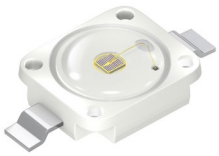
SFH 4232A

Golden DRAGON®

High Power Infrared Emitter (850 nm)



Applications

- 3D Sensing
- CCTV Surveillance
- Safety and Security, CCTV
- White Goods

Features:

- Package: clear silicone
- Corrosion Robustness Class: 3B
- ESD: 2 kV acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 2)
- IR lightsource with high efficiency
- Low thermal resistance (Max. 10 K/W)
- Centroid wavelength 850 nm

Ordering Information

Type	Total radiant flux [1)] I_F = 1000 mA; t_p = 10 ms Φ_e	Total radiant flux [1)] typ. I_F = 1000 mA; t_p = 10 ms Φ_e	Ordering Code
SFH 4232A	400 ... 1000 mW	650 mW	Q65111A3235
SFH 4232A-DB	500 ... 800 mW	650 mW	Q65111A5199

Discontinued

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Maximum Ratings

T_A = 25 °C

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	max.	1000 mA
Surge current $t_p \leq 1.5$ ms; D = 0	I_{FSM}	max.	2 A
Reverse current [2)]	I_R	max.	200 mA
Power consumption	P_{tot}	max.	2100 mW
ESD withstand voltage acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 2)	V_{ESD}	max.	2 kV

For the forward current and power consumption please see “maximum permissible forward current” diagram

Characteristics

I_F = 1000 mA; t_p = 10 ms; T_A = 25 °C

Parameter	Symbol		Values
Peak wavelength	λ_{peak}	typ.	860 nm
Centroid wavelength	$\lambda_{centroid}$	typ.	850 nm
Spectral bandwidth at 50% $I_{rel,max}$ (FWHM)	$\Delta\lambda$	typ.	30 nm
Half angle	φ	typ.	60 °
Dimensions of active chip area	L x W	typ.	1 x 1 mm x mm
Rise time (10% / 90%) I_F = 2 A; R_L = 50 Ω	t_r	typ.	11 ns
Fall time (10% / 90%) I_F = 2 A; R_L = 50 Ω	t_f	typ.	14 ns
Forward voltage I_F = 1 A; t_p = 20 ms	V_F	typ. max.	1.65 V 2.1 V
Forward voltage I_F = 2 A; t_p = 100 µs	V_F	typ. max.	1.9 V 2.5 V
Reverse voltage [2] I_R = 20 mA	V_R	max.	1.2 V
Reverse voltage (ESD device) [2]	$V_{R\ ESD}$	min.	45 V
Radiant intensity I_F = 1 A; t_p = 100 µs	I_e	typ.	205 mW/sr
Temperature coefficient of voltage	TC_V	typ.	-1 mV / K
Temperature coefficient of brightness	TC_I	typ.	-0.3 % / K
Temperature coefficient of wavelength	TC_λ	typ.	0.3 nm / K
Thermal resistance junction solder point real [3]	R_{thJS}	max.	10 K / W

Brightness Groups

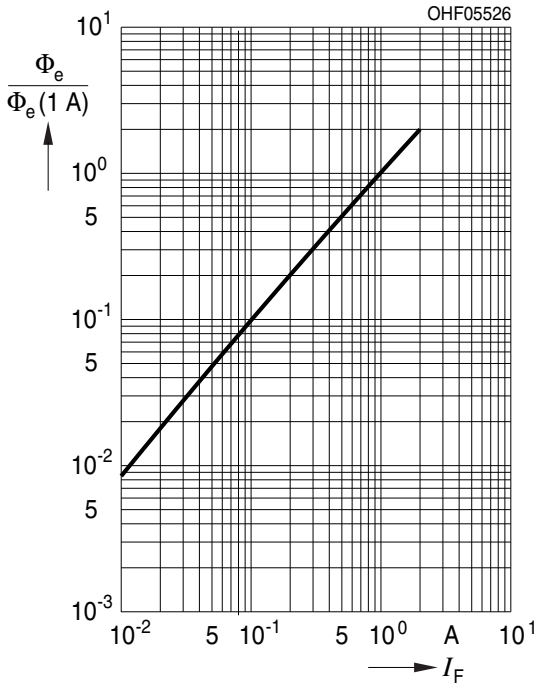
T_A = 25 °C

Group	Total radiant flux [1] I_F = 1000 mA; t_p = 10 ms min. Φ_e	Total radiant flux [1] I_F = 1000 mA; t_p = 10 ms max. Φ_e
DA	400 mW	630 mW
DB	500 mW	800 mW
EA	630 mW	1000 mW

Only one group in one packing unit (variation lower 1.6:1).

