GB PSLM31.13



DURIS® S 5

The compact, mid-power Duris® S 5 LED with industry standard 3030 package that comes with high efficacy, color quality and long lifetime. Ideal choice for indoor General Lighting applications.

Applications

- Architecture
- Architecture / Garden Lighting (LED & Laser)
- Medical Illumination
- Mood Lighting
- Photo Therapy

Features:

- Package: white SMT package, colorless clear resin
- Typ. Radiation: 120° (Lambertian emitter)
- Lumen maintenance: Test results according to IESNA LM-80 available
- ESD: 2 kV acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 2)
- Luminous Flux: typ. 9 lm
- Luminous efficacy: typ. 32 lm/W

Ordering Information

Type	Luminous Flux [1] I_F = 100 mA Φ_V	Ordering Code
GB PSLM31.13-DUES-23-1	6.6 ... 9.7 lm	Q65112A6863
GB PSLM31.13-EPET-23-1	7.1 ... 10.4 lm	Q65113A1497
GB PSLM31.13-ESFQ-45-1	8.9 ... 13.0 lm	Q65112A6862
GB PSLM31.13-ETFR-56-1	9.7 ... 14.0 lm	Q65112A6861

Maximum Ratings

Parameter	Symbol		Values
Operating Temperature	T_{op}	min. max.	-40 °C 100 °C
Storage Temperature	T_{stg}	min. max.	-40 °C 100 °C
Junction Temperature	T_j	max.	125 °C
Forward current	I_F	min. max.	10 mA 200 mA
Surge Current t ≤ 10 µs; D = 0.005 ; T_J = 25 °C	I_{FS}	max.	300 mA
ESD withstand voltage acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 2)	V_{ESD}		2 kV

Characteristics

I_F = 100 mA; T_J = 25 °C

Parameter	Symbol		Values
Dominant Wavelength [2)] I_F = 100 mA	λ_{dom}	min. typ. max.	459 nm 470 nm 480 nm
Viewing angle at 50% I_V	2φ	typ.	120 °
Forward Voltage [3)] I_F = 100 mA	V_F	min. typ. max.	2.60 V 2.85 V 3.20 V
Electrical thermal resistance junction/solderpoint with efficiency η_e = 43.2 %	$R_{thJS\ elec.}$	typ.	11 K / W

Brightness Groups

Group	Luminous Flux [1] I_F = 100 mA min. Φ_V	Luminous Flux [1] I_F = 100 mA max. Φ_V
DU	6.6 lm	7.1 lm
EP	7.1 lm	7.6 lm
EQ	7.6 lm	8.2 lm
ER	8.2 lm	8.9 lm
ES	8.9 lm	9.7 lm
ET	9.7 lm	10.4 lm
EU	10.4 lm	11.2 lm
FP	11.2 lm	12.1 lm
FQ	12.1 lm	13.0 lm
FR	13.0 lm	14.0 lm

Forward Voltage Groups

Group	Forward Voltage [3] I_F = 100 mA min. V_F	Forward Voltage [3] I_F = 100 mA max. V_F
K	2.60 V	2.80 V
L	2.80 V	3.00 V
M	3.00 V	3.20 V

Wavelength Groups

Group	Dominant Wavelength [2] I_F = 100 mA min. λ_{dom}	Dominant Wavelength [2] I_F = 100 mA max. λ_{dom}
2	459 nm	464 nm
3	464 nm	468 nm
4	468 nm	472 nm
5	472 nm	476 nm
6	476 nm	480 nm

