SFH 4232

Platinum DRAGON®

High Power Infrared Emitter (850 nm)

Applications

- 3D Capturing
- CCTV Surveillance
- Safety systems and CCTV
- VMS

Features:

- Package: clear silicone
- Corrosion Robustness Class: 3B
- Qualifications: The product qualification test plan is based on the guidelines of AEC-Q101-REV-C, Stress Test Qualification for Automotive Grade Discrete Semiconductors.
- ESD: 2 kV acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 2)
- IR lightsource with high efficiency
- Low thermal resistance (Max. 9 K/W)
- Centroid wavelength 850 nm
- SMT package

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 4232-Z	320 ... 800 mW	530 mW	Q65110A8754

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Maximum Ratings

T_A = 25 °C

Parameter	Symbol		Values
Operating temperature	T_{op}	min. max.	-40 °C 125 °C
Storage temperature	T_{stg}	min. max.	-40 °C 125 °C
Junction temperature	T_j	max.	145 °C
Forward current	I_F	max.	1000 mA
Surge current $t_p \leq 200$ µs; D = 0	I_{FSM}	max.	5 A
Reverse current [2]	I_R	max.	200 mA
Power consumption	P_{tot}	max.	1800 mW
ESD withstand voltage acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 2)	V_{ESD}	max.	2 kV

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% $I_{rel,max}$	$\Delta\lambda$	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 = 5 A; R_L = 50 Ω	t_r	typ.	7 ns
Fall time (10% / 90%) I_F = 5 A; R_L = 50 Ω	t_f	typ.	14 ns
Forward voltage I_F = 1 A; t_p = 100 µs	V_F	typ. max.	1.5 V 1.8 V
Forward voltage I_F = 5 A; t_p = 100 µs	V_F	typ. max.	2 V 2.9 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 [3] I_F = 1 A; t_p = 100 µs	I_e	typ.	180 mW/sr
Temperature coefficient of brightness	TC_I	typ.	-0.3 % / K
Temperature coefficient of voltage	TC_V	typ.	-1 mV / K
Temperature coefficient of wavelength	TC_λ	typ.	0.3 nm / K
Thermal resistance junction solder point real [4]	R_{thJS}	max.	9.0 K / W

Brightness Groups

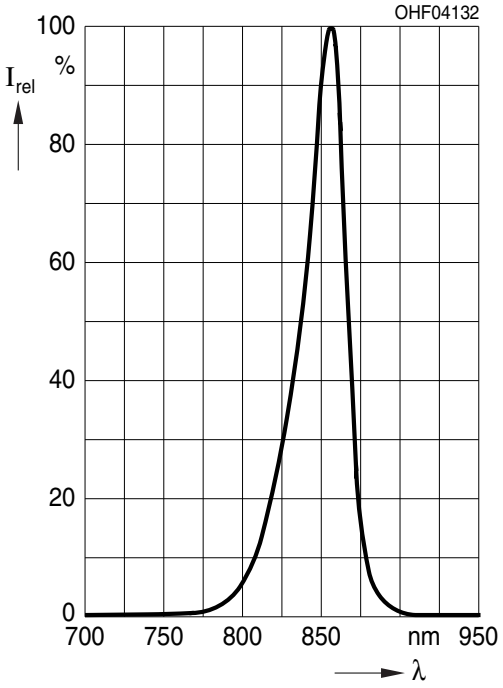
T_A = 25 °C

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
CB	320 mW	500 mW
DA	400 mW	630 mW
DB	500 mW	800 mW

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

Relative Spectral Emission [5), 6)]