Relative Total Radiant Flux [4], [5]

$\Phi_e/\Phi_e(1000mA) = f(I_F)$; single pulse; t_p = 100 µs



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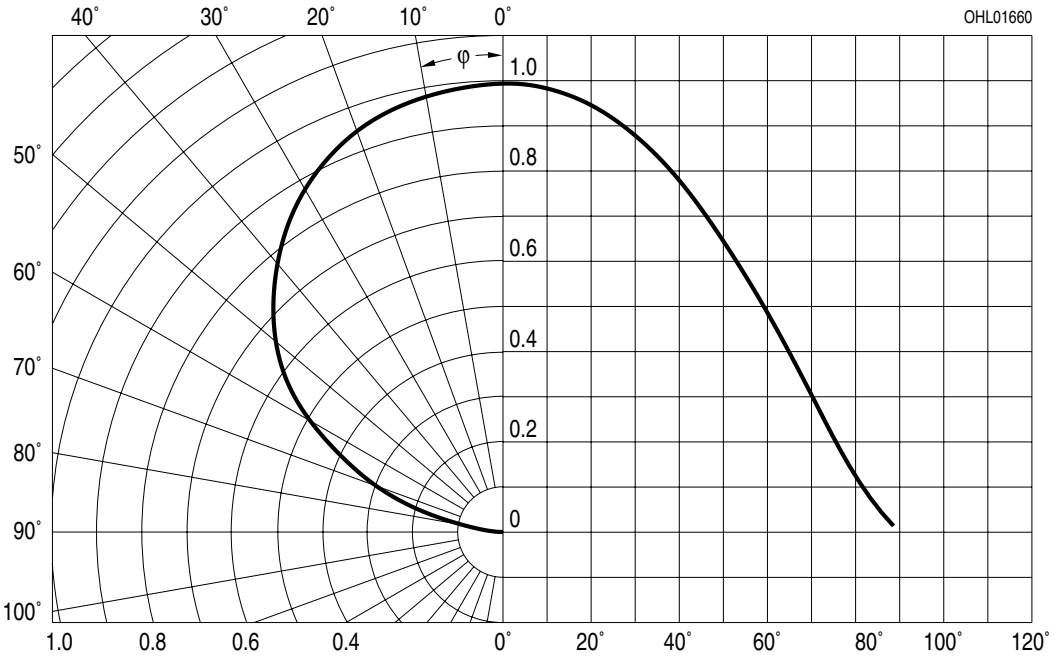
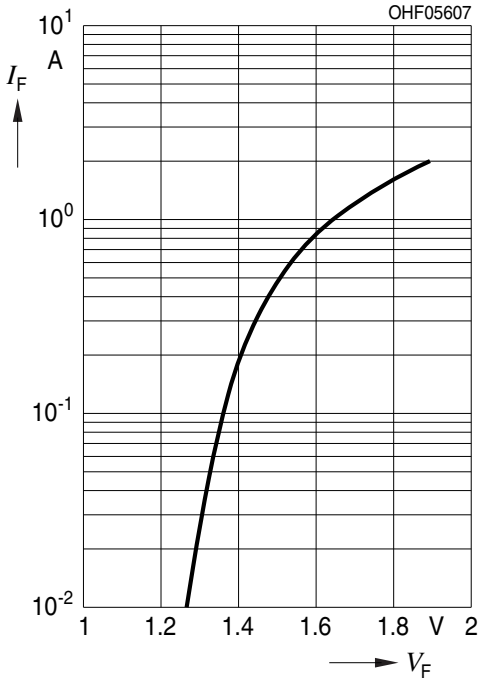
Radiation Characteristics 4), 5)

$I_{e,rel} = f(\varphi)$



Forward current 4), 5)

