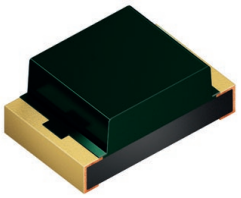
SFH 2711



CHIPLED®

Silicon PIN Photodiode with Vλ Characteristics

Applications

- Industrial Automation (Machine Controls, Light Barriers, Vision Controls)
- Remote Control, Proximity, Ambient Light Sensing

Features:

- Package: black epoxy
- ESD: 2 kV acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 2)
- Very small SMT package
- Good match to human eye sensitivity (V_λ)
- Sensitivity to IR radiation (λ > 750nm) < 1%

Ordering Information

Type	Photocurrent [1] E_v = 1000 lx; white LED; V_R = 5 V I_P	Photocurrent typ. E_v = 1000 lx; white LED; V_R = 5 V I_P	Ordering Code
SFH 2711	≥ 0.056 µA	0.12 µA	Q65112A4392

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
Reverse voltage	V_R	max.	16 V
ESD withstand voltage acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 2)	V_{ESD}	max.	2 kV

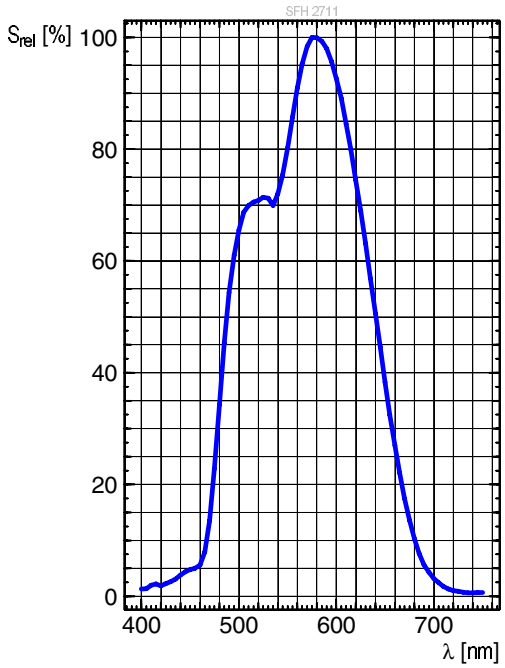
Characteristics

T_A = 25 °C

Parameter	Symbol		Values
Spectral sensitivity V_R = 5 V; Std. Light A; T = 2856 K	S	typ.	0.115 nA/lx
Wavelength of max sensitivity	$\lambda_{S\ max}$	typ.	580 nm
Spectral range of sensitivity	$\lambda_{10\%}$	typ.	470 ... 670 nm
Radiant sensitive area	A	typ.	0.35 mm²
Dimensions of active chip area	L x W	typ.	0.59 x 0.59 mm x mm
Half angle	φ	typ.	55 °
Dark current V_R = 5 V	I_R	typ. max.	0.01 nA 5 nA
Open-circuit voltage E_v = 1000 lx; Std. Light A	V_O	min. typ.	300 mV 377 mV
Short-circuit current E_v = 1000 lx; Std. Light A	I_{SC}	typ.	0.115 µA
Rise time V_R = 5 V, R_L = 50 Ohm, λ = 530nm	t_r	typ.	0.06 µs
Fall time V_R = 5 V, R_L = 50 Ohm, λ = 530nm	t_f	typ.	0.06 µs
Forward voltage I_F = 5 mA; E = 0	V_F	typ.	0.70 V
Capacitance V_R = 0 V; f = 1 MHz; E = 0	C_0	typ.	28 pF

