

GW PSLM31.DM

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 / Garden Lighting (LED & Laser)
- Mood Lighting

Features:

- Package: white SMT package, colored diffused resin
- Typ. Radiation: 120° (Lambertian emitter)
- Color temperature: 3540K - 5000K
- ESD: 5 kV acc. to ANSI/ESDA/JEDEC JS-001 (HBM)
- Luminous Flux: typ. 22 lm @ 5000 K
- Luminous efficacy: typ. 119 lm/W @ 5000 K

Ordering Information

Type	Color temperature	Luminous Flux ¹⁾ $I_F = 65 \text{ mA}$ Φ_V	Ordering Code
GW PSLM31.DM-GPGR-MT35-1	3540 K	18 ... 22 lm	Q65112A6164
GW PSLM31.DM-GQGS-MT50-1	5000 K	19 ... 24 lm	Q65112A6175

Maximum Ratings

Parameter	Symbol		Values
Operating Temperature	T_{op}	min.	-40 °C
		max.	100 °C
Storage Temperature	T_{stg}	min.	-40 °C
		max.	100 °C
Junction Temperature	T_j	max.	120 °C
Forward current	I_F	min.	10 mA
		max.	180 mA
Surge Current $t \leq 10 \mu s$; $D = 0.005$; $T_j = 25 \text{ °C}$	I_{FS}	max.	240 mA
ESD withstand voltage acc. to ANSI/ESDA/JEDEC JS-001 (HBM)	V_{ESD}		5 kV

Characteristics

$I_F = 65 \text{ mA}$; $T_J = 25 \text{ °C}$

Parameter	Symbol		Values
Viewing angle at 50% I_V	2ϕ	typ.	120 °
Forward Voltage ²⁾ $I_F = 65 \text{ mA}$	V_F	min. typ. max.	2.70 V 2.85 V 3.30 V
Electrical thermal resistance junction/solderpoint with efficiency $\eta_e = 44 \%$	$R_{thJS \text{ elec.}}$	typ.	5.7 K / W

Brightness Groups

Group	Luminous Flux ¹⁾ $I_F = 65 \text{ mA}$ min. Φ_V	Luminous Flux ¹⁾ $I_F = 65 \text{ mA}$ max. Φ_V
GP	18 lm	19 lm
GQ	19 lm	21 lm
GR	21 lm	22 lm
GS	22 lm	24 lm

Forward Voltage Groups

Group	Forward Voltage ²⁾ $I_F = 65 \text{ mA}$ min. V_F	Forward Voltage ²⁾ $I_F = 65 \text{ mA}$ max. V_F
K2	2.70 V	2.80 V
L1	2.80 V	2.90 V
L2	2.90 V	3.00 V
M1	3.00 V	3.10 V
M2	3.10 V	3.20 V
N1	3.20 V	3.30 V