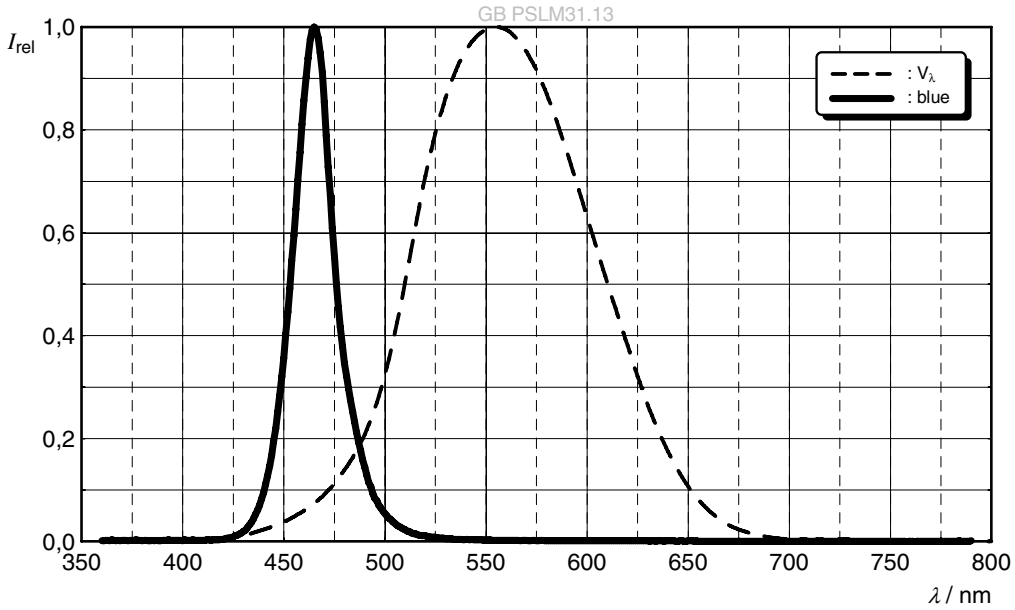
Group Name on Label

Example: DU-2-K

Brightness	Wavelength	Forward Voltage
DU	2	K

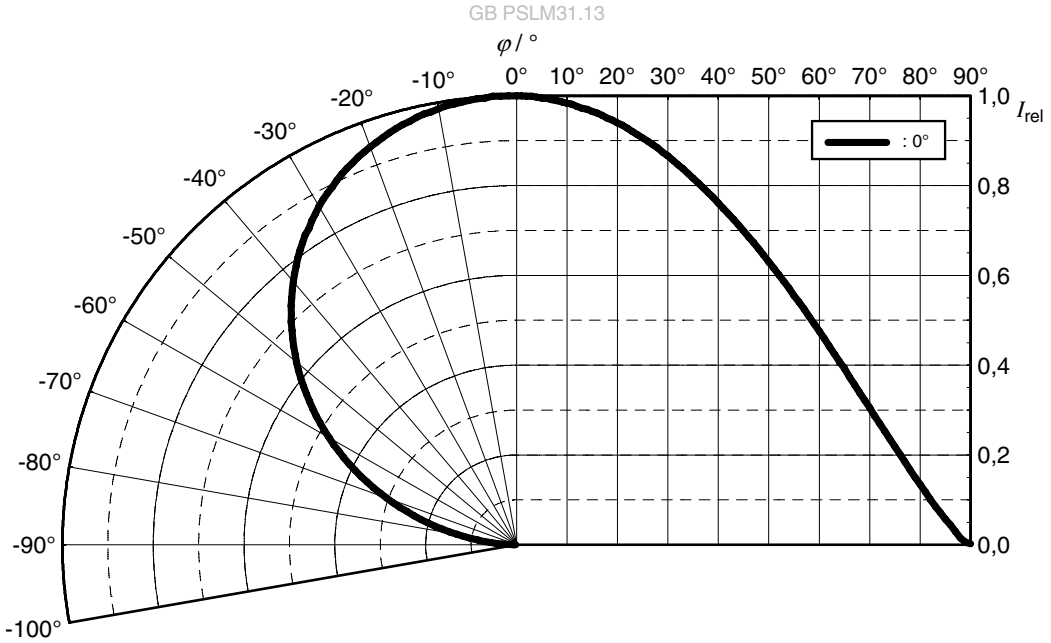
Relative Spectral Emission [4)]

$I_{rel} = f(\lambda)$; $I_F = 100$ mA; $T_J = 25$ °C



Radiation Characteristics [4)]