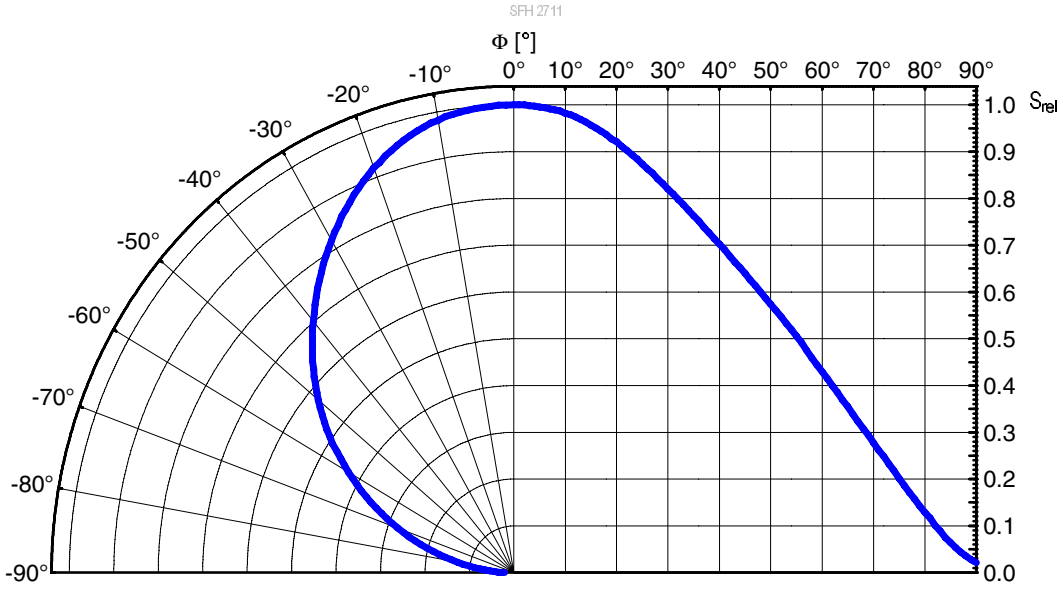
Relative Spectral Sensitivity [2), 3)]

$S_{rel} = f(\lambda)$



Directional Characteristics [2), 3)]

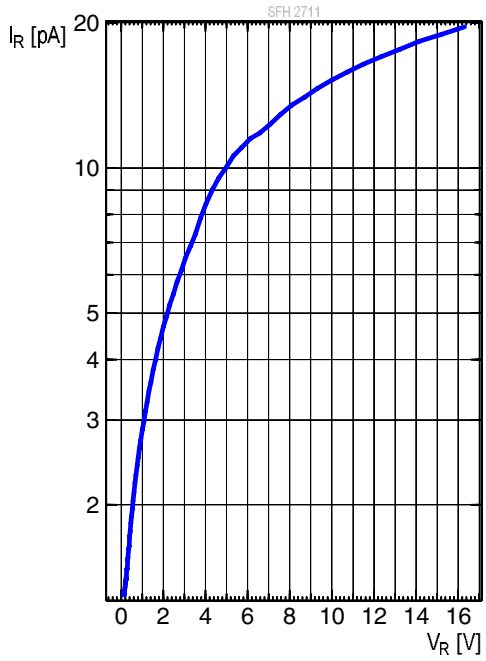
$S_{rel} = f(\varphi)$



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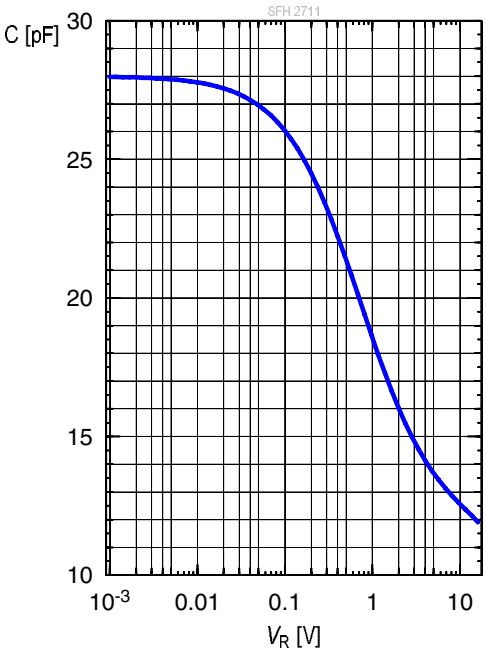
Dark Current 2), 3)