$I_F = f(V_F)$; single pulse; $t_p = 100\ \mu s$



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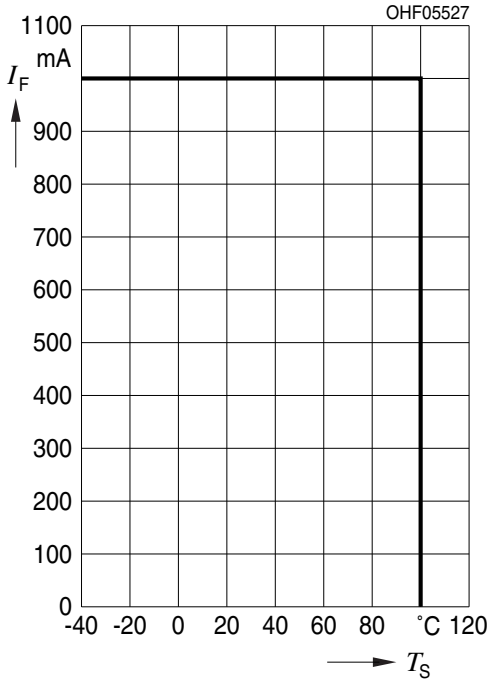
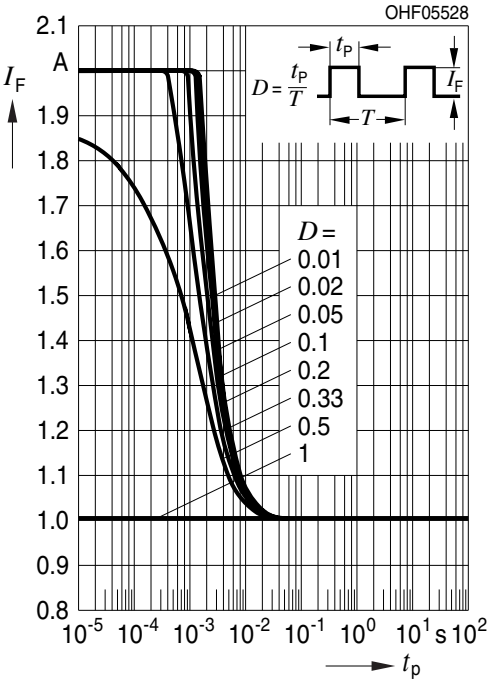
Max. Permissible Forward Current

$I_{F,max} = f(T_S)$; Rth_{js} = 10K / Wsingle pulse



Permissible Pulse Handling Capability

$I_F = f(t_p)$; duty cycle D = parameter; T_S = 85°C



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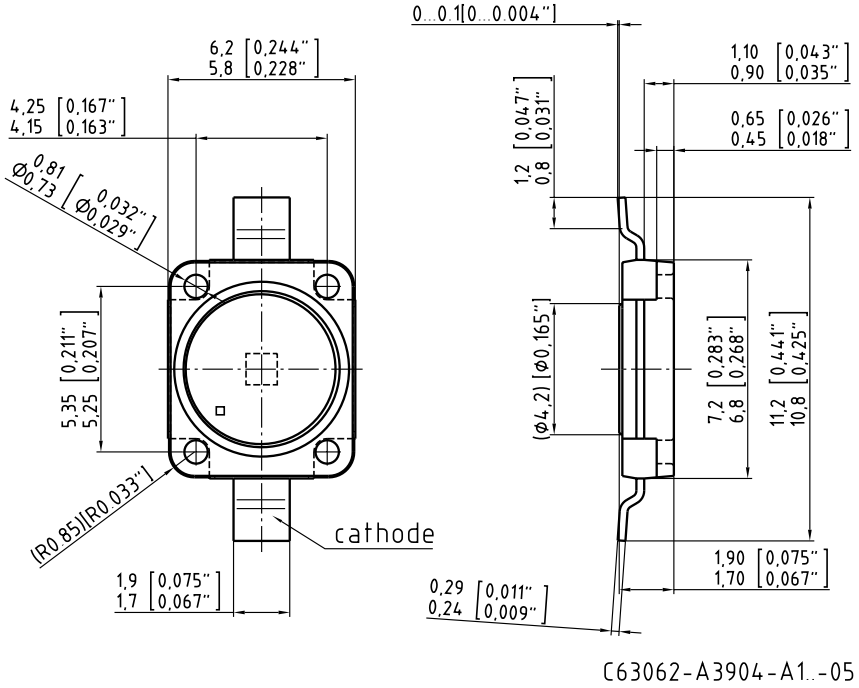
Dimensional Drawing [6]