$I_{rel} = f(\lambda)$; I_F = 1000 mA; t_p = 10 ms



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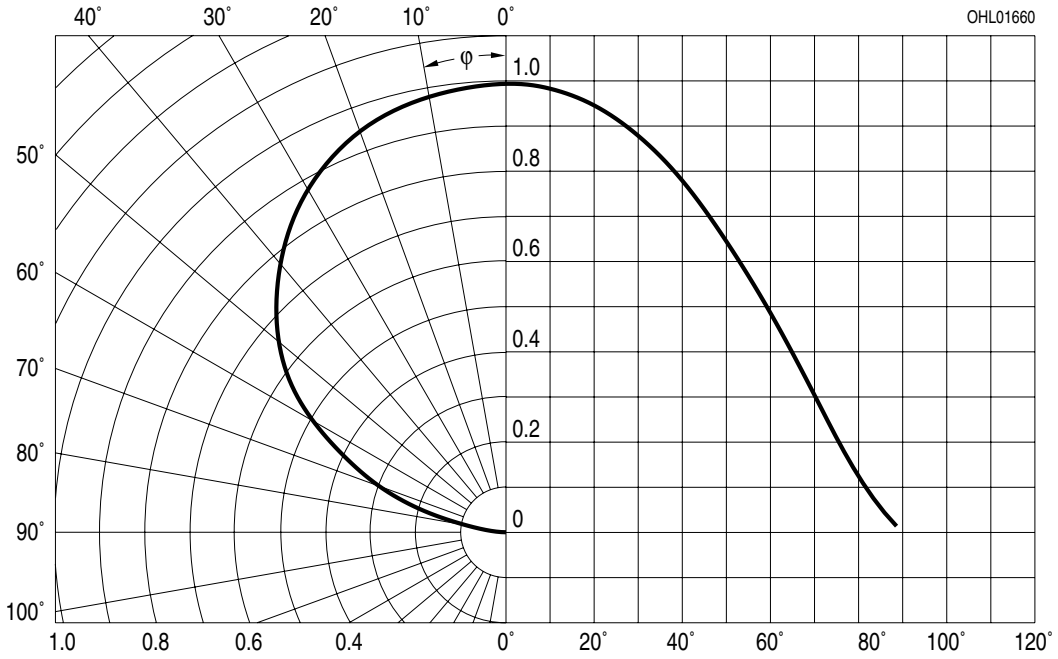
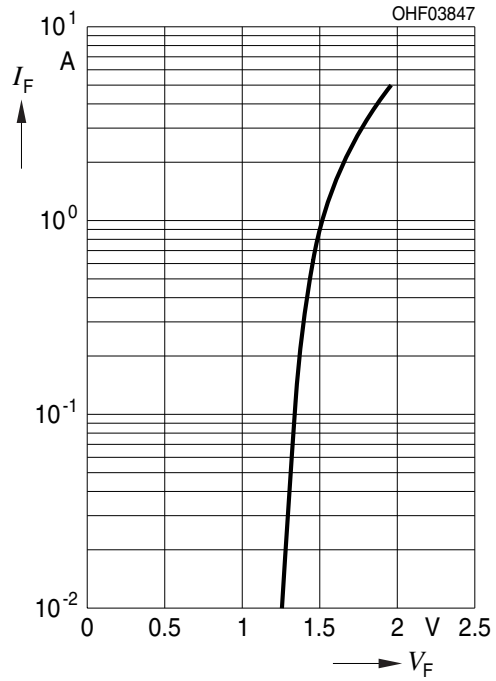
Radiation Characteristics [5), 6)]

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



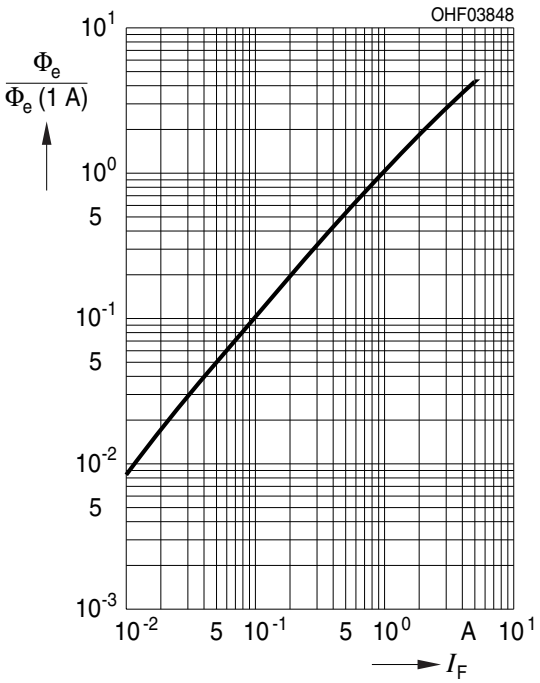
Forward current [5), 6)]