$I_R = f(V_R)$; E = 0



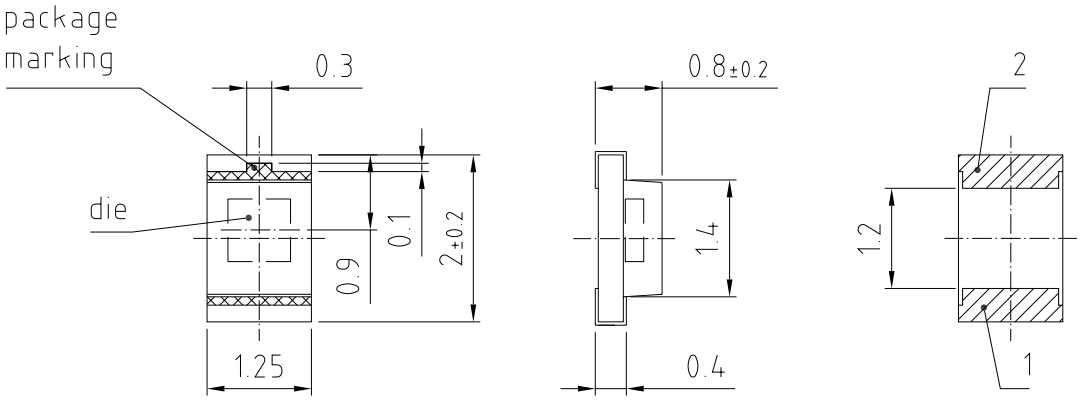
Capacitance 2), 3)

$C = f(V_R)$; f = 1MHz; E = 0; T_A = 25°C



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Dimensional Drawing [4)]



Further Information:

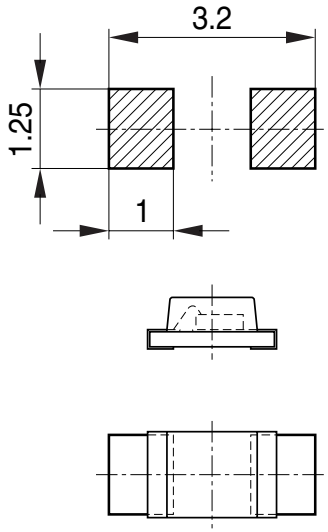
Approximate Weight: 3.8 mg

Package marking: Cathode

Pin	Description
1	Anode
2	Cathode

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Recommended Solder Pad [4)]



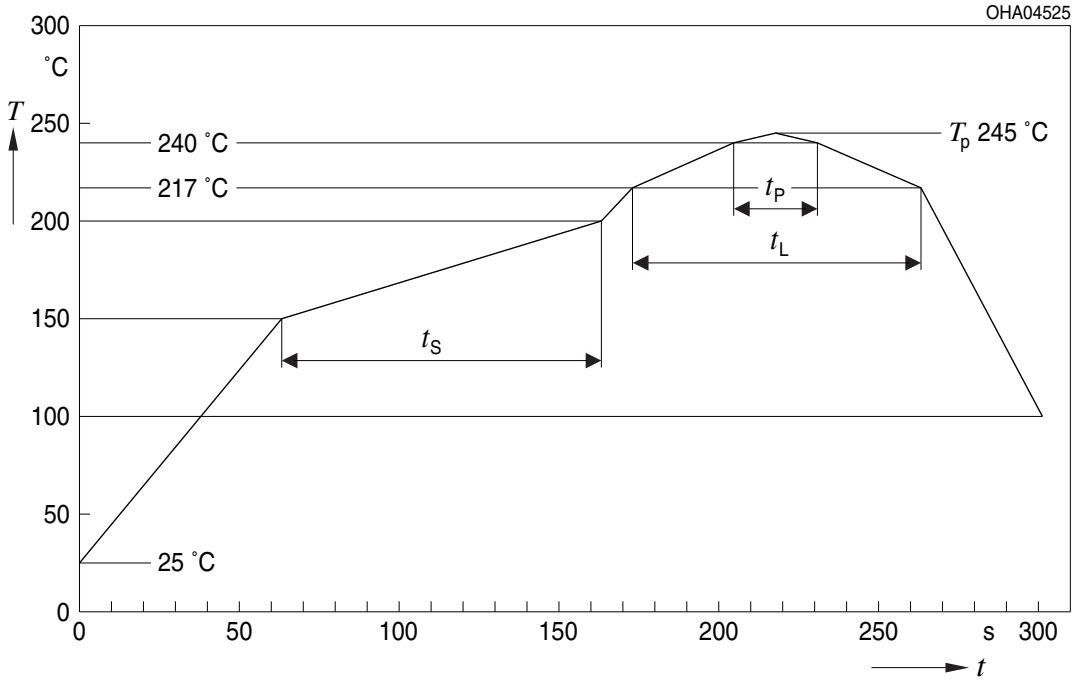
Bauteil positioniert
Component location on pad

OHFP2578

Dimensions in mm (inch).