Further Information

Approximate Weight: 219.0 mg

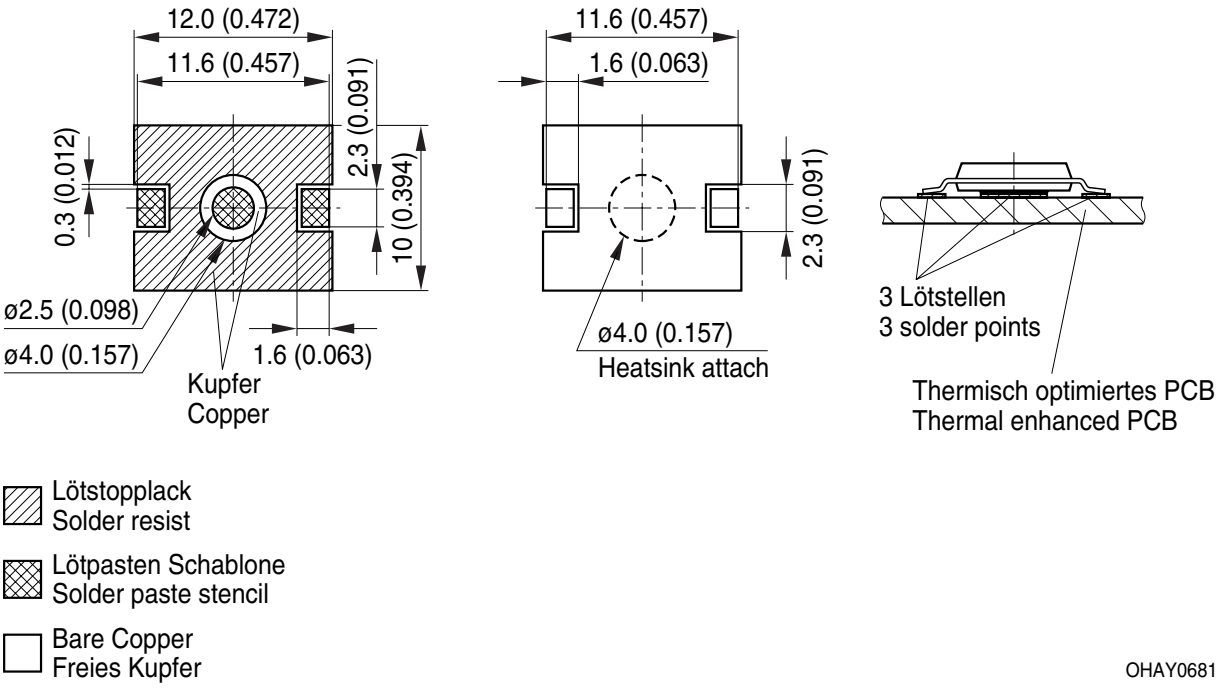
Package marking: Cathode

Corrosion test: Class: 3B
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.