Chromaticity Coordinate Groups ³⁾

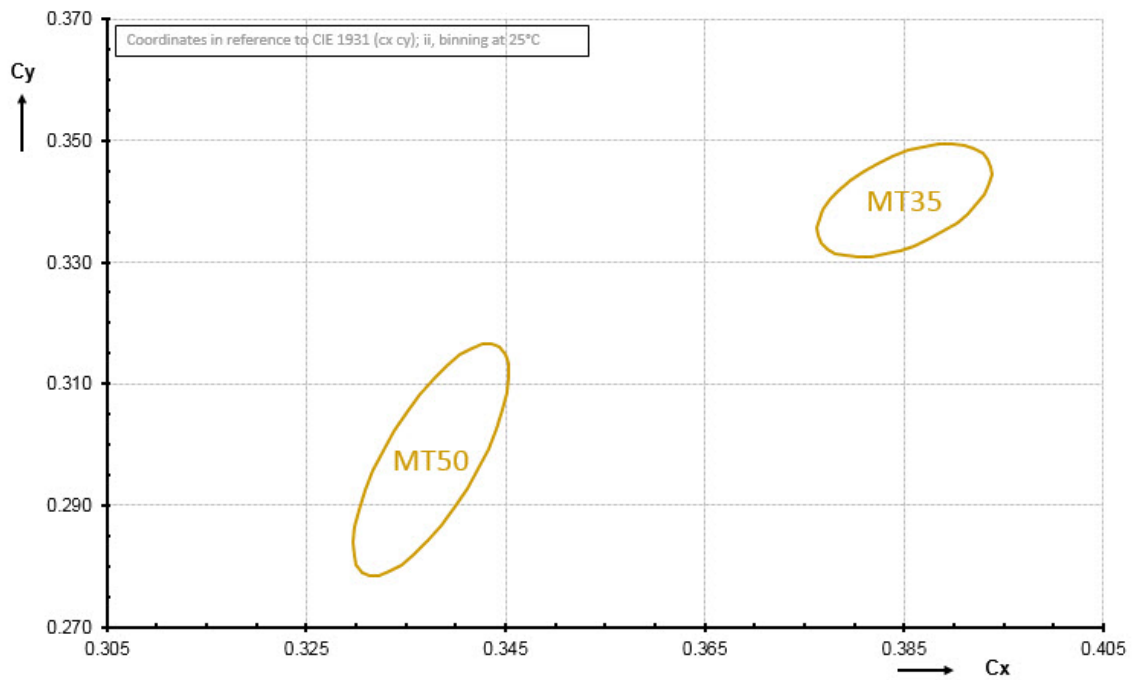


Table not correct

Group	Cx	Cy	CCT	Group	Cx	Cy	CCT	Group	Cx	Cy	CCT
MT35	0.3914	0.3380	3540		0.3846	0.3319	3540		0.3333	0.2791	5000
	0.3910	0.3492	3540		0.3861	0.3327	3540		0.3345	0.2803	5000
	0.3898	0.3495	3540		0.3876	0.3338	3540		0.3358	0.2819	5000
	0.3884	0.3494	3540		0.3890	0.3351	3540		0.3372	0.2841	5000
	0.3870	0.3490	3540		0.3903	0.3365	3540		0.3385	0.2867	5000
	0.3854	0.3484	3540		0.3914	0.3380	3540		0.3399	0.2895	5000
	0.3839	0.3475	3540		0.3936	0.3429	3540		0.3411	0.2927	5000
	0.3824	0.3463	3540		0.3938	0.3444	3540		0.3423	0.2960	5000
	0.3809	0.3450	3540		0.3938	0.3458	3540		0.3433	0.2993	5000
	0.3796	0.3435	3540		0.3935	0.3470	3540		0.3417	0.3159	5000
	0.3785	0.3420	3540		0.3929	0.3480	3540		0.3441	0.3026	5000
	0.3924	0.3396	3540		0.3921	0.3487	3540		0.3447	0.3057	5000
	0.3776	0.3404	3540	MT50	0.3437	0.3165	5000		0.3451	0.3085	5000
	0.3769	0.3387	3540		0.3327	0.2990	5000		0.3453	0.3111	5000
	0.3765	0.3372	3540		0.3317	0.2957	5000		0.3452	0.3132	5000
	0.3763	0.3357	3540		0.3309	0.2924	5000		0.3449	0.3148	5000
	0.3764	0.3343	3540		0.3303	0.2893	5000		0.3444	0.3160	5000
	0.3767	0.3332	3540		0.3299	0.2865	5000		0.3437	0.3165	5000
	0.3773	0.3322	3540		0.3297	0.2839	5000		0.3405	0.3147	5000
	0.3781	0.3315	3540		0.3298	0.2818	5000		0.3392	0.3131	5000
	0.3792	0.3310	3540		0.3301	0.2802	5000		0.3378	0.3109	5000
	0.3803	0.3308	3540		0.3306	0.2790	5000		0.3365	0.3083	5000
	0.3931	0.3413	3540		0.3313	0.2785	5000		0.3351	0.3055	5000
	0.3817	0.3309	3540		0.3428	0.3165	5000		0.3339	0.3023	5000
	0.3831	0.3313	3540		0.3322	0.2785	5000				