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



Relative Total Radiant Flux [5), 6)]

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



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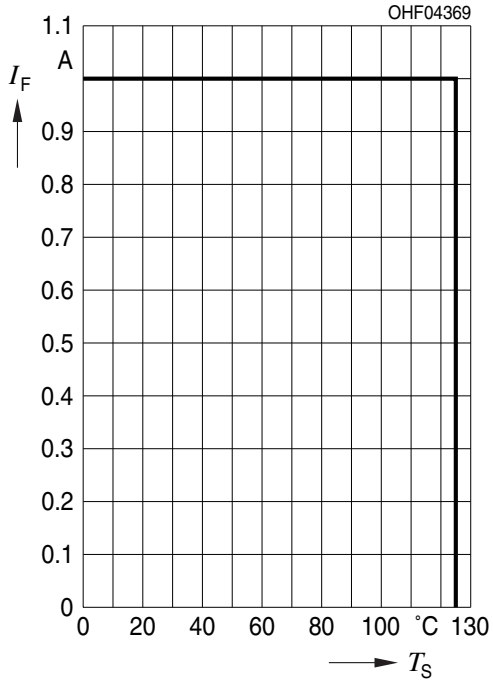
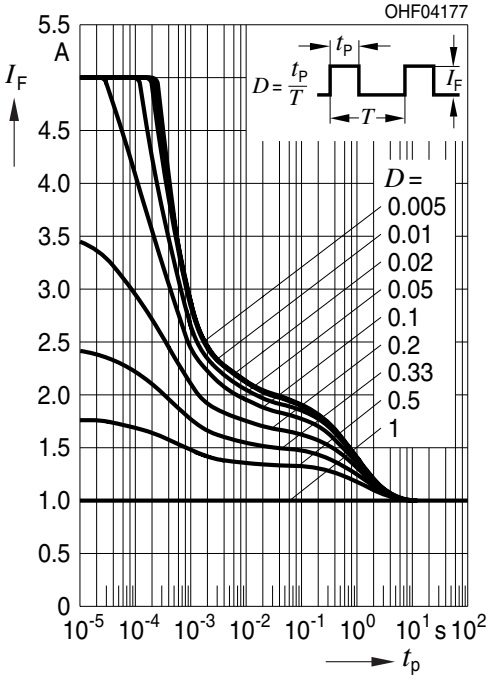
Max. Permissible Forward Current