Reflow Soldering Profile

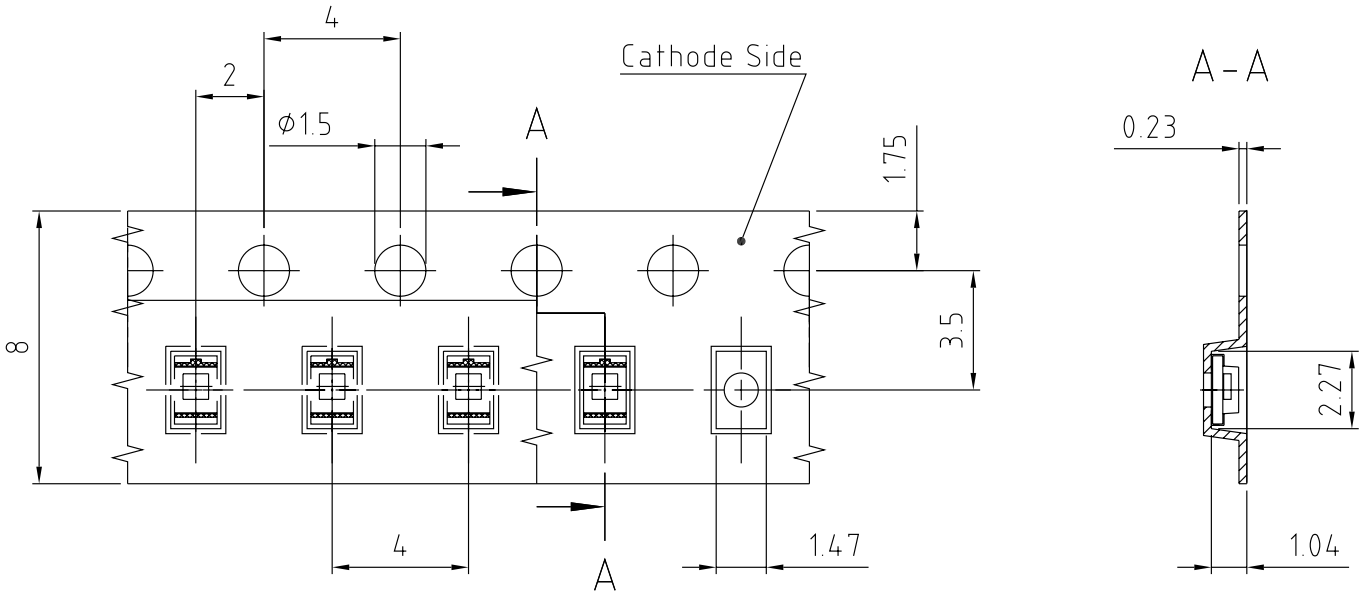
Product complies to MSL Level 3 acc. to JEDEC J-STD-020E