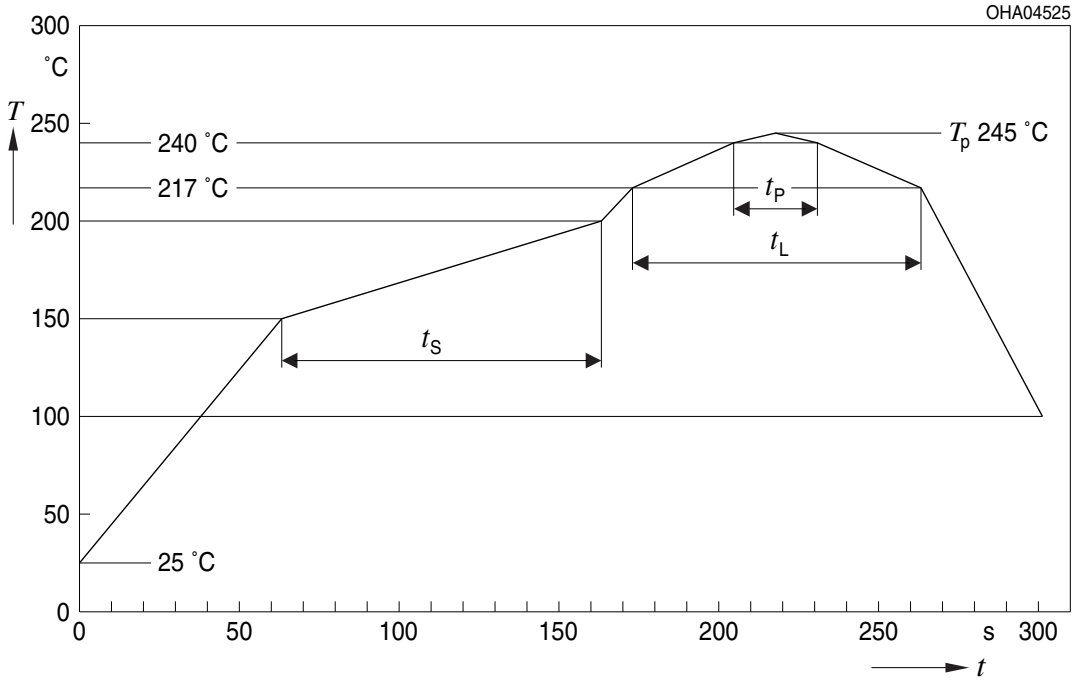
Discontinued

Recommended Solder Pad [6)]



Reflow Soldering Profile

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

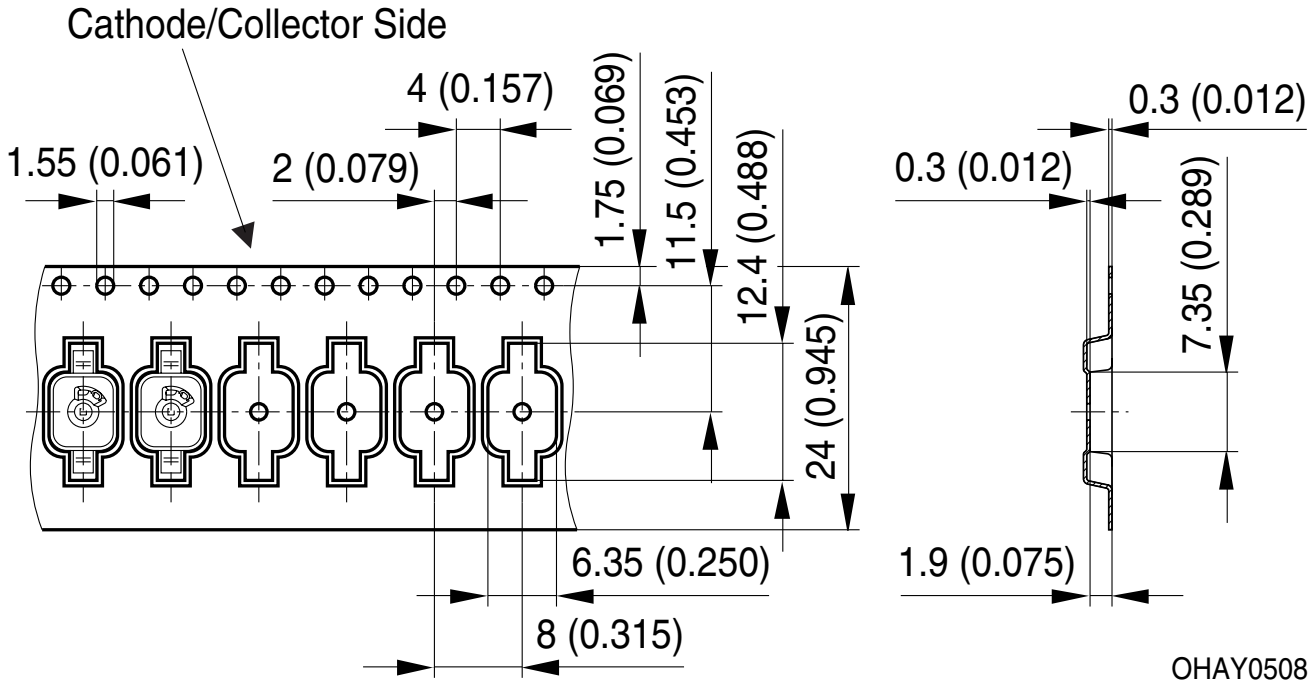


Profile Feature	Symbol	Pb-Free (SnAgCu) Assembly			Unit
		Minimum	Recommendation	Maximum	
Ramp-up rate to preheat*) 25 °C to 150 °C			2	3	K/s
Time t_S T_{Smin} to T_{Smax}	t_S	60	100	120	s
Ramp-up rate to peak*) T_{Smax} to T_P			2	3	K/s
Liquidus temperature	T_L		217		°C
Time above liquidus temperature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