$I_{F,max} = f(T_S)$; R_{thJS} = 9 K / W



Permissible Pulse Handling Capability

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



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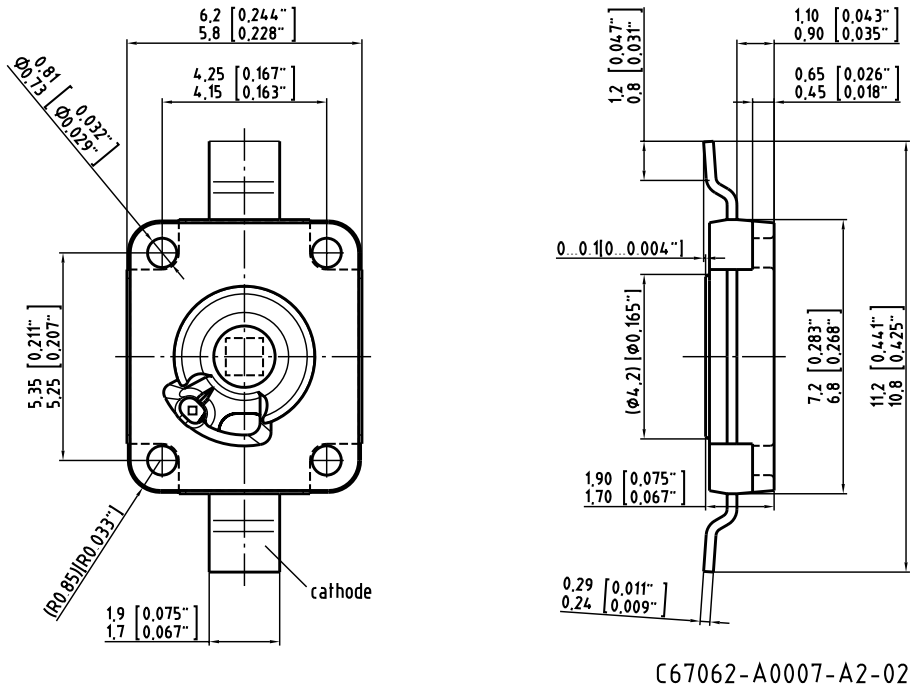
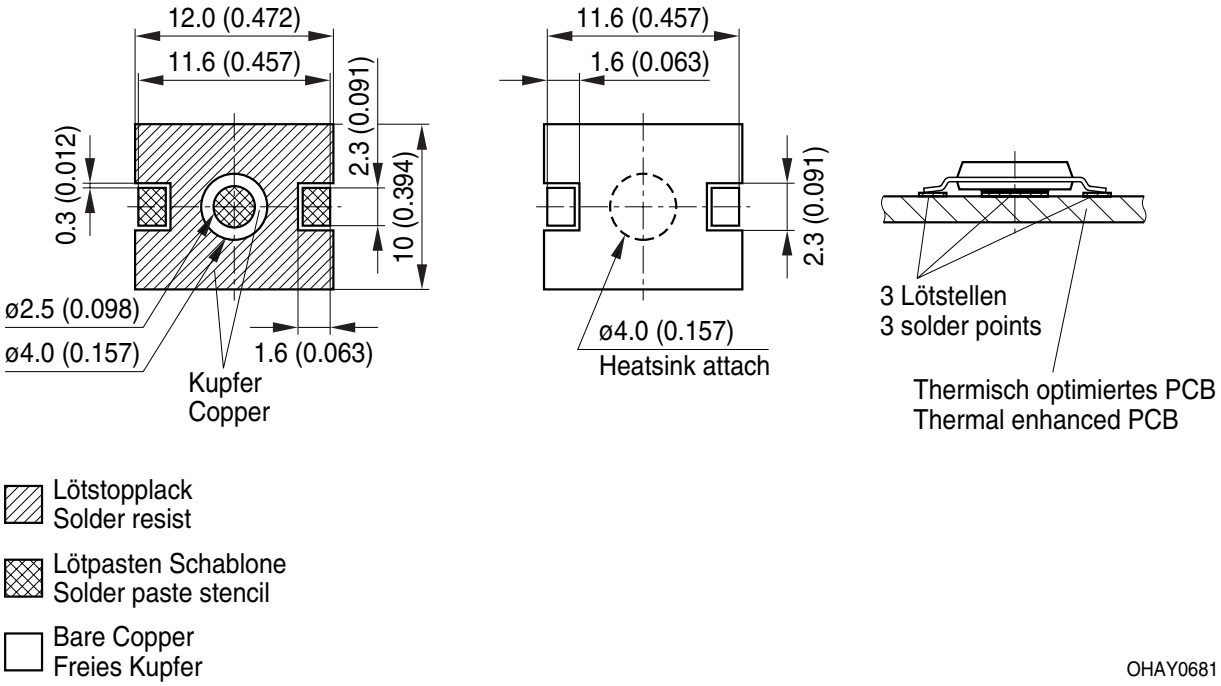
Dimensional Drawing [7)]



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 then IEC 60068-2-43)
ESD advice:	LED is protected by ESD device which is connected in paralell to LED-Chip.