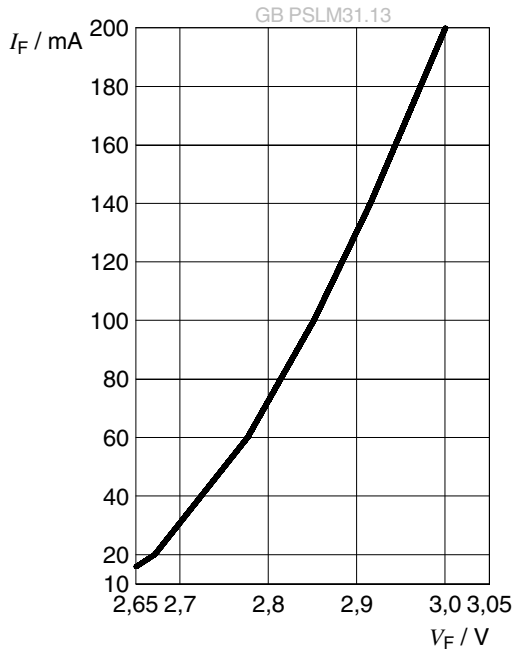
$I_{rel} = f(\phi)$; $T_J = 25$ °C



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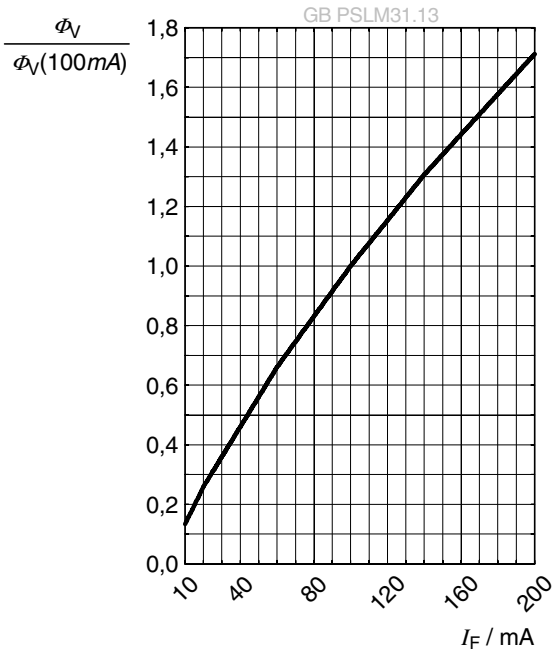
Forward current [4), 5)]

$I_F = f(V_F)$; T_J = 25 °C



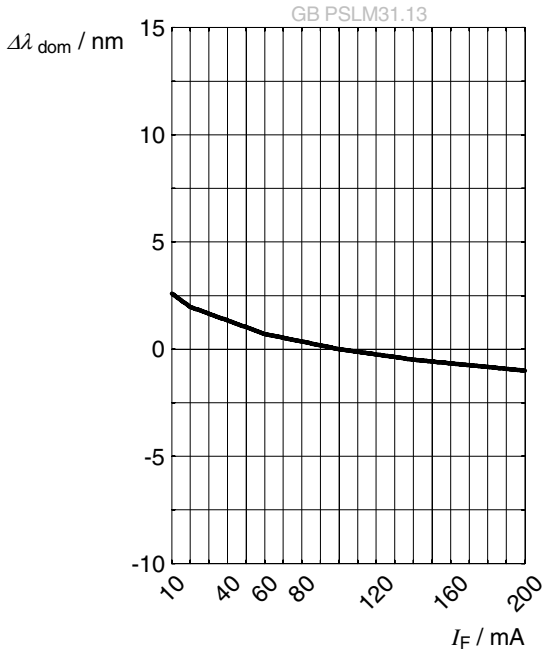
Relative Luminous Flux [4), 5)]

$\Phi_v/\Phi_v(100\ mA) = f(I_F)$; T_J = 25 °C



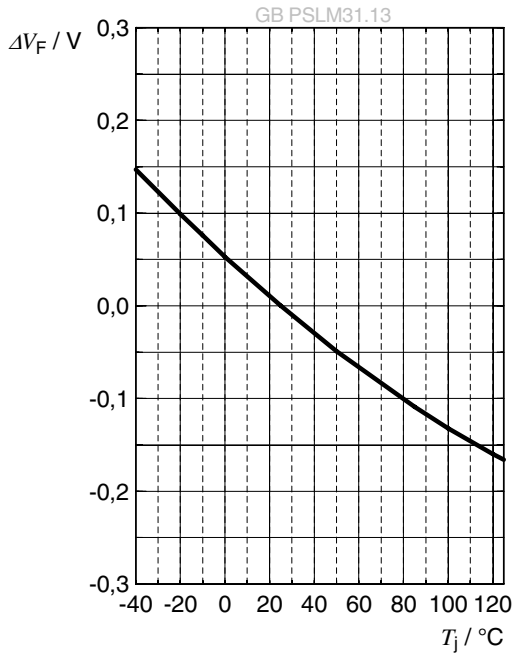
Dominant Wavelength [4)]

$\Delta\lambda_{dom} = f(I_F)$; T_J = 25 °C



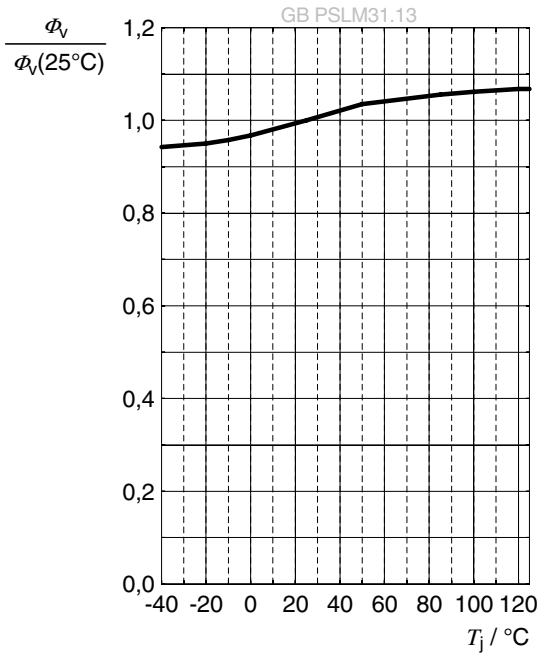
Forward Voltage [4)]