Discontinued

Group Name on Label

Example: GP-MT35-K2

Brightness

Color Chromaticity

Forward Voltage

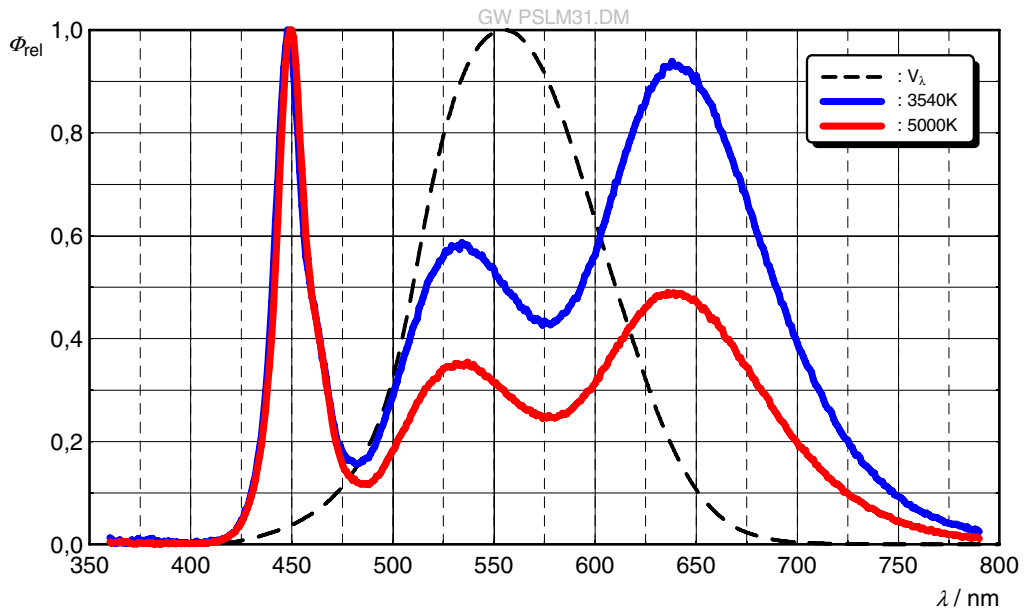
GP

MT35

K2

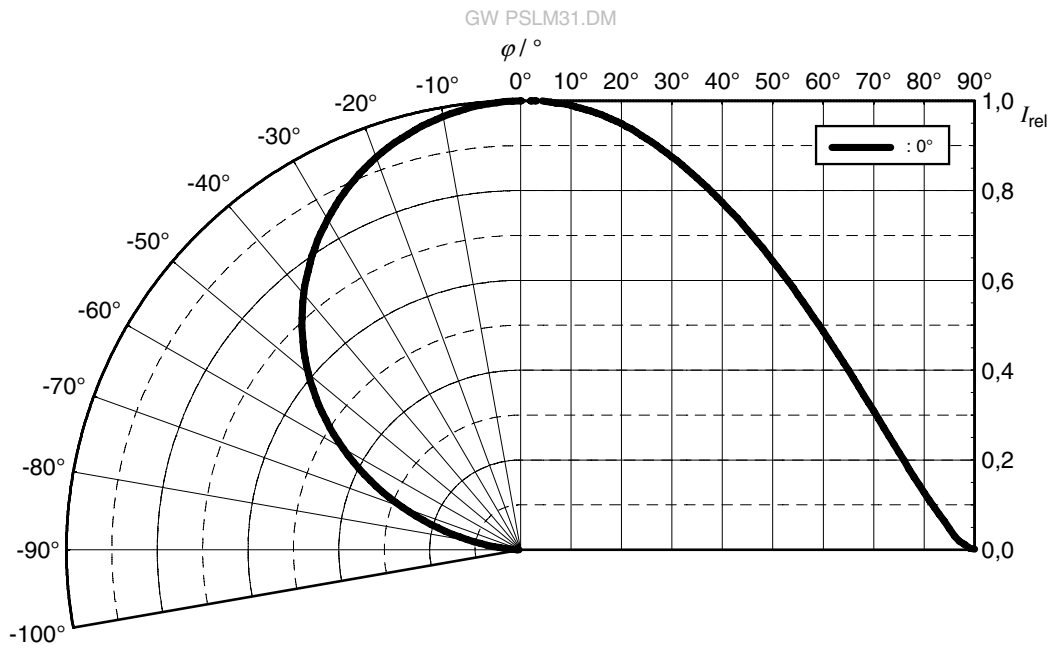
Relative Spectral Emission ⁴⁾

$\Phi_{rel} = f(\lambda); I_F = 65 \text{ mA}; T_J = 25 \text{ }^\circ\text{C}$



Radiation Characteristics ⁴⁾

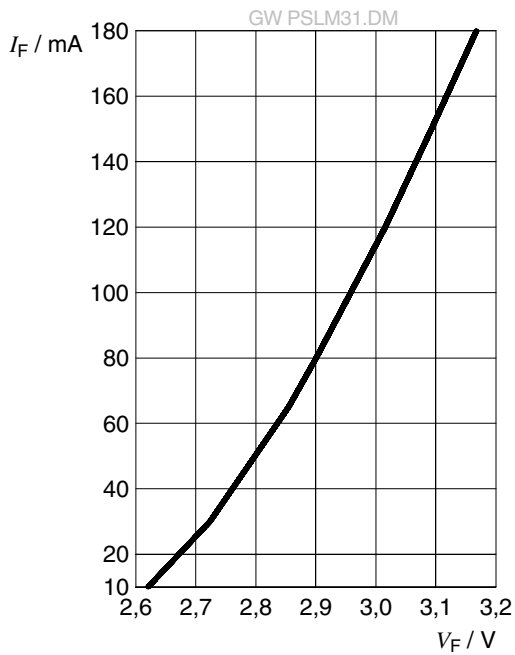
$I_{rel} = f(\phi); T_J = 25 \text{ }^\circ\text{C}$



Discontinued

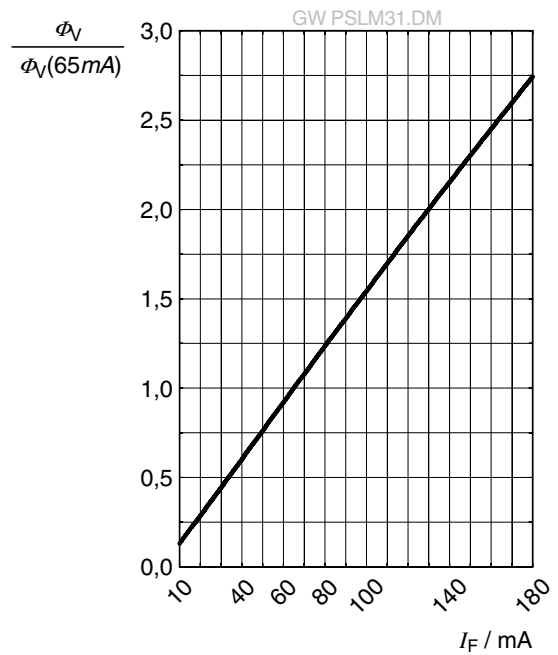
Forward current 4), 5)