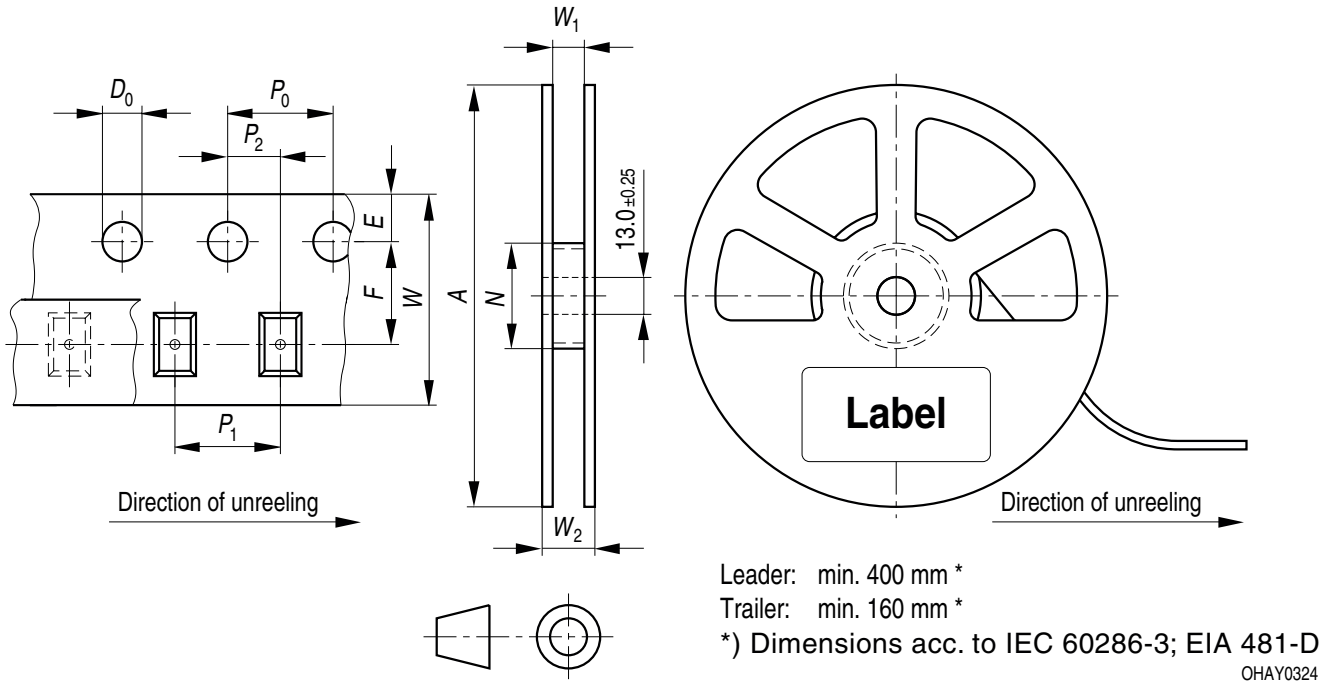
All temperatures refer to the center of the package, measured on the top of the component
* slope calculation DT/Dt: Dt max. 5 s; fulfillment for the whole T-range

Discontinued

Taping [6)]



Tape and Reel [7)]



