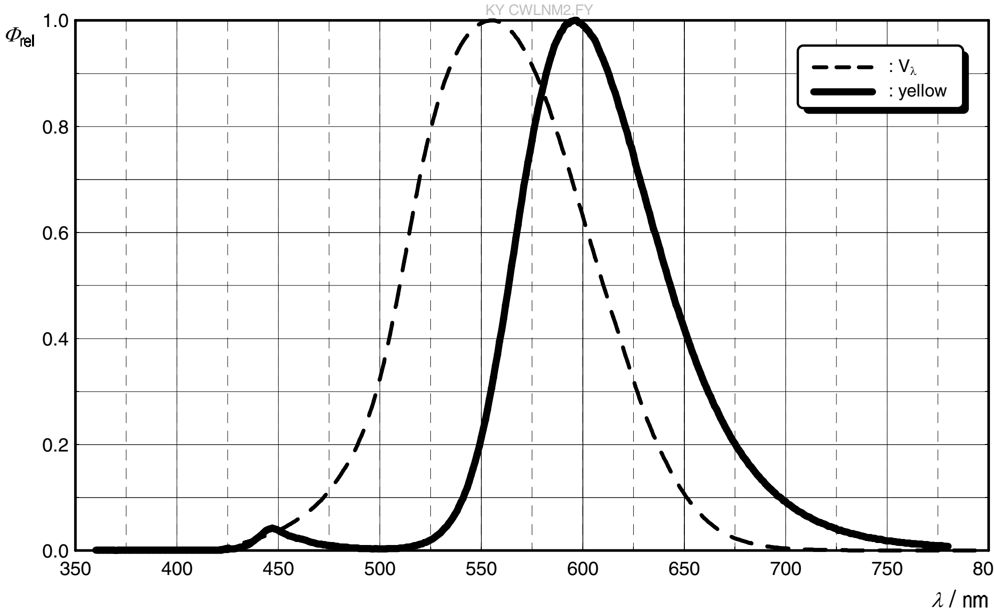
Group Name on Label

Example: 4Y-5F-26

Brightness	Color Chromaticity	Forward Voltage
4Y	5F	26

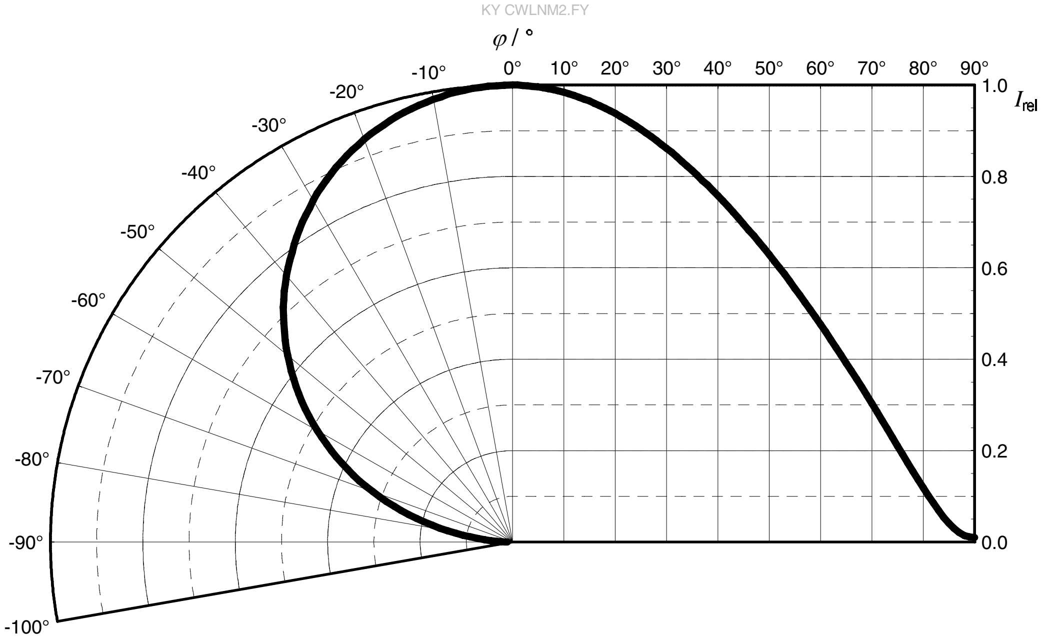
Relative Spectral Emission [7)]

$\Phi_{rel} = f(\lambda)$; $I_F = 1000$ mA; $T_J = 25$ °C



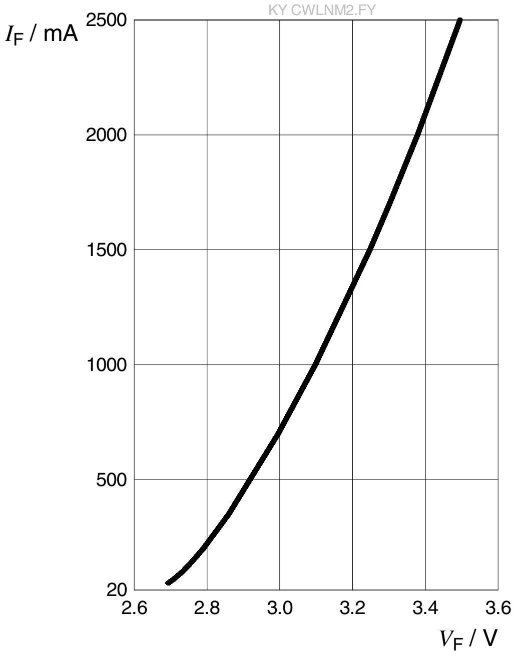
Radiation Characteristics [7)]