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



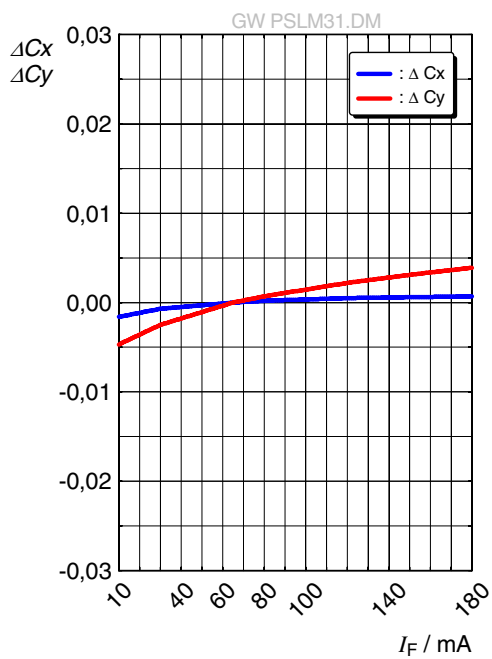
Relative Luminous Flux 4), 5)

$\Phi_V / \Phi_V(65\text{ mA}) = f(I_F); T_J = 25\text{ }^\circ\text{C}$



Chromaticity Coordinate Shift 4)

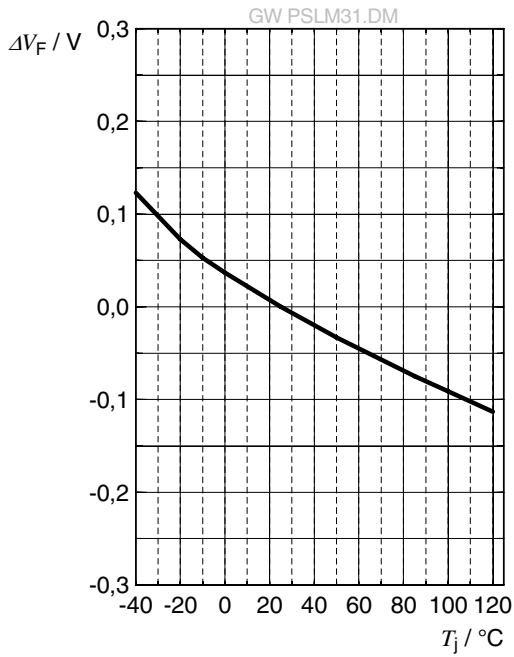
$\Delta C_x, \Delta C_y = f(I_F); T_J = 25\text{ }^\circ\text{C}$



Discontinued

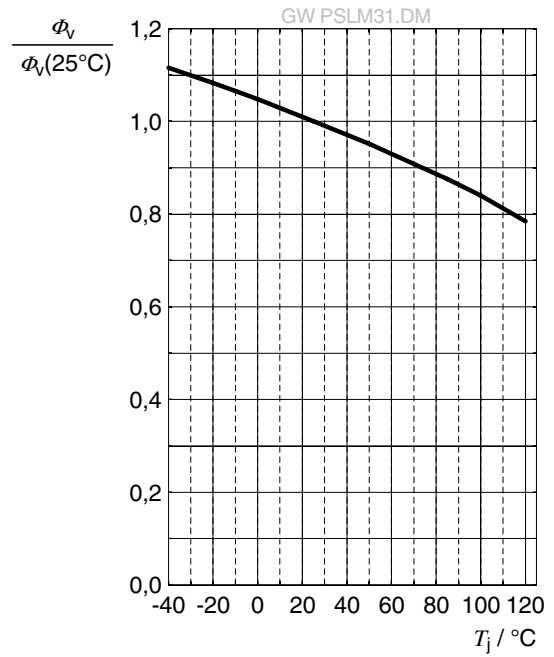
Forward Voltage ⁴⁾

$$\Delta V_F = V_F - V_F(25\text{ }^\circ\text{C}) = f(T_j); I_F = 65\text{ mA}$$