$\Delta V_F = V_F - V_F(25\ °C) = f(T_j);\ I_F = 100\ mA$



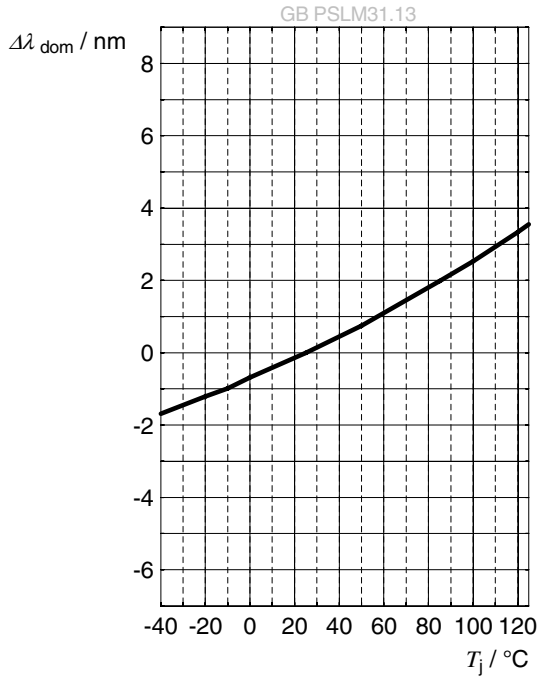
Relative Luminous Flux [4)]

$\Phi_v/\Phi_v(25\ °C) = f(T_j);\ I_F = 100\ mA$



Dominant Wavelength [4)]

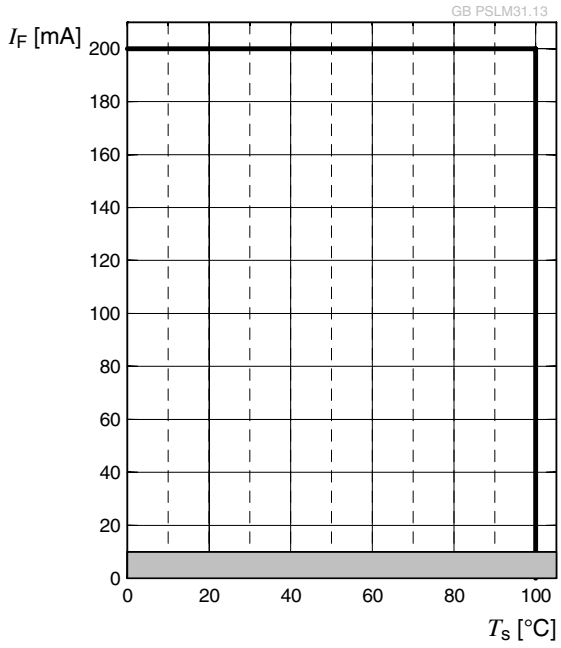
$\Delta\lambda_{dom} = \lambda_{dom} - \lambda_{dom}(25\ °C) = f(T_j);\ I_F = 100\ mA$



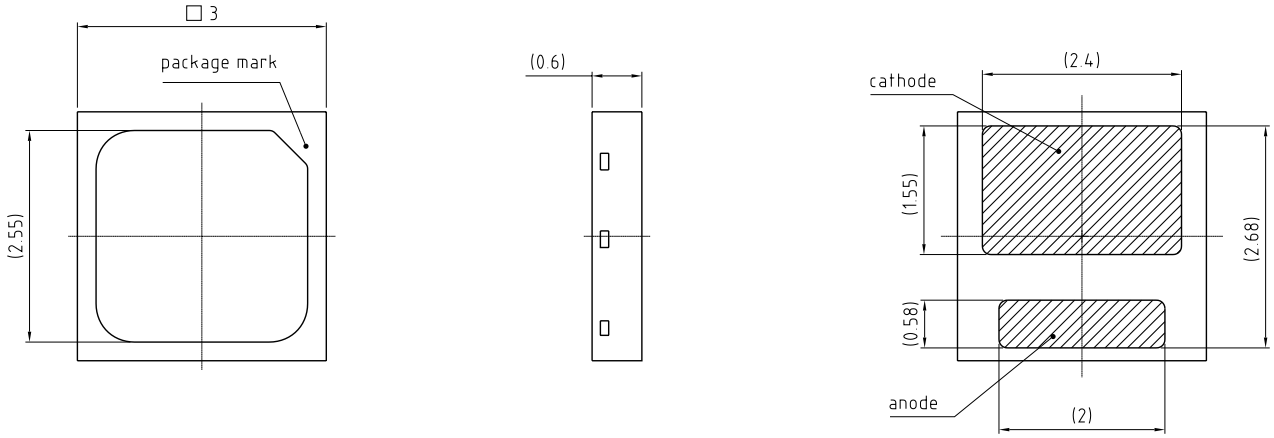
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Max. Permissible Forward Current

