OSRAM LAY T67B

Datasheet

Discontinued

Published by ams-OSRAM AG
Tobelbader Strasse 30, 8141 Premstaetten, Austria
Phone +43 3136 500-0
ams-osram.com

Multi TOPLED®

LAY T67B

Applications

- Home & Building Automation
- Robotics
- Static Signaling

Features

- Package: white PLCC-4 package, colorless clear resin
- Chip technology: InGaAlP
- Typ. Radiation: 120° (Lambertian emitter)
- Color: λ_{dom} = 617 nm (● amber); λ_{dom} = 587 nm (● yellow)
- Optical efficacy: 16 lm/W; 24 lm/W
- 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)

Ordering Information

Type	Brightness [1]	Ordering Code
LAY T67B-T2V1-1-1+U2V2-45		Q65110A2433
● amber	● I_v = 355 ... 900 mcd (I_F = 50 mA)	
● yellow	● I_v = 560 ... 1120 mcd (I_F = 50 mA)	

Maximum Ratings

Parameter	Symbol		Values ● amber	Values ● yellow
Operating Temperature	T_{op}	min. max.	-40 °C 100 °C	-40 °C 100 °C
Storage Temperature	T_{stg}	min. max.	-40 °C 100 °C	-40 °C 100 °C
Junction Temperature	T_j	max.	125 °C	125 °C
Forward Current T_A = 25 °C	I_F	max.	50 mA	50 mA
Surge Current t ≤ 10 μs; D = 0.005 ; T_A = 25 °C	I_{FS}	max.	100 mA	100 mA
Reverse voltage 2) T_A = 25 °C	V_R	max.	12 V	12 V
ESD withstand voltage acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 2)	V_{ESD}		2 kV	2 kV

Characteristics

I_F = 50 mA; T_A = 25 °C

Parameter	Symbol		Values ● amber	Values ● yellow
Dominant Wavelength [3]	λ_{dom}	min. typ. max.	612 nm 617 nm 624 nm	586 nm 587 nm 592 nm
Viewing angle at 50% I_V	2φ	typ.	120 °	120 °
Forward Voltage [4] I_F = 50 mA	V_F	min. typ. max.	1.90 V 2.10 V 2.50 V	1.90 V 2.20 V 2.50 V
Reverse current [2] V_R = 12 V	I_R	typ. max.	0.01 µA 10 µA	0.01 µA 10 µA
Temperature Coefficient of Peak Wavelength	$TC_{\lambda peak}$	typ.	0.15 nm / K	0.13 nm / K
Temperature Coefficient of Dominant Wavelength	$TC_{\lambda dom}$	typ.	0.08 nm / K	0.1 nm / K
Temperature Coefficient of Forward Voltage	TC_{VF}	typ.	-1.7 mV / K	-3.7 mV / K
Real thermal resistance junction/solderpoint [5]	$R_{thJS\ real}$	max.	260 K / W	260 K / W

Brightness Groups

● amber

Group	Luminous Intensity [1] I_F = 50 mA min. I_v	Luminous Intensity [1] I_F = 50 mA max. I_v	
T2	355 mcd	450 mcd	1210 mlm
U1	450 mcd	560 mcd	1520 mlm
U2	560 mcd	710 mcd	1910 mlm
V1	710 mcd	900 mcd	2420 mlm

Brightness Groups

● yellow

Group	Luminous Intensity [1] I_F = 50 mA min. I_v	Luminous Intensity [1] I_F = 50 mA max. I_v	
U2	560 mcd	710 mcd	1910 mlm
V1	710 mcd	900 mcd	2420 mlm
V2	900 mcd	1120 mcd	3030 mlm

Forward Voltage Groups

● amber

Group	Forward Voltage [4] I_F = 50 mA min. V_F	Forward Voltage [4] I_F = 50 mA max. V_F
3	1.90 V	2.20 V
4	2.20 V	2.50 V

Forward Voltage Groups

● yellow

Group	Forward Voltage [4] I_F = 50 mA min. V_F	Forward Voltage [4] I_F = 50 mA max. V_F
3A	1.90 V	2.05 V
3B	2.05 V	2.20 V
4A	2.20 V	2.35 V
4B	2.35 V	2.50 V

Wavelength Groups

● amber

Group
1

Wavelength Groups

● yellow

Group
4
5

Wavelength Groups

Wavelength Groups

Wavelength Groups

Wavelength Groups

x

Group		
Group		
	x	x

Wavelength Groups

● amber

Group
1

Wavelength Groups

● yellow

Group
4
5

Wavelength Groups

Wavelength Groups

Wavelength Groups

Wavelength Groups

● amber

Group	Dominant Wavelength [3] min. λ_{dom}	Dominant Wavelength [3] max. λ_{dom}
1	612 nm	624 nm