$I_{rel} = f(\varphi)$; $T_J = 25$ °C



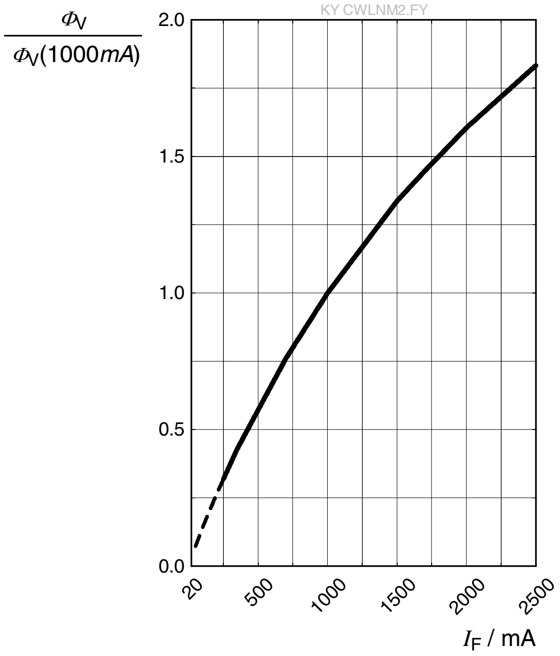
Forward current [7)]

$I_F = f(V_F)$; T_J = 25 °C



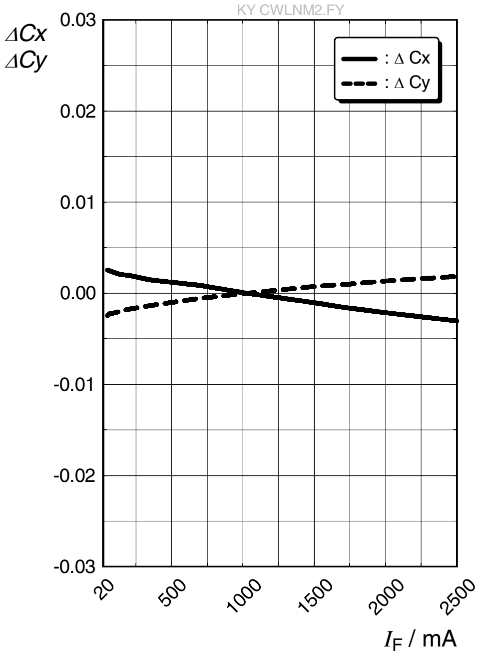
Relative Luminous Flux [7), 8)]

Φ_v/Φ_v(1000 mA) = $f(I_F)$; T_J = 25 °C



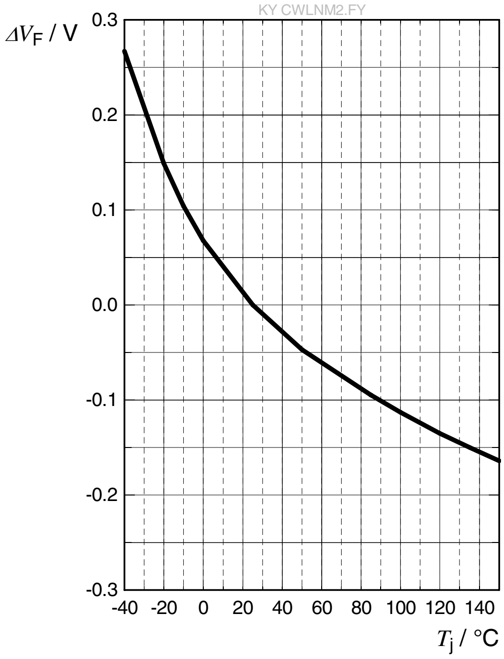
Chromaticity Coordinate Shift [7)]

ΔCx, ΔCy = $f(I_F)$; T_J = 25 °C



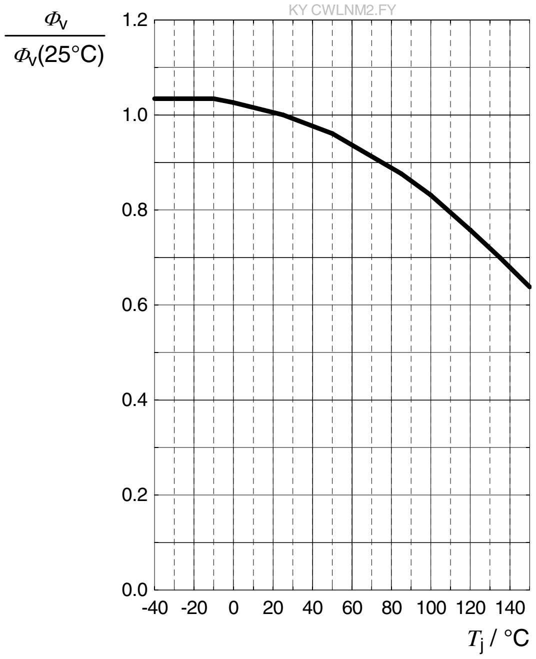
Forward Voltage [7)]