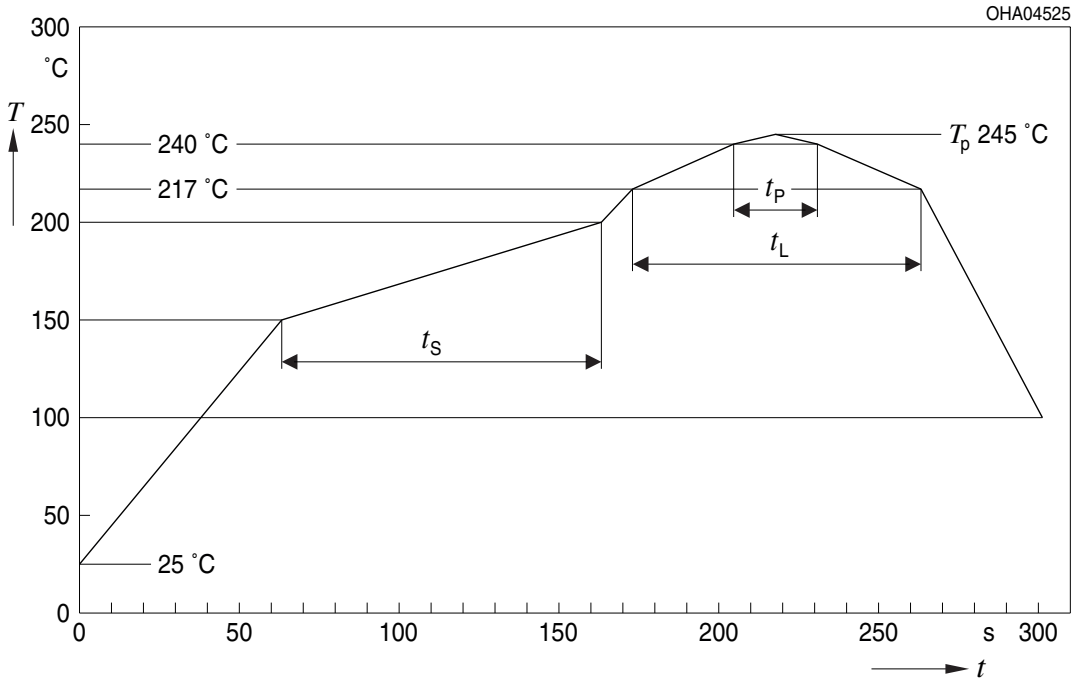
Recommended Solder Pad [7)]



Anode and heatsink are electrically connected.