$I_F = f(T)$



Dimensional Drawing [6)]



general tolerance ±0.1

lead finish Ag

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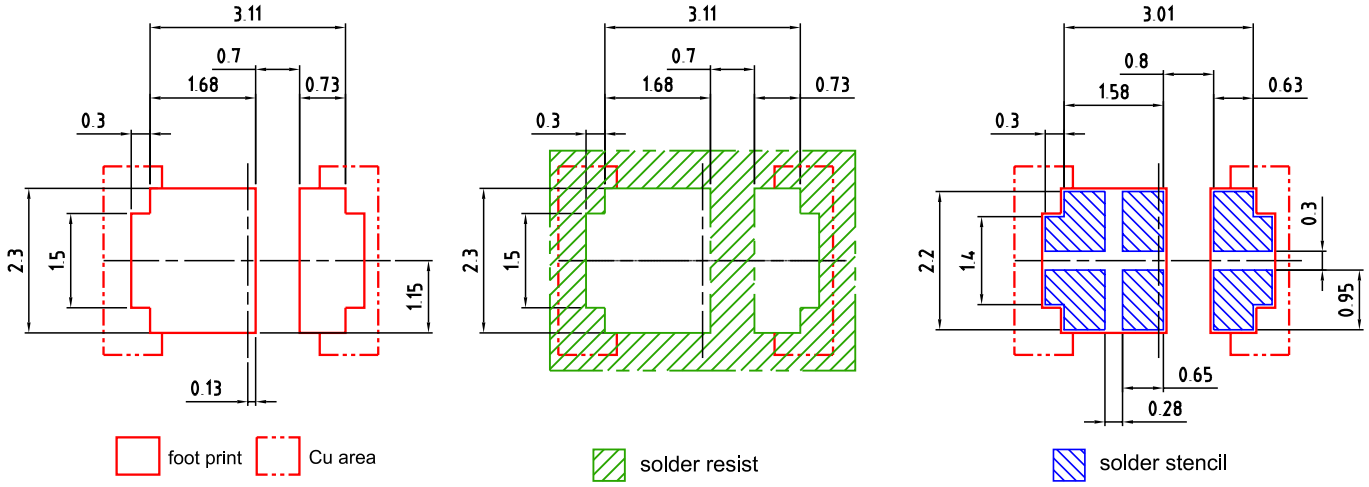
Further Information:

Approximate Weight: 17.7 mg

Package marking: Cathode

ESD advice: The device is protected by ESD device which is connected in parallel to the Chip.

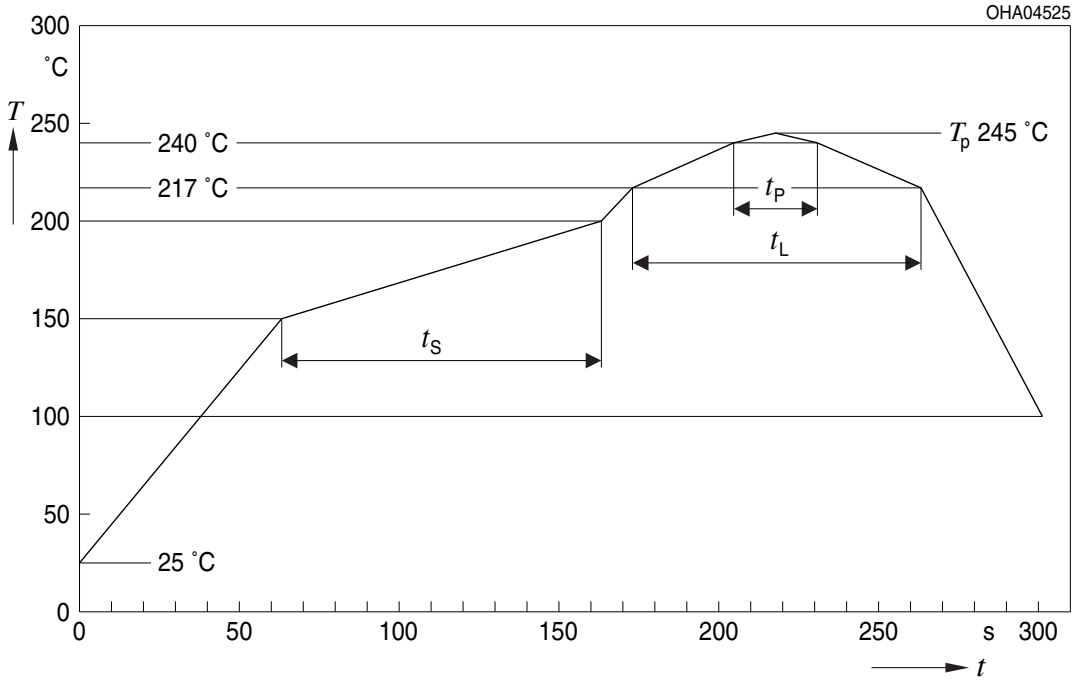
Recommended Solder Pad [6)]