$\Delta V_F = V_F - V_F(25\ °C) = f(T_j)$; $I_F = 1000$ mA



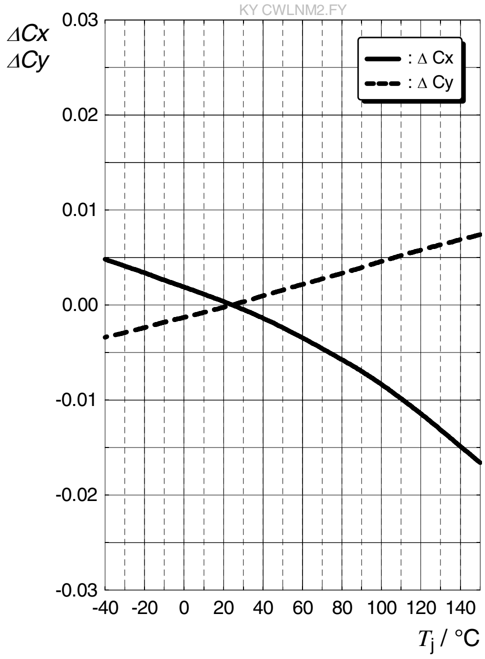
Relative Luminous Flux [7)]

$\Phi_v/\Phi_v(25\ °C) = f(T_j)$; $I_F = 1000$ mA



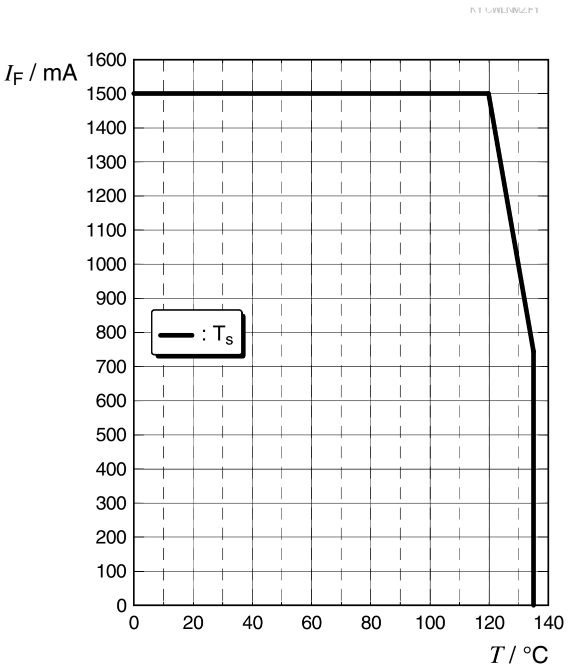
Chromaticity Coordinate Shift [7)]

$\Delta Cx, \Delta Cy = f(T_j)$; $I_F = 1000$ mA



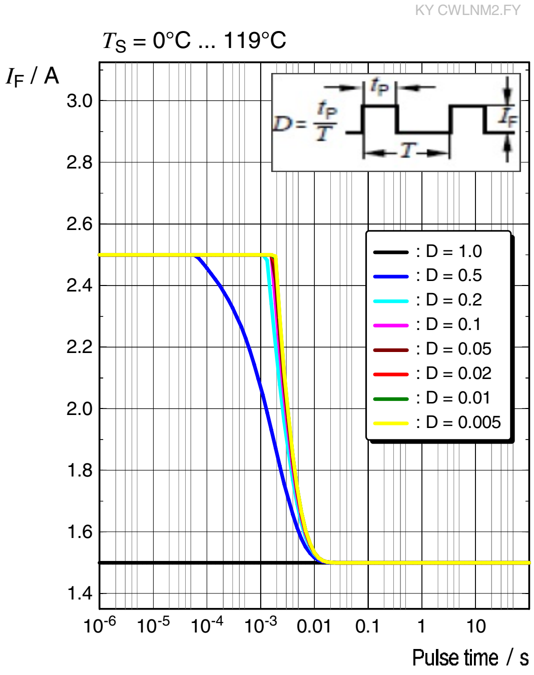
Max. Permissible Forward Current 6)