Reflow Soldering Profile

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



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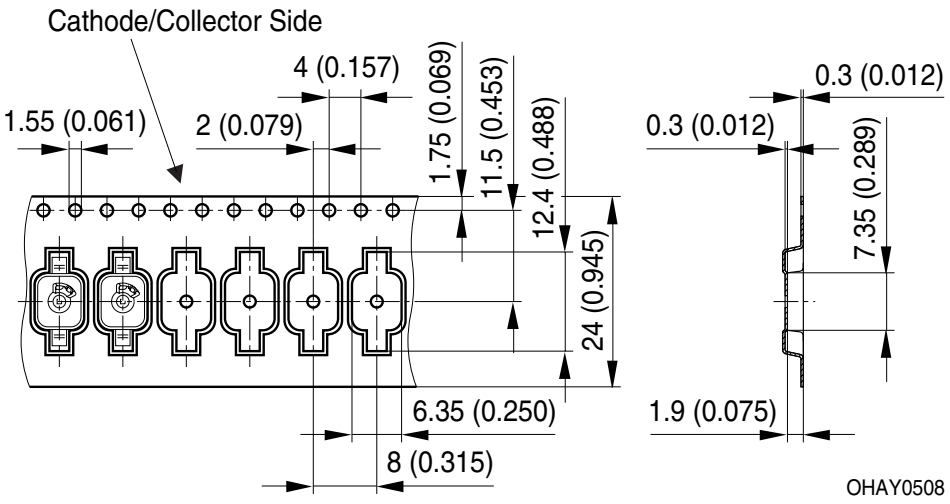
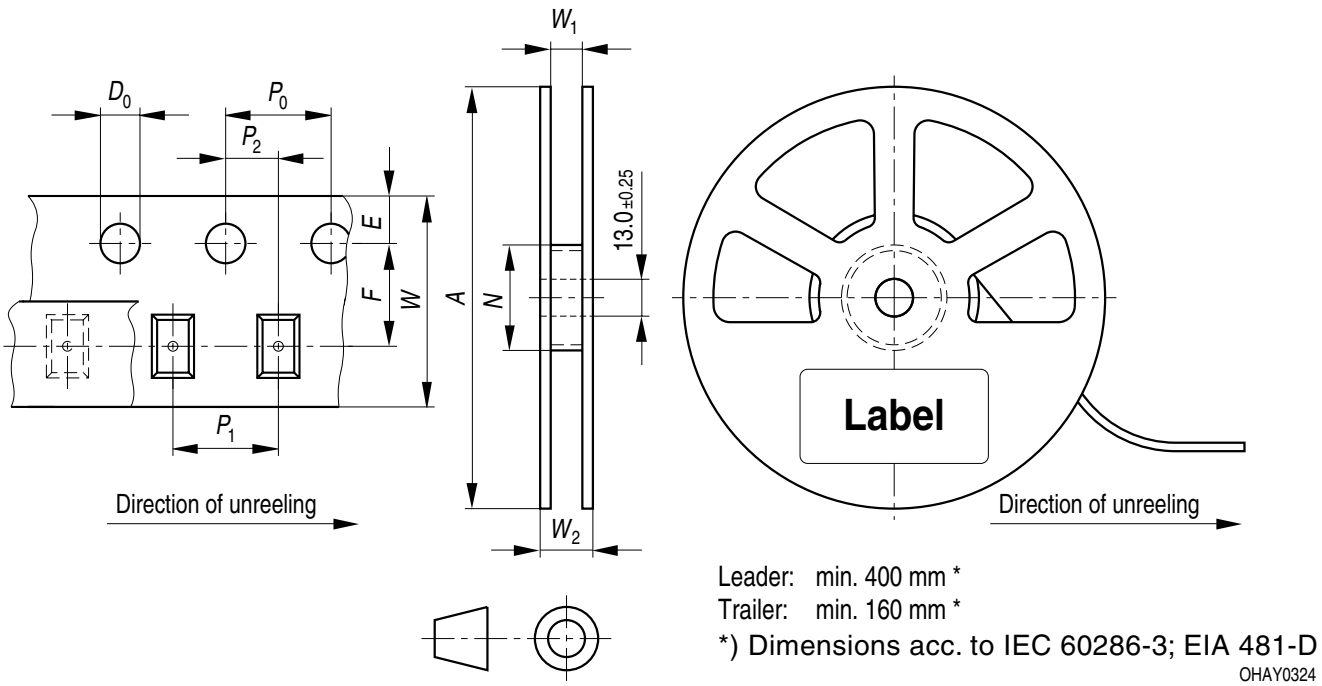
Profile Feature	Symbol	Pb-Free (SnAgCu) Assembly			Unit
		Minimum	Recommendation	Maximum	
Ramp-up rate to preheat*) 25 °C to 150 °C			2	3	K/s
Time t_S T_{Smin} to T_{Smax}	t_S	60	100	120	s
Ramp-up rate to peak*) T_{Smax} to T_P			2	3	K/s
Liquidus temperature	T_L		217		°C
Time above liquidus temperature	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 [7)]



Tape and Reel [8)]

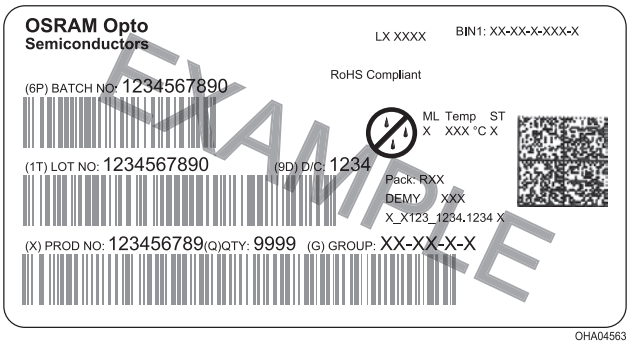


Leader: min. 400 mm *
Trailer: min. 160 mm *
*) Dimensions acc. to IEC 60286-3; EIA 481-D
OHAY0324