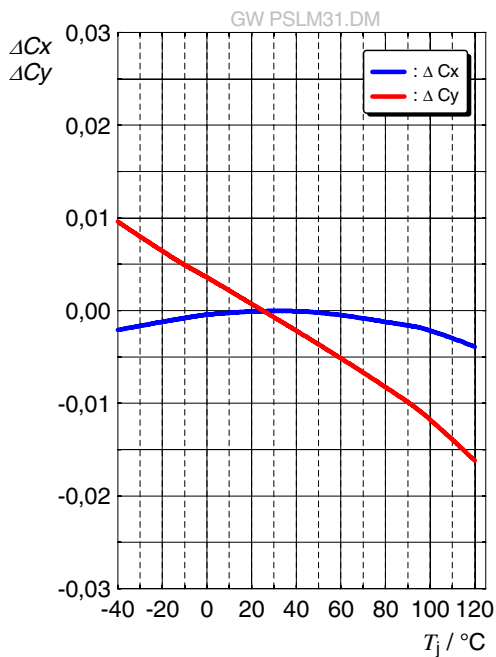
Relative Luminous Flux ⁴⁾

$$\Phi_v / \Phi_v(25\text{ }^\circ\text{C}) = f(T_j); I_F = 65\text{ mA}$$



Chromaticity Coordinate Shift ⁴⁾

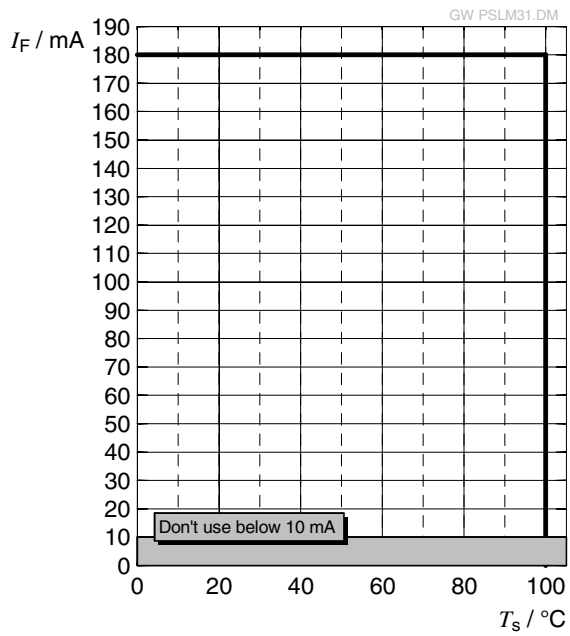
$$\Delta C_x, \Delta C_y = f(T_j); I_F = 65\text{ mA}$$



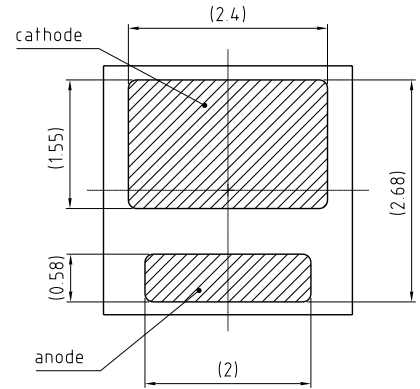
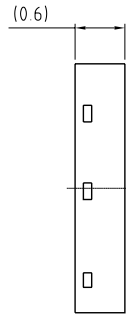
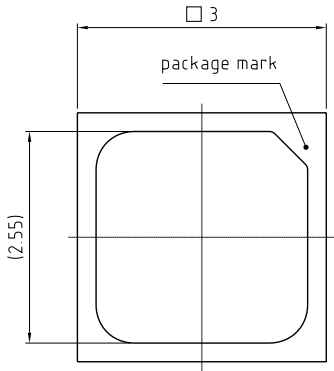
Discontinued

Max. Permissible Forward Current

$$I_F = f(T)$$



Dimensional Drawing ⁶⁾



general tolerance ± 0.1

lead finish Ag 

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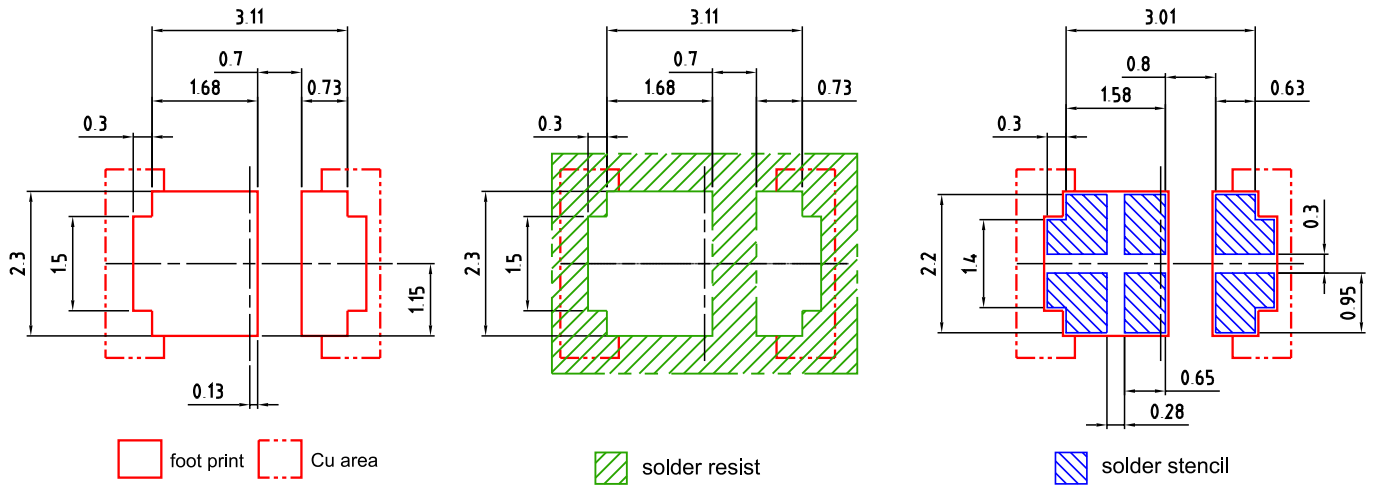
Further Information:

Approximate Weight: 18.0 mg

Package marking: Cathode

Discontinued

Recommended Solder Pad ⁶⁾

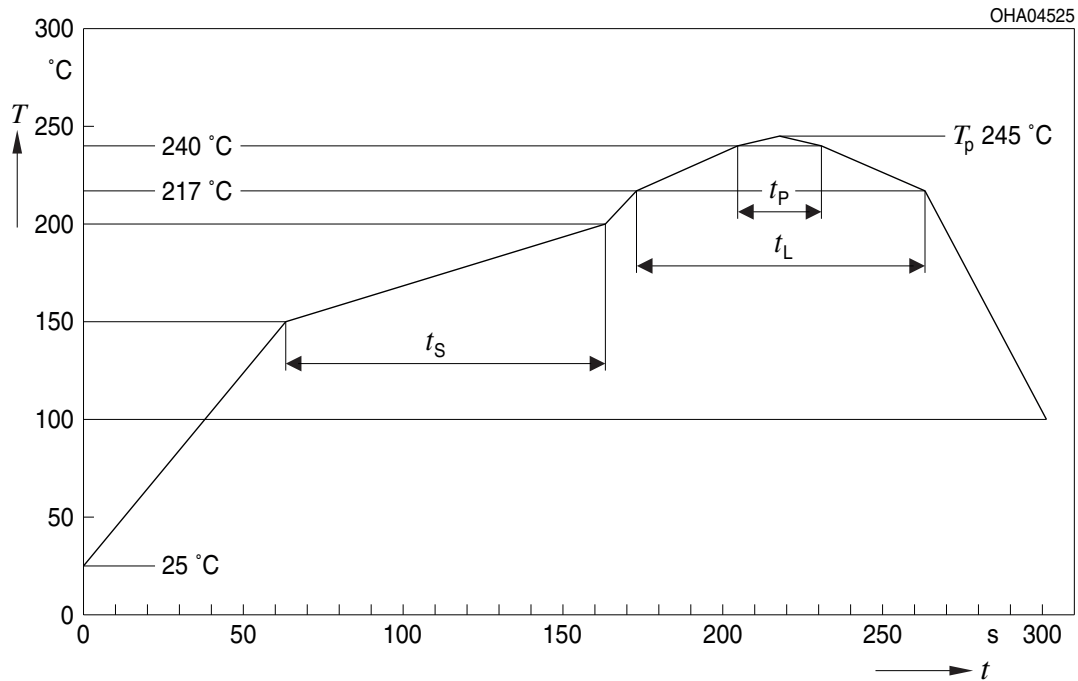


E062.3010.142 -05

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

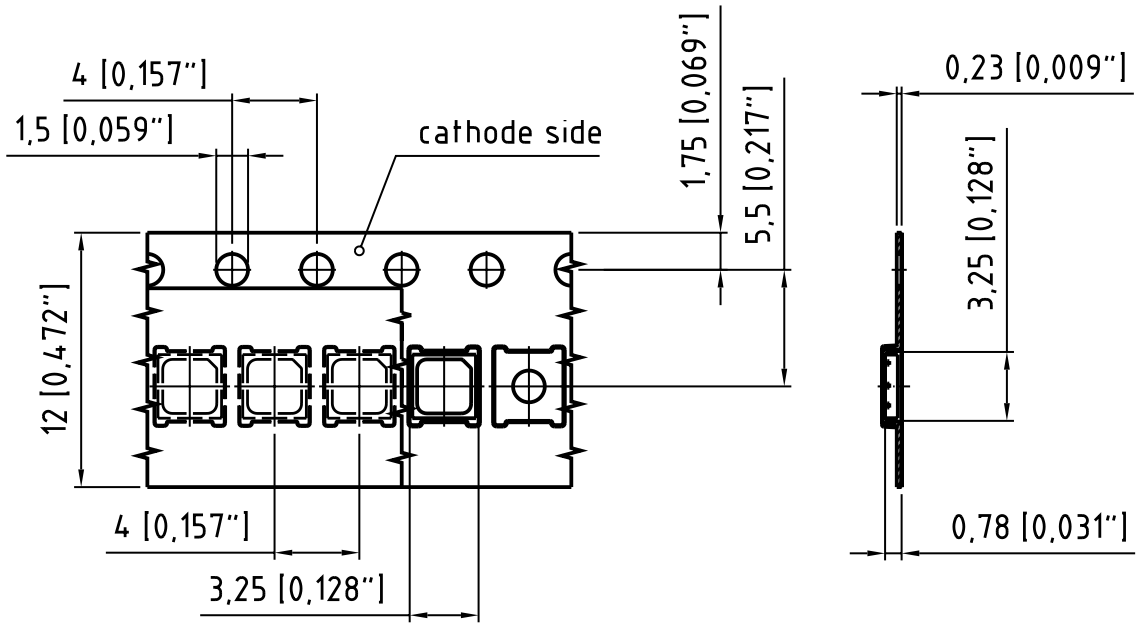


Profile Feature	Symbol	Pb-Free (SnAgCu) Assembly			Unit
		Minimum	Recommendation	Maximum	
Ramp-up rate to preheat ^{*)} 25 °C to 150 °C			2	3	K/s
Time t_s T_{Smin} to T_{Smax}	t_s	60	100	120	s
Ramp-up rate to peak ^{*)} T_{Smax} to T_p			2	3	K/s
Liquidus temperature	T_L		217		°C