$I_F = f(T)$



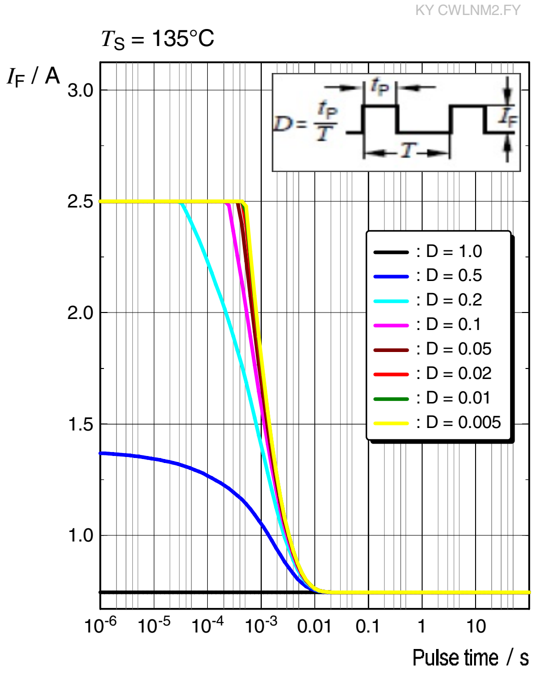
Permissible Pulse Handling Capability

$I_F = f(t_p)$; D: Duty cycle



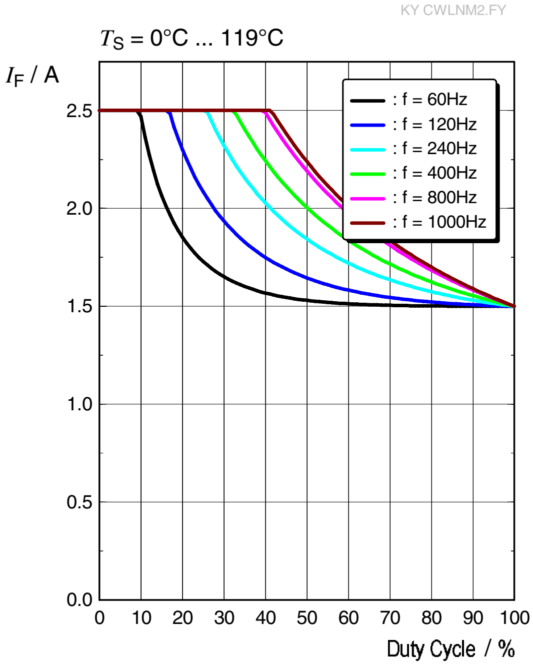
Permissible Pulse Handling Capability

$I_F = f(t_p)$; D: Duty cycle



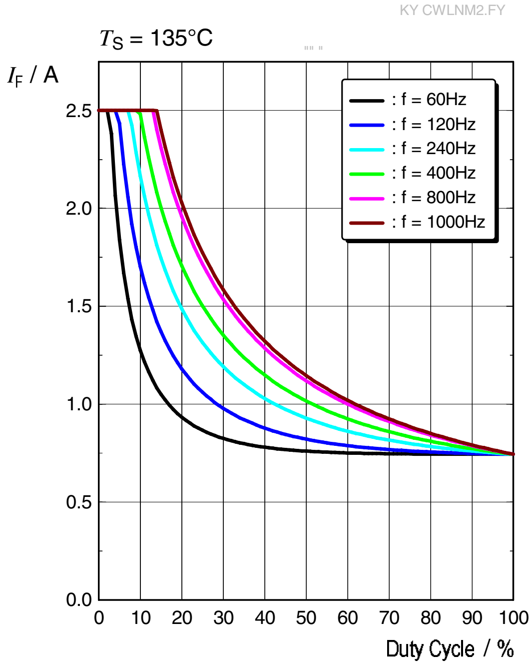
Permissible F. Handling Capability

f: Frequency

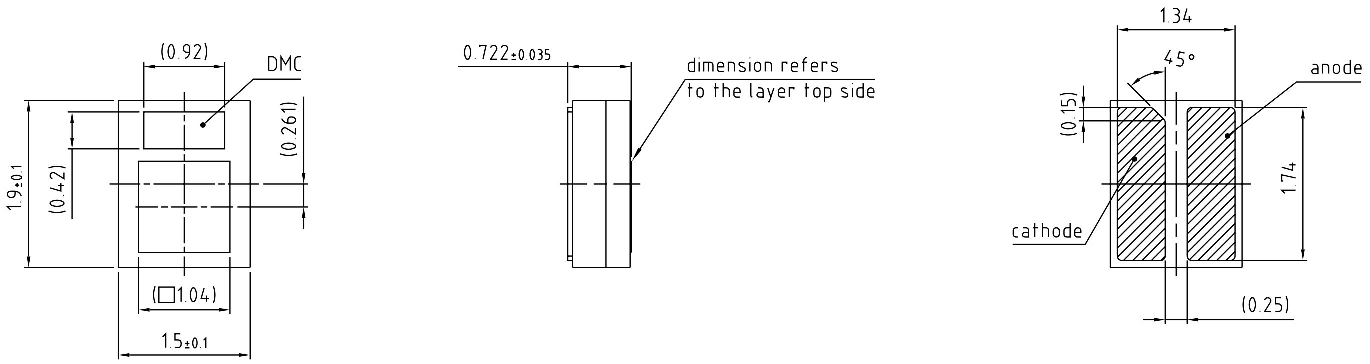


Permissible F. Handling Capability

f: Frequency



Dimensional Drawing [9]