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

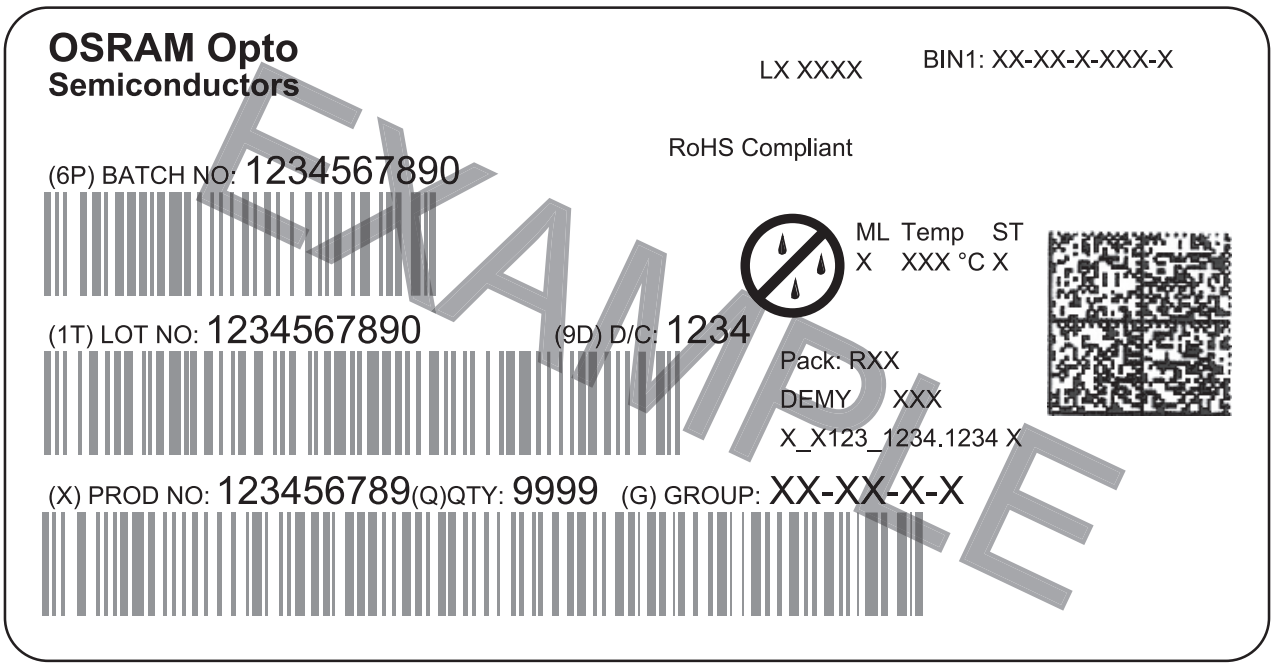
OHAY0324

Reel Dimensions

A	W	N_{min}	W_1	$W_{2\,max}$	Pieces per PU
180 mm	24 + 0.3 / - 0.1 mm	60/100 mm	24.4 + 2 mm	30.4 mm	800

Discontinued

Barcode-Product-Label (BPL)



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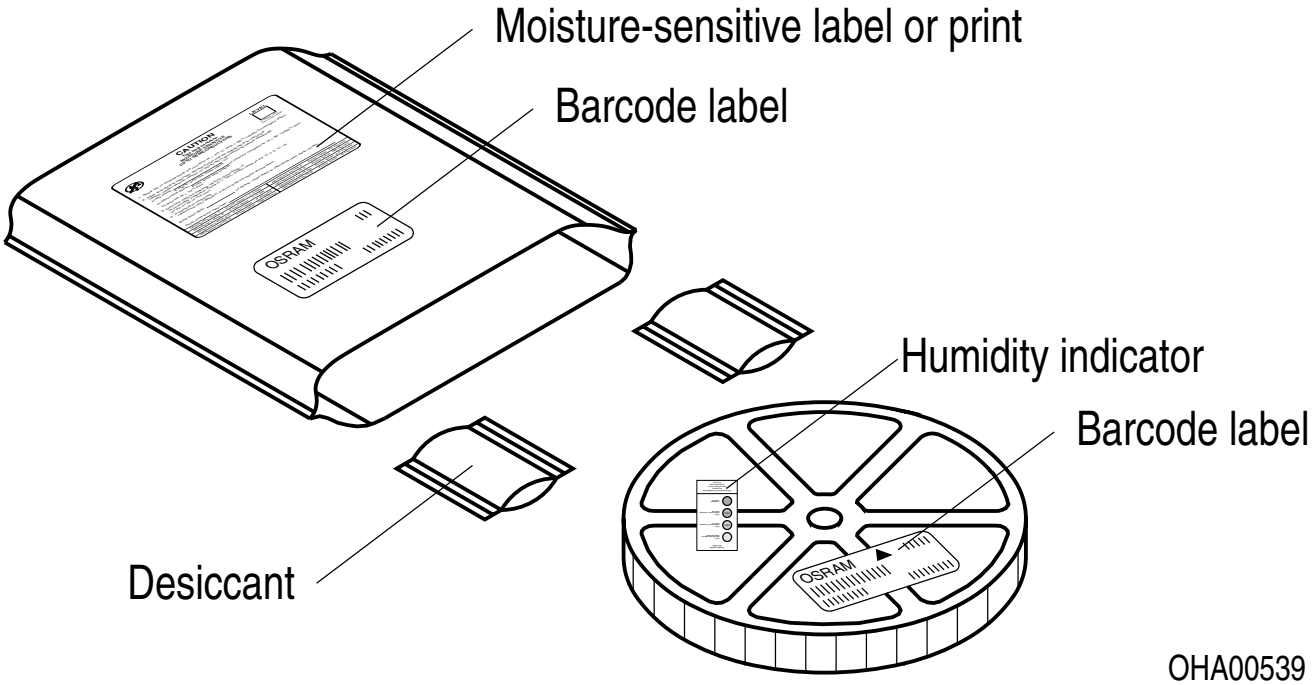
Dry Packing Process and Materials [6)]