For superior solder joint connectivity results we recommend soldering under standard nitrogen atmosphere. Package not suitable for ultra sonic cleaning.

Reflow Soldering Profile

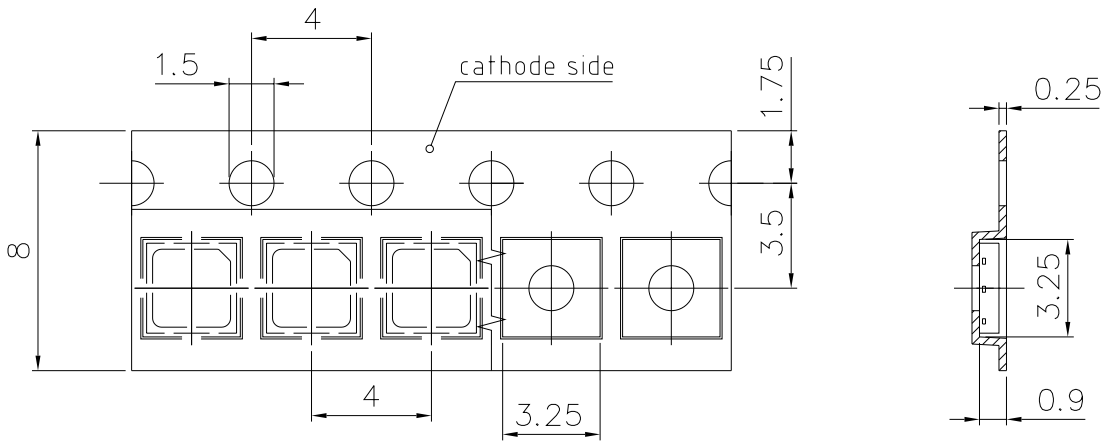
Product complies to MSL Level 3 acc. to JEDEC J-STD-020E



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

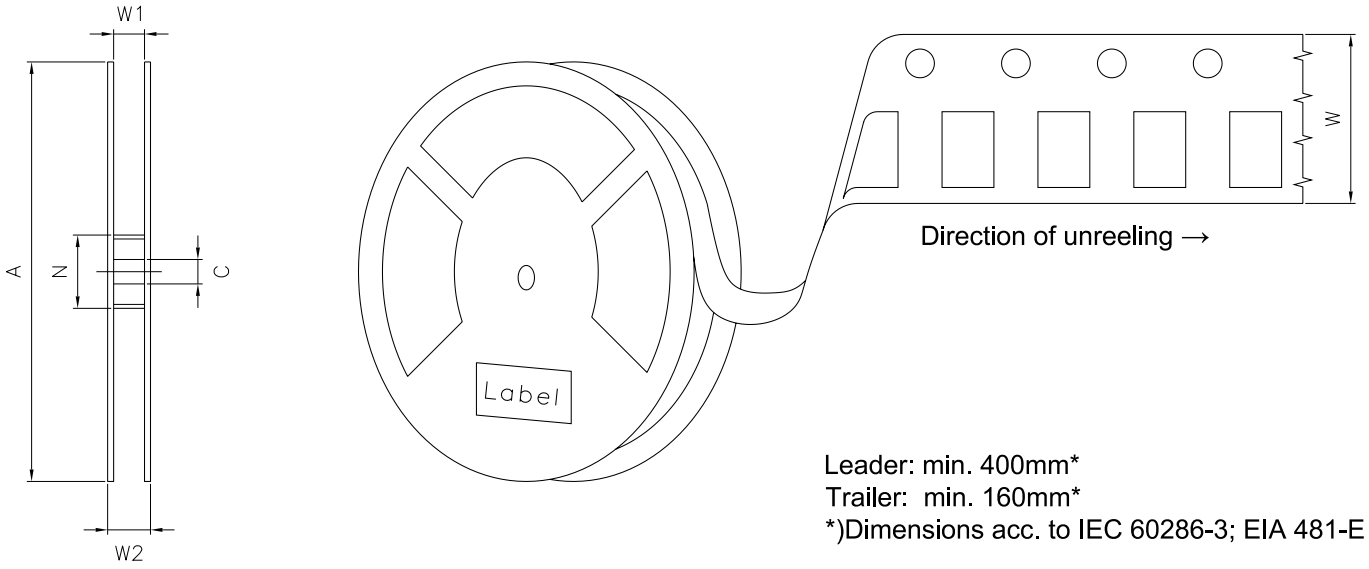
Taping [6)]