general tolerance ± 0.05

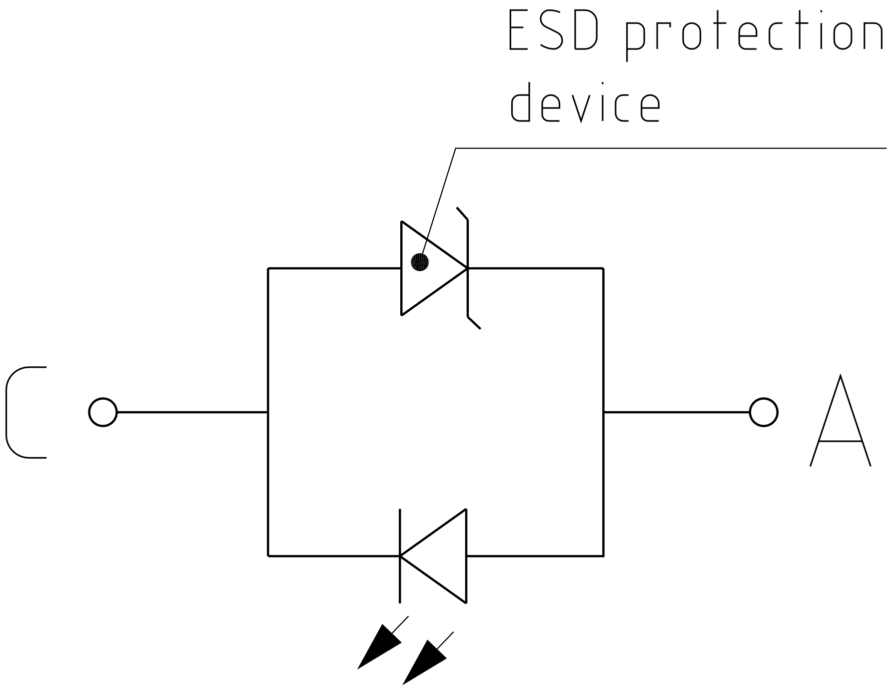
lead finish Au ▨

C63062-A4398-A3-01

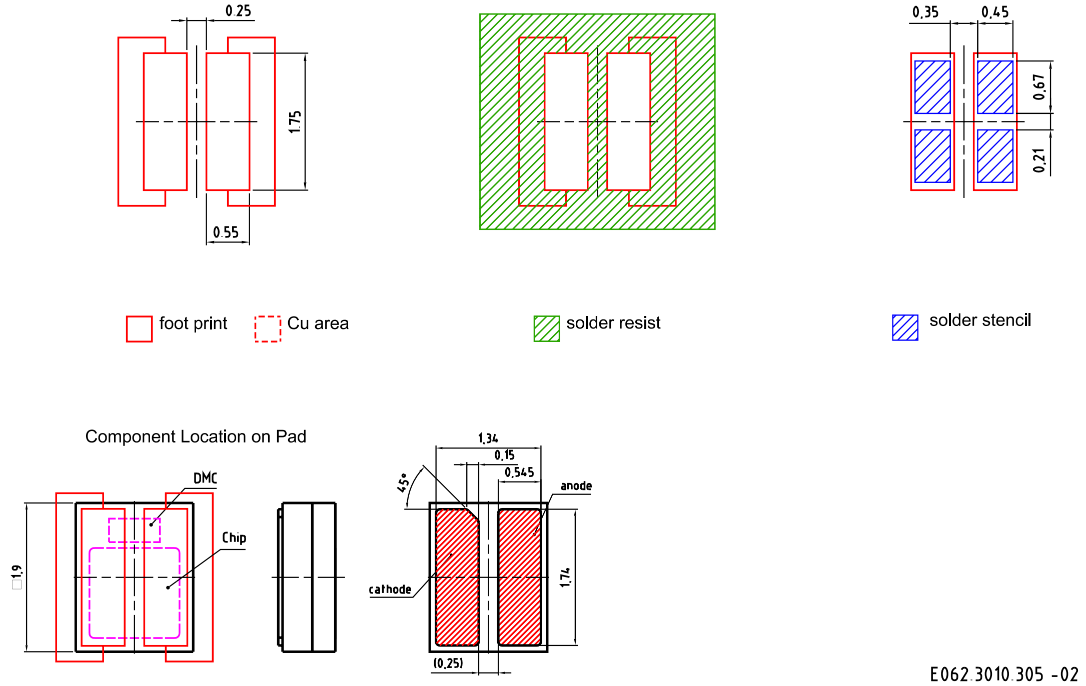
Further Information:

Approximate Weight:	7.8 mg
Corrosion test:	Class: 3A Test condition: 40°C / 90 % RH / 15 ppm H_2S / 14 days (stricter than IEC 60068-2-43)
ESD advice:	The device is protected by ESD device which is connected in parallel to the Chip.

Electrical Internal Circuit



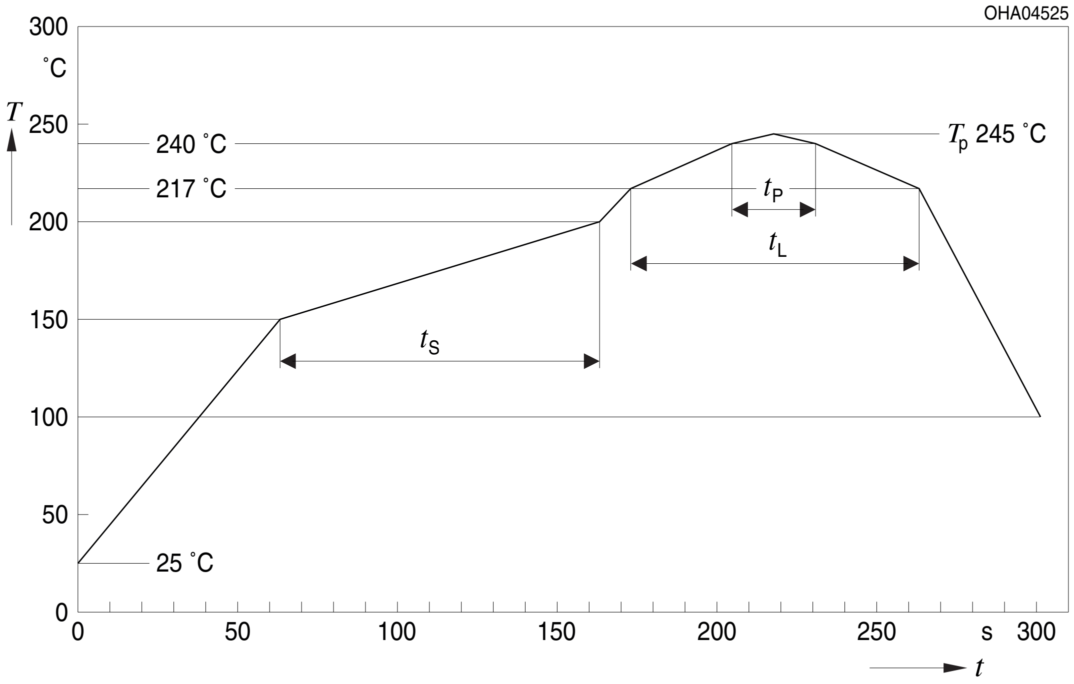
Recommended Solder Pad [9)]