Time above liquidus temperature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

Discontinued

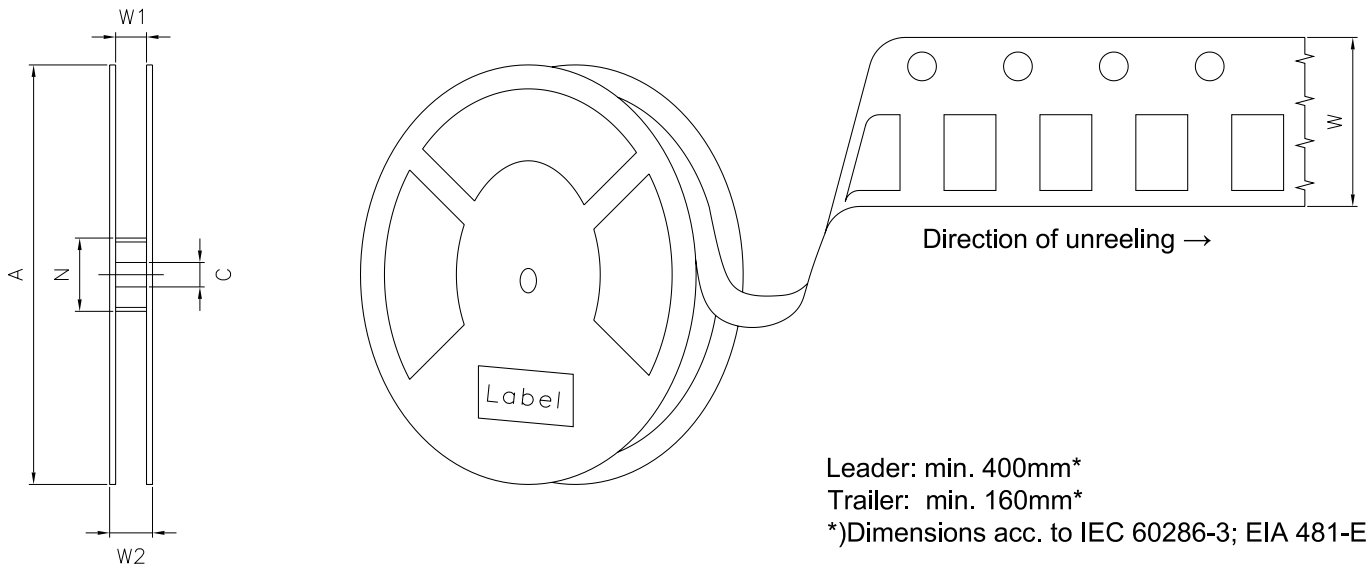
All temperatures refer to the center of the package, measured on the top of the component
 *) slope calculation DT/Dt : Dt max. 5 s; fulfillment for the whole T-range

Taping ⁶⁾



C63062-A0141-B6-01

Tape and Reel ⁷⁾



Reel Dimensions

A	W	N _{min}	W ₁	W _{2max}	Pieces per PU
180 mm	12 + 0.3 / - 0.1 mm	60 mm	12.4 + 2 mm	18.4 mm	3000

Discontinued

Barcode-Product-Label (BPL)