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Tape and Reel [7)]

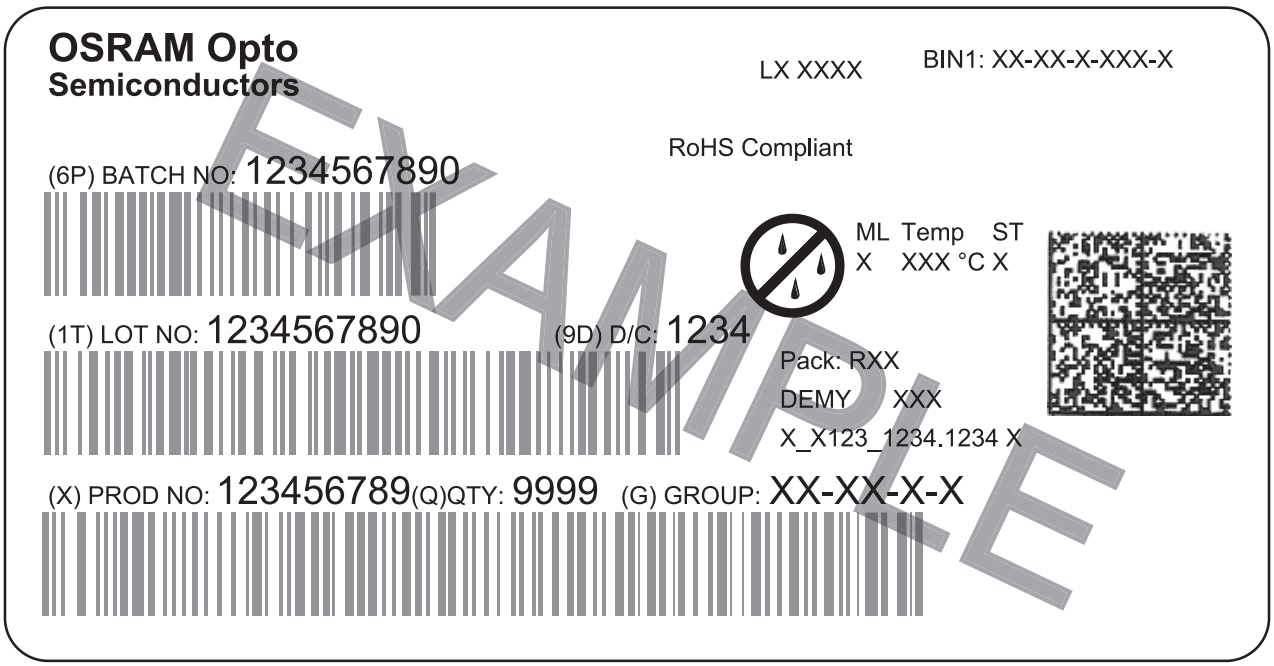


Leader: min. 400mm*
Trailer: min. 160mm*
*)Dimensions acc. to IEC 60286-3; EIA 481-E