For superior solder joint connectivity results we recommend soldering under standard nitrogen atmosphere. Package not suitable for ultra sonic cleaning. To ensure a high solder joint reliability and to minimize the risk of solder joint cracks, the customer is responsible to evaluate the combination of PCB board and solder paste material for his application.

Reflow Soldering Profile

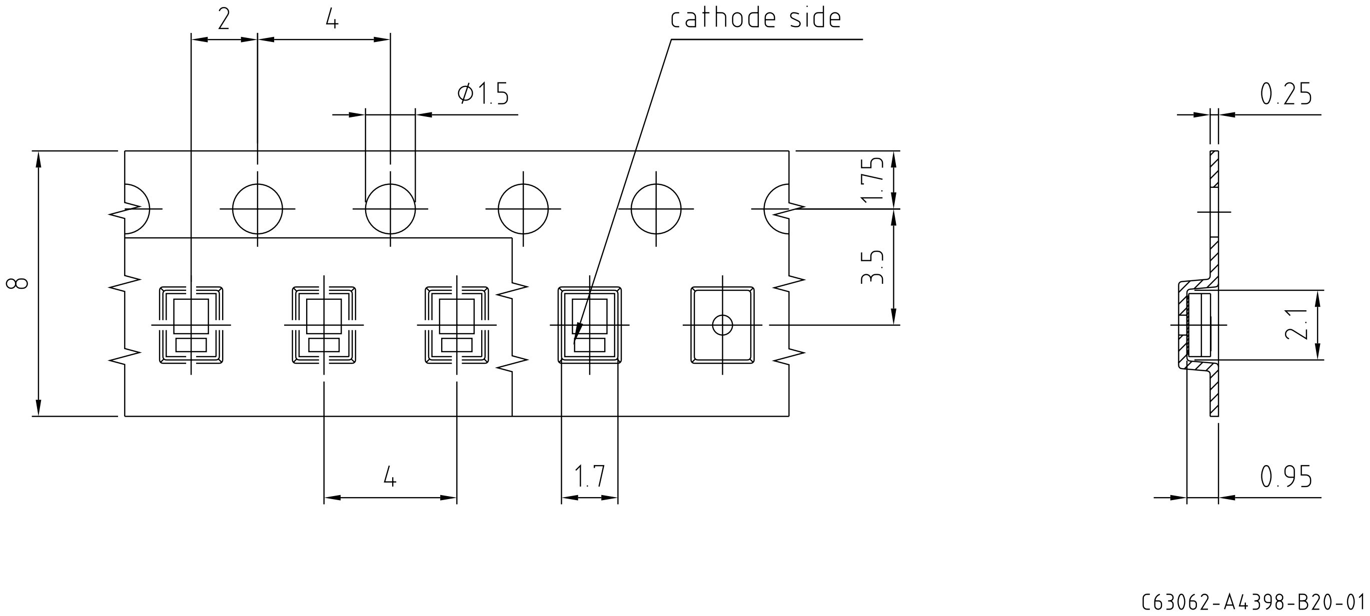
Product complies to MSL Level 2 acc. to JEDEC J-STD-020E



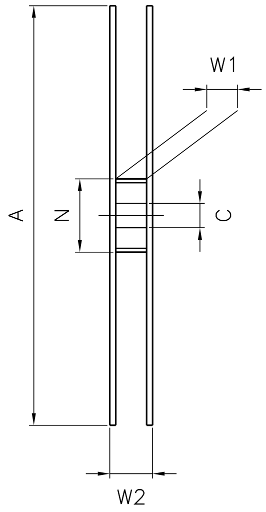
Profile Feature	Symbol	Pb-Free (SnAgCu) Assembly			Unit
		Minimum	Recommendation	Maximum	
Ramp-up rate to preheat*) 25 °C to 150 °C			2	3	K/s
Time t_S T_{Smin} to T_{Smax}	t_S	60	100	120	s
Ramp-up rate to peak*) T_{Smax} to T_P			2	3	K/s
Liquidus temperature	T_L		217		°C
Time above liquidus temperature	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