OSRAM Opto Semiconductors LX XXXX BIN1: XX-XX-X-XXX-X

RoHS Compliant

(6P) BATCH NO: 1234567890 ML Temp ST
X XXX °C X

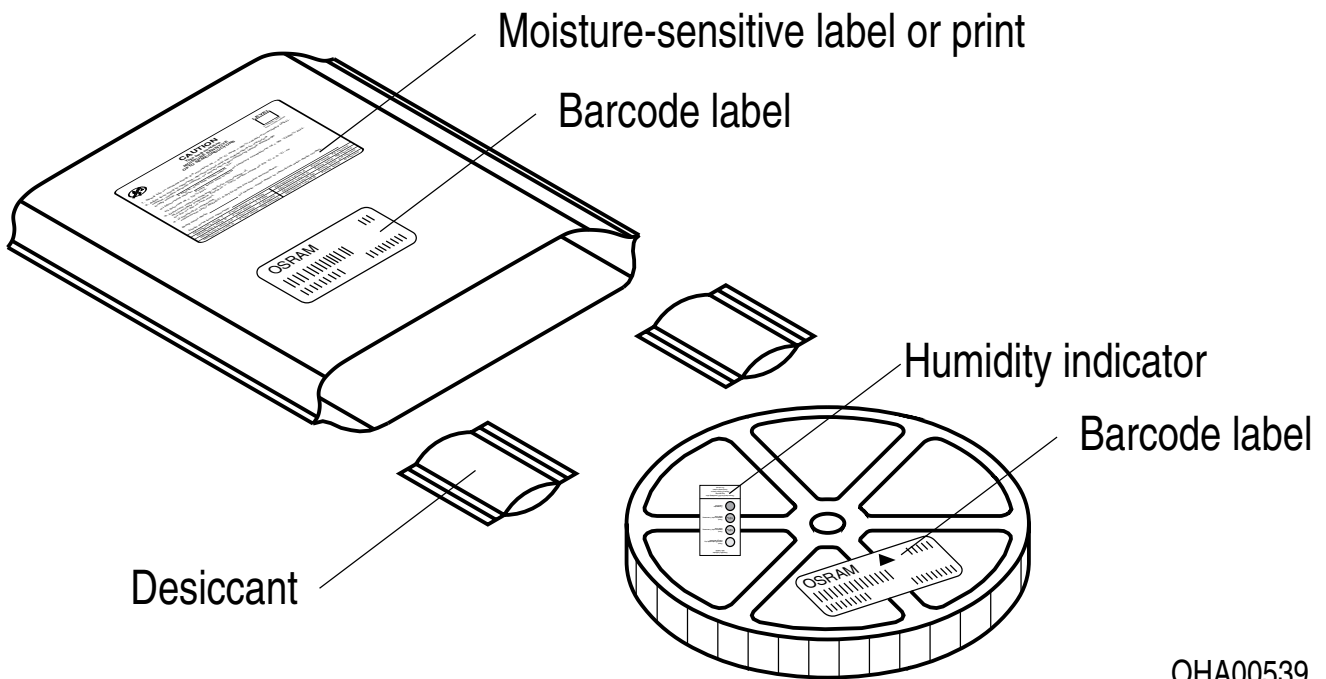
(1T) LOT NO: 1234567890 (9D) D/C: 1234 Pack: RXX
DEMY XXX
X_X123_1234.1234 X

(X) PROD NO: 123456789(Q)QTY: 9999 (G) GROUP: XX-XX-X-X

The diagram shows a rectangular label with rounded corners. It contains the OSRAM logo and product name at the top left. To the right are fields for 'LX XXXX' and 'BIN1: XX-XX-X-XXX-X'. Below this is 'RoHS Compliant'. The main body of the label is divided into three horizontal sections, each with a barcode and associated text: (6P) BATCH NO: 1234567890, (1T) LOT NO: 1234567890, and (X) PROD NO: 123456789(Q)QTY: 9999. To the right of the lot number is (9D) D/C: 1234. To the right of the product number is (G) GROUP: XX-XX-X-X. A 'Moisture-sensitive label or print' icon (a circle with a diagonal line and three drops) is positioned above the lot number. To its right is 'ML Temp ST X XXX °C X'. Below the lot number is 'Pack: RXX', 'DEMY XXX', and 'X_X123_1234.1234 X'. A square QR code is located on the right side of the label.

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.

Discontinued

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 **low risk (exposure time 100 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.

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

OSRAM OS components are not developed, constructed or tested for the application as safety relevant component or for the application in medical devices.

OSRAM OS products are not qualified at module and system level for such application.

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

Glossary

- 1) **Brightness:** Brightness values are measured during a current pulse of typically 10 ms, with a tolerance of +/- 7%.
- 2) **Forward Voltage:** The Forward voltage is measured during a current pulse duration of typically 1 ms with a tolerance of $\pm 0.05V$.
- 3) **Chromaticity coordinate groups:** Chromaticity coordinate groups are measured during a current pulse duration of typically 10ms with a tolerance of ± 0.005 .
- 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	2020-07-14	Discontinued

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