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

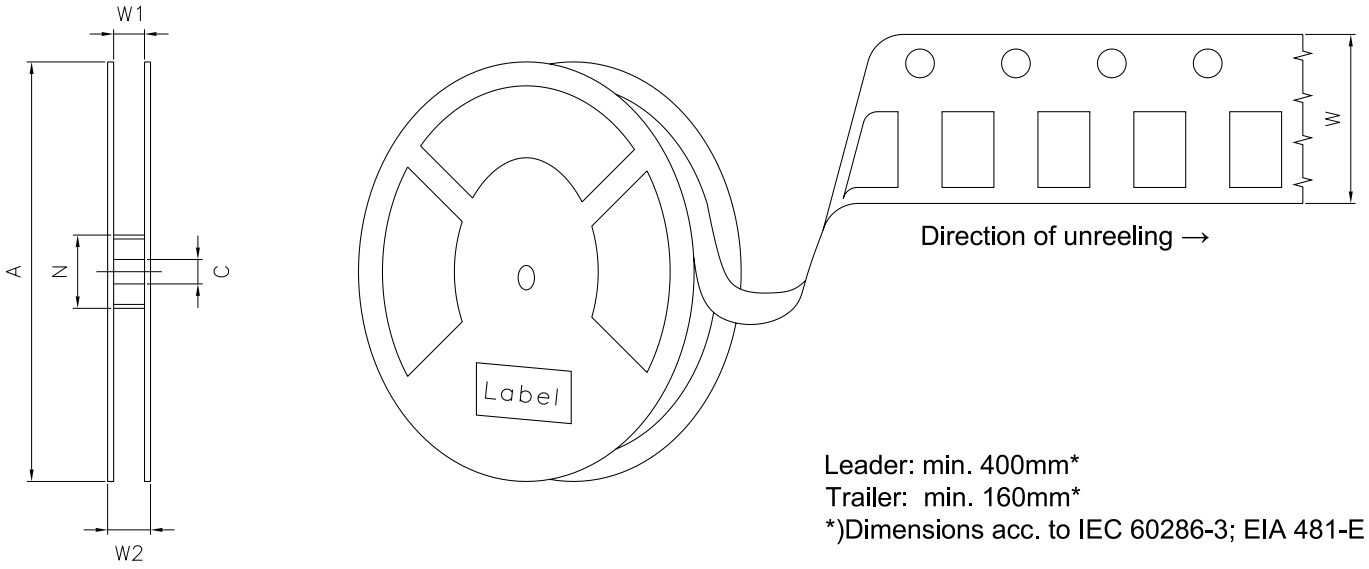
All temperatures refer to the center of the package, measured on the top of the component
* slope calculation DT/Dt: Dt max. 5 s; fulfillment for the whole T-range

Taping [4)]



C67062-A0256-B1-03

Tape and Reel [5)]

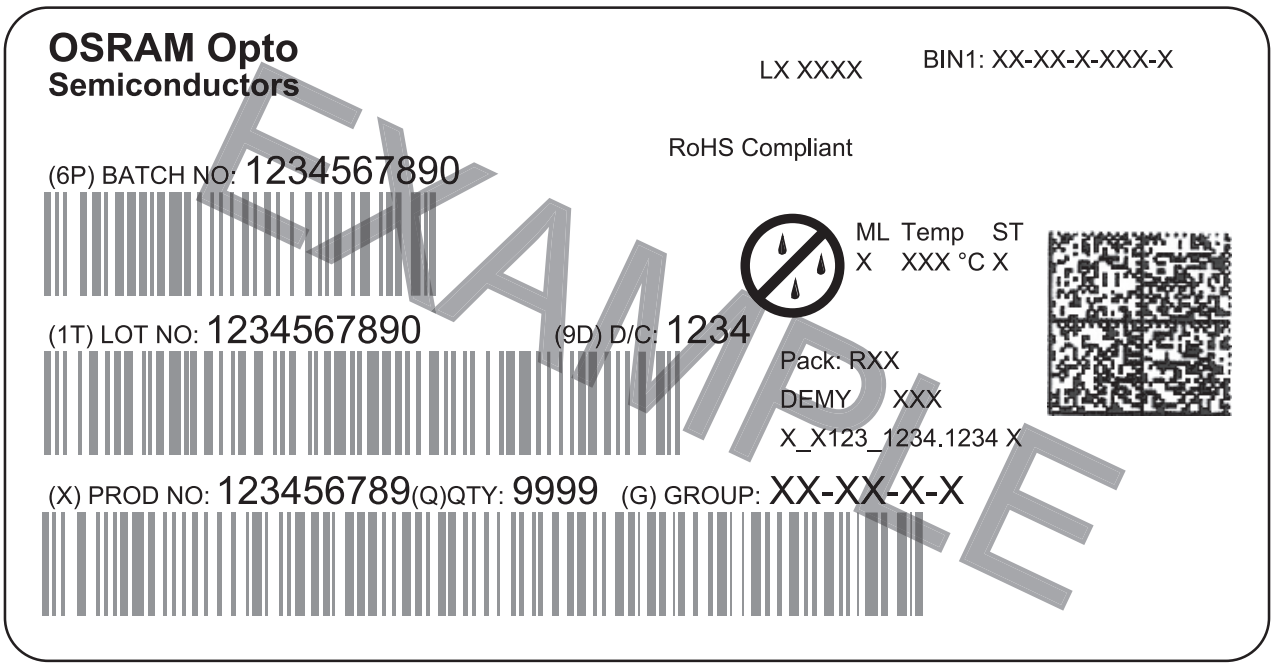


Leader: min. 400mm*
Trailer: min. 160mm*
*)Dimensions acc. to IEC 60286-3; EIA 481-E