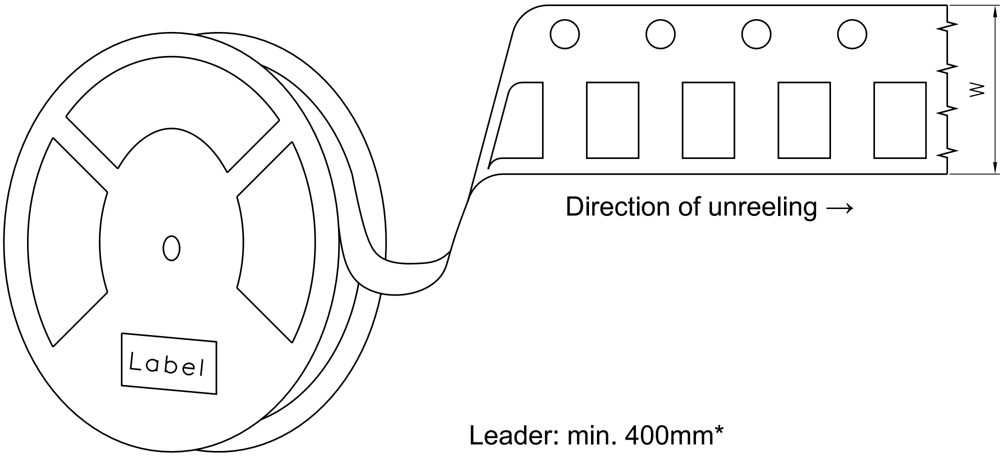
All temperatures refer to the center of the package, measured on the top of the component
* slope calculation DT/Dt: Dt max. 5 s; fulfillment for the whole T-range

Taping [9]



Tape and Reel [10)]



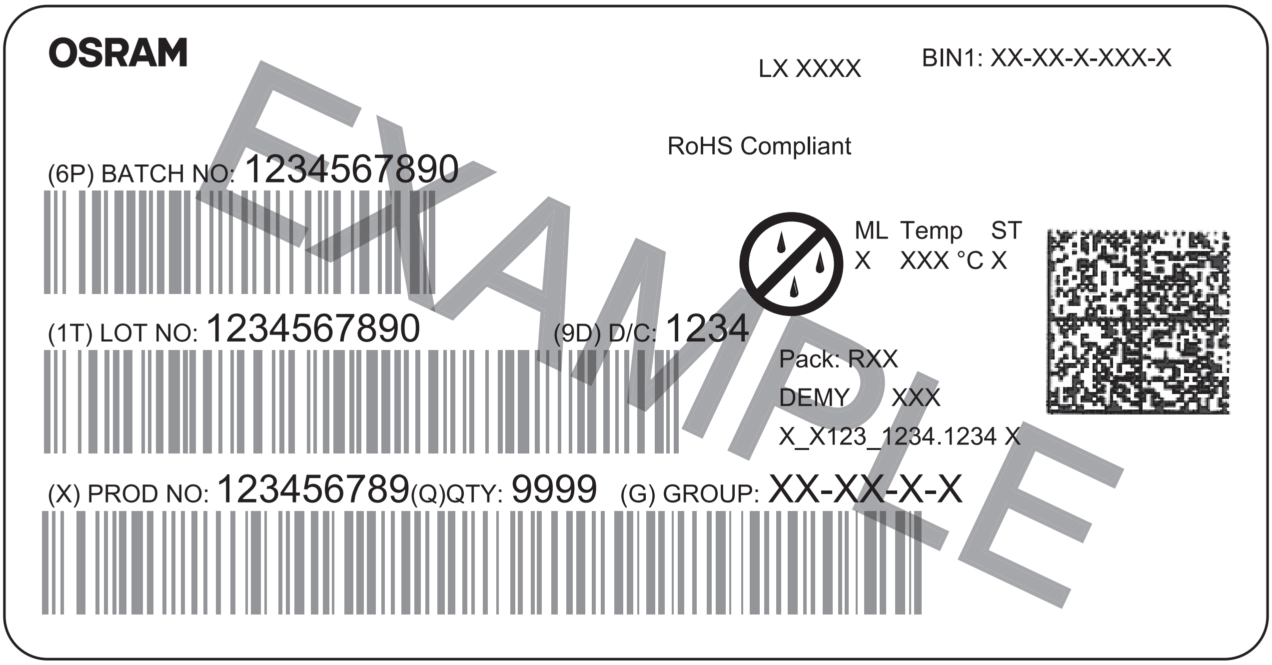


Leader: min. 400mm*
Trailer: min. 160mm*
*)Dimensions acc. to IEC 60286-3; EIA 481-E