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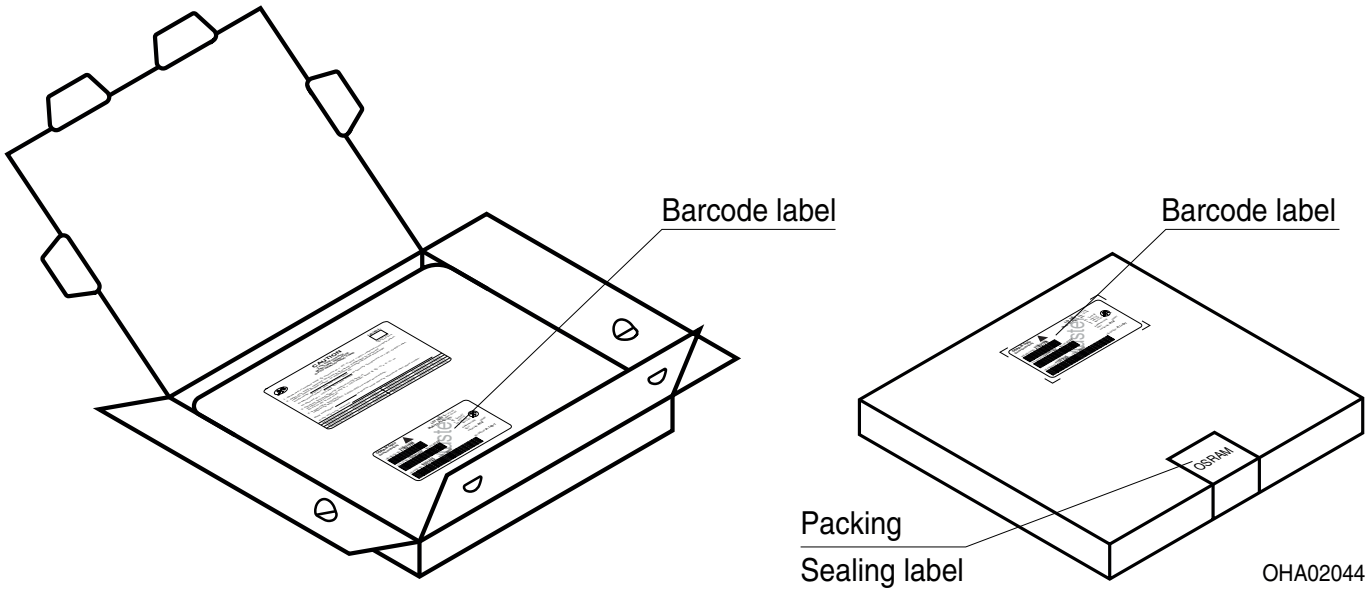
Moisture-sensitive product is packed in a dry bag containing desiccant and a humidity card according JEDEC-STD-033.

Discontinued

Schematic Transportation Box [6)]



Dimensions of Transportation Box

Width	Length	Height
195 ± 5 mm	195 ± 5 mm	42 ± 5 mm

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 **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 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.

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

1) **Total radiant flux:** Measured with integrating sphere.

2) **Reverse Operation:** Reverse Operation of 10 hours is permissible in total. Continuous reverse operation is not allowed.

3) **Thermal resistance:** junction - soldering point, of the device only, mounted on an ideal heatsink (e.g. metal block)

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) **Testing temperature:** TA = 25°C (unless otherwise specified)

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
1.9	2019-07-22	Discontinued

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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。

Discontinued

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