Reel Dimensions

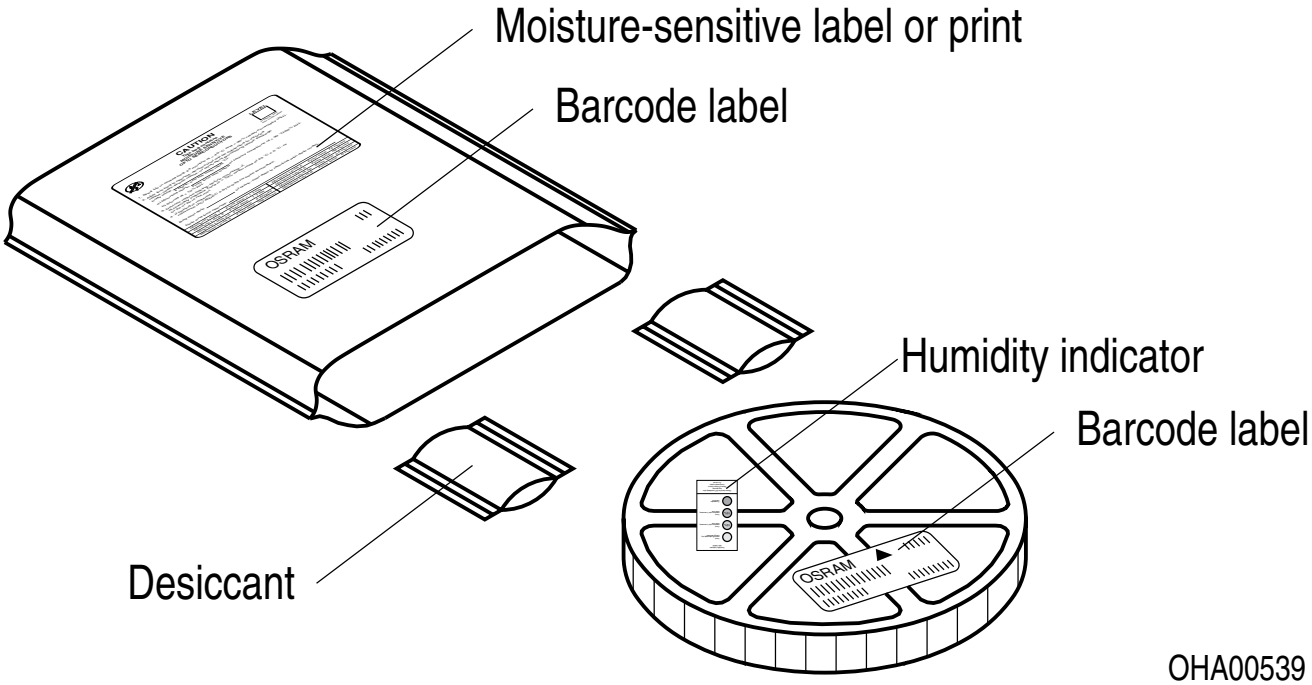
A	W	N_{min}	W_1	$W_{2\,max}$	Pieces per PU
180 mm	12 + 0.3 / - 0.1 mm	60 mm	12.4 + 2 mm	18.4 mm	3000

Barcode-Product-Label (BPL)



OHA04563

Dry Packing Process and Materials [4)]



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 **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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Glossary

1) **Photocurrent:** The photocurrent values are measured (by irradiating the devices with a homogenous light source and applying a voltage to the device) with a tolerance of ±11 %.

2) **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.

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

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

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

Revision History

Version	Date	Change
1.1	2020-09-21	Taping Schematic Transportation Box Dimensions of Transportation Box

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