Reel Dimensions

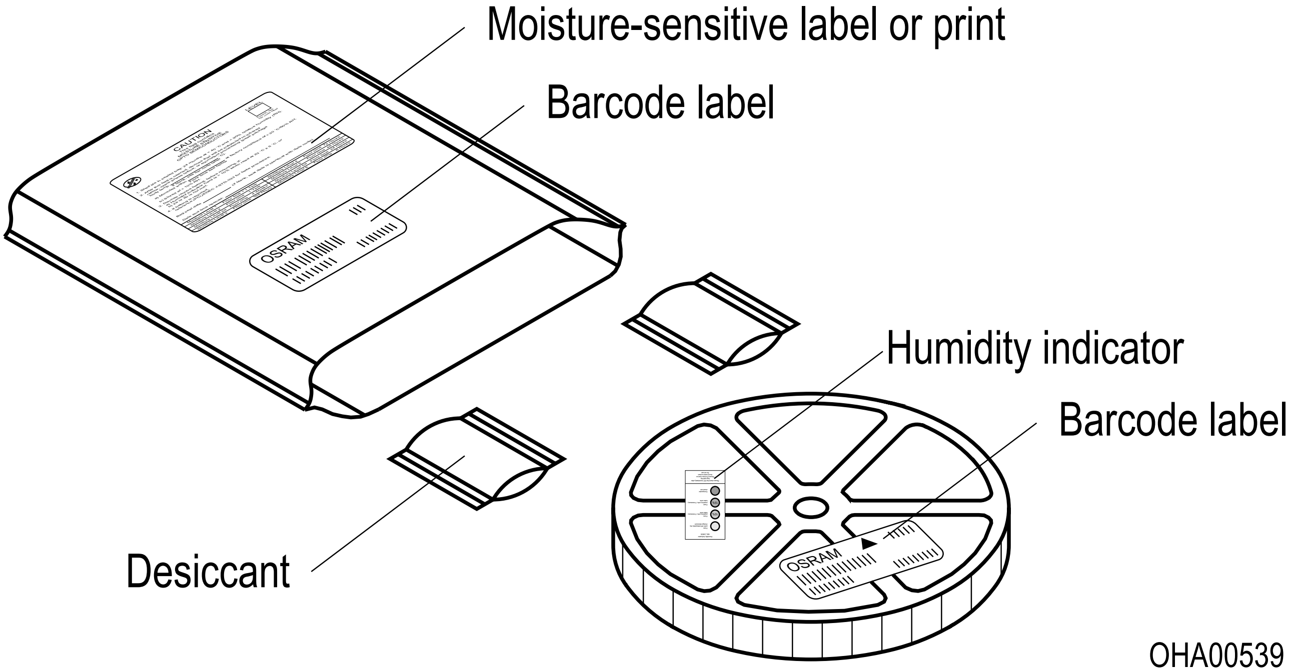
A	W	N_{min}	W_1	$W_{2\ max}$	Pieces per PU
180 mm	8 + 0.3 / - 0.1 mm	60 mm	8.4 + 2 mm	14.4 mm	4000

Barcode-Product-Label (BPL)



OSRAM
LX XXXX
BIN1: XX-XX-X-XXX-X
RoHS Compliant
(6P) BATCH NO: 1234567890
ML Temp ST
X XXX °C X
(1T) LOT NO: 1234567890
(9D) D/C: 1234
Pack: RXX
DEMY XXX
X_X123_1234.1234 X
(X) PROD NO: 123456789(Q)QTY: 9999 (G) GROUP: XX-XX-X-X

Dry Packing Process and Materials [9)]



Moisture-sensitive product is packed in a dry bag containing desiccant and a humidity card according JEDEC-STD-033.

Notes

The evaluation of eye safety occurs according to the standard IEC 62471:2006 (photo biological safety of lamps and lamp systems). Within the risk grouping system of this IEC standard, the device specified in this data sheet fall into the class **exempt group (exposure time 10000 s)**. Under real circumstances (for exposure time, conditions of the 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. When looking at 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 device contain, in addition to other substances, metal filled materials. Metal filled materials can be affected by environments that contain traces of aggressive substances. Therefore, we recommend that customers avoid device exposure to aggressive substances during storage, production, and use.

For further application related information please visit https://ams-osram.com/support/application-notes

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 on our website.

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.

Product and functional safety devices/applications or medical devices/applications

Our components are not developed, constructed or tested for the application as safety relevant component or for the application in medical devices.
Our products are not qualified at module and system level for such application.

In case buyer – or customer supplied by buyer – considers using our components in product safety devices/applications or medical devices/applications, buyer and/or customer has to inform our local sales partner immediately and we and buyer and /or customer will analyze and coordinate the customer-specific request between us and buyer and/or customer.

Glossary

[1] **Brightness:** Brightness values are measured during a current pulse of typically 1 ms, with an internal reproducibility of ±8 % and an expanded uncertainty of ±11 % (acc. to GUM with a coverage factor of k = 3).

[2] **Operating Temperature:** The Operating Temperatur Top is referenced to the Solderpoint Ts of this device. Proper current derating must be observed to maintain junction temperature below the maximum.

[3] **Reverse Operation:** This product is intended to be operated applying a forward current within the specified range. Applying any continuous reverse bias or forward bias below the voltage range of light emission shall be avoided because it may cause migration which can change the electro-optical characteristics or damage the LED.

[4] **Chromaticity coordinate groups:** Chromaticity coordinates are measured during a current pulse of typically 1 ms, with an internal reproducibility of ±0.001 and an expanded uncertainty of ±0.004 (acc. to GUM with a coverage factor of k = 3).

[5] **Forward Voltage:** The forward voltage is measured during a current pulse of typically 1 ms, with an internal reproducibility of ±0.05 V and an expanded uncertainty of ±0.1 V (acc. to GUM with a coverage factor of k = 3).

[6] **Thermal Resistance:** Rth max is based on statistic values (6σ) used for Derating.

[7] **Typical Values:** Due to the special conditions of the manufacturing processes of semiconductor devices, 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.

[8] **Characteristic curve:** In the range where the line of the graph is broken, you must expect higher differences between single devices within one packing unit.

[9] **Tolerance of Measure:** Unless otherwise noted in drawing, tolerances are specified with ±0.1 and dimensions are specified in mm.

[10] **Tape and Reel:** All dimensions and tolerances are specified acc. IEC 60286-3 and specified in mm.

Revision History

Version	Date	Change
1.0	2025-01-08	Initial Version
1.1	2025-07-14	Characteristics Electro - Optical Characteristics (Diagrams) Ordering Information Brightness Groups

EU RoHS and China RoHS compliant product
此产品符合欧盟 RoHS 指令的要求；
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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