Reel Dimensions

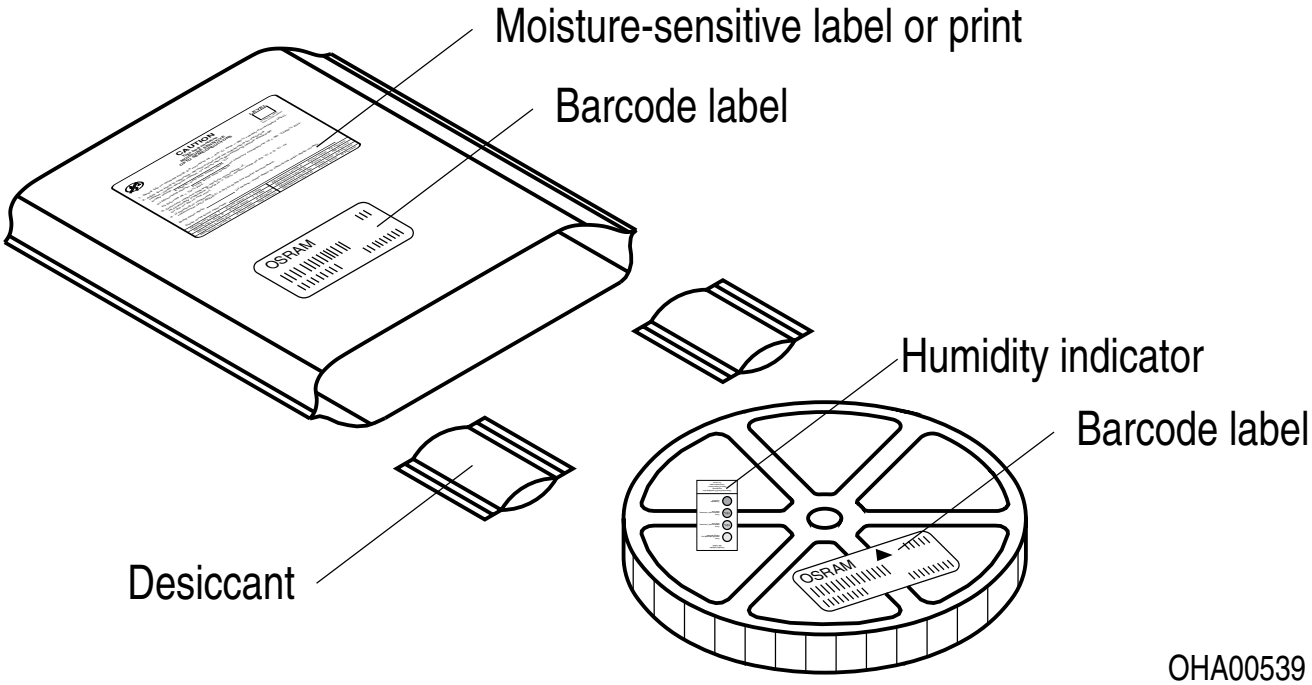
A	W	N_{min}	W_1	$W_{2\,max}$	Pieces per PU
180 mm	8 + 0.3 / - 0.1 mm	60 mm	8.4 + 2 mm	14.4 mm	4500

Barcode-Product-Label (BPL)



OHA04563

Dry Packing Process and Materials [6)]



OHA00539

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 falls into the class **moderate risk (exposure time 0.25 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 including silver. Metal filled materials can be affected by environments that contain traces of aggressive substances. Therefore, we recommend that customers minimize device exposure to aggressive substances during storage, production, and use. Devices that showed visible discoloration when tested using the described tests above did show no performance deviations within failure limits during the stated test duration. Respective failure limits are described in the IEC60810.

This device is designed for specific/recommended applications only. Please consult OSRAM Opto Semiconductors Sales Staff in advance for detailed information on other non-recommended applications (e.g. automotive).

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

For further application related information please visit www.osram-os.com/appnotes

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 the OSRAM OS 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.

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Glossary

1) **Brightness:** Brightness values are measured during a current pulse of typically 10 ms, with a tolerance of +/- 7%.

2) **Wavelength:** The wavelength is measured at a current pulse of typically 10 ms, with a tolerance of ± 0.5 nm.

3) **Forward Voltage:** The Forward voltage is measured during a current pulse duration of typically 1 ms with a tolerance of ± 0.05V .

4) **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.

5) **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.

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

7) **Tape and Reel:** All dimensions and tolerances are specified acc. IEC 60286-3 and specified in mm.

Revision History

Version	Date	Change
1.2	2019-12-17	New Layout Electro - Optical Characteristics (Diagrams) Recommended Solder Pad Schematic Transportation Box Dimensions of Transportation Box
1.3	2020-07-08	Applications Ordering Information Brightness Groups Description
1.4	2020-10-20	Further Information Taping Reel Dimensions
1.5	2020-11-23	Applications

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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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SFH309 EASYFIT-EWSDB KW DDLM32.EH-HSJQ-A636-K1M2 OT-WI-40/220-240/1A0-NFC-BL-LPI 4058075559318 OT-WI-35/220-240/400-D-NFC-BL-L SFH 3710 TF600S-G1-865-05 LW T673-P1S1-FKPL-0-10-R18-Z HNS-L-55W-2G11 KB DDLM32.13-DUFR-7A-K1M2 TFP2000S-G1-927-04 GA CSHPM1.23-KSKU-W3 OTE 13/220-240/350 PC SFH 4546 SFH-4243B BA-LIN-Z3-1550-840-560X20-HV DALIECO-BT-RTC-CONTROL GR CS8PM1.23-KPKR-1 LF-LTS COVER SHORTPITCH OT-FIT-30/220-240/800-CS-T-W OTDX165/220-240/1A0DIMALT2E BA-LIN-Z3-770-840-280X20-HV BF400S-G3-827-05 OT-WI-15/220-240/1A0-NFC-BL-LPI OTE 10/220-240/700 PC PL-CP-Z3--2500-740 TFP2000S-G1-940-04 LW TVSG.CB-BXCX-JKPL-Z486 TF600S-G1-827-05