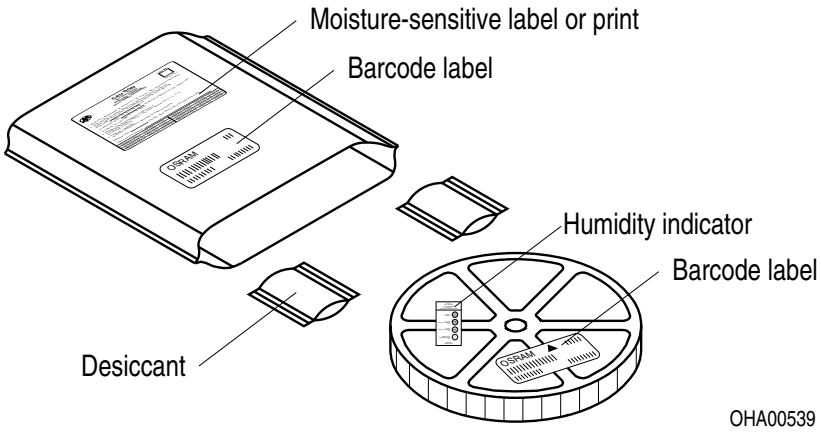
Reel dimensions [mm]

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

Barcode-Product-Label (BPL)

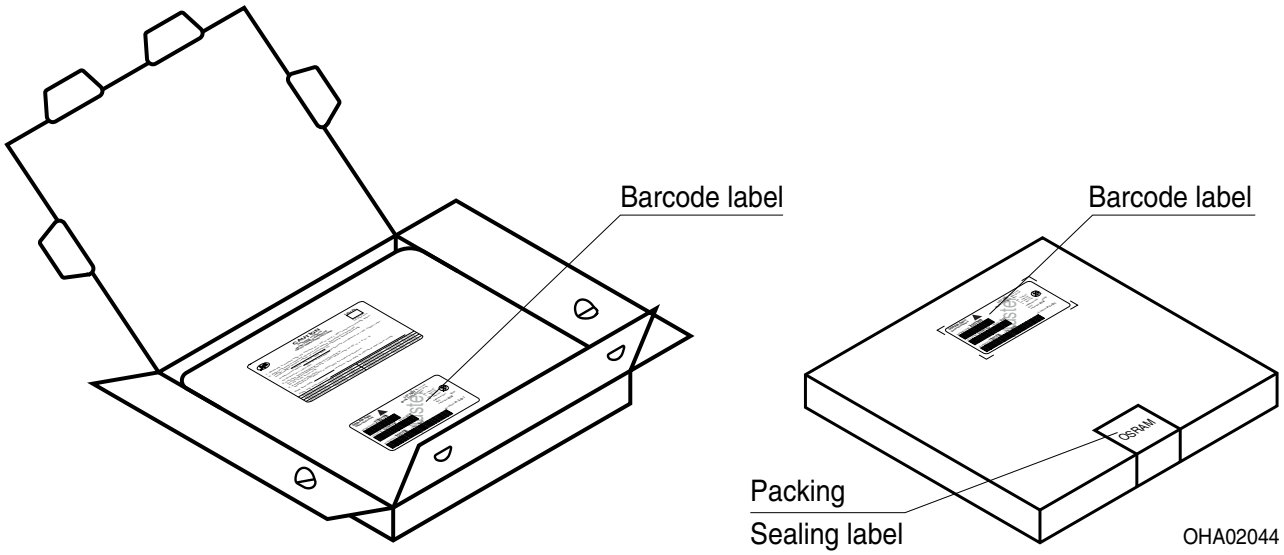


Dry Packing Process and Materials [7)]



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

Transportation Packing and Materials [7)]



Dimensions of transportation box in mm

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

Notes

Depending on the mode of operation, these devices emit highly concentrated visible and non visible light light which can be hazardous to the human eye. Products which incorporate these devices have to follow the safety precautions given in IEC 60825-1.

Subcomponents of this LED 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 LED exposure to aggressive substances during storage, production, and use. LEDs 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 informations please visit www.osram-os.com/appnotes

Disclaimer

Disclaimer
Language english will prevail in case of any discrepancies or deviations between the two language wordings.

Attention please!
The information describes the type of component and shall not be considered as assured characteristics.
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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) **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) **Radiant intensity**: Measured at a solid angle of Ω = 0.01 sr

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

5) **Typical Values**: Due to the special conditions of the manufacturing processes of LED, 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.

6) **Testing temperature**: T_A = 25°C

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

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

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