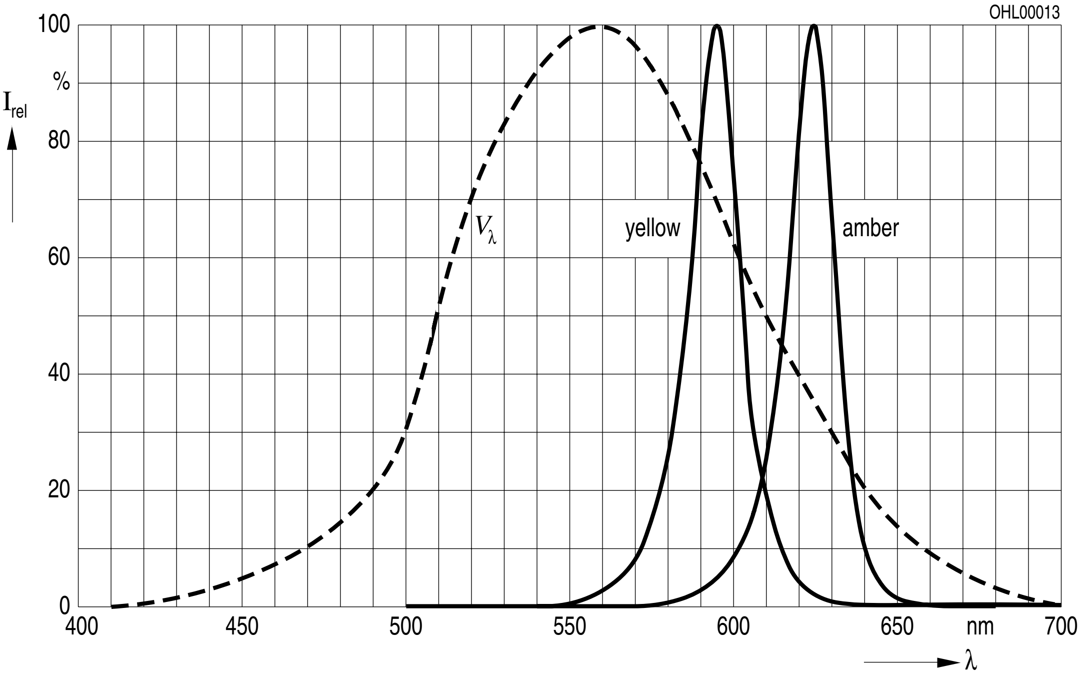
Wavelength Groups

● yellow

Group	Dominant Wavelength [3] min. λ_{dom}	Dominant Wavelength [3] max. λ_{dom}
4	586 nm	589 nm
5	589 nm	592 nm

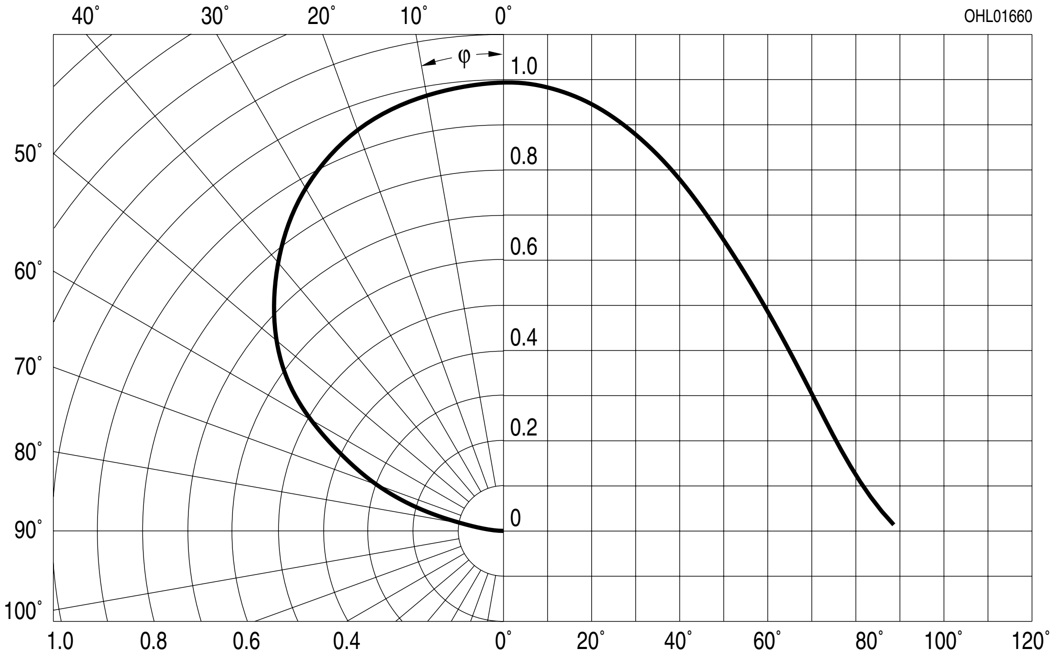
Relative Spectral Emission [6)]

$I_{rel} = f(\lambda)$; $I_F = 50$ mA; $T_A = 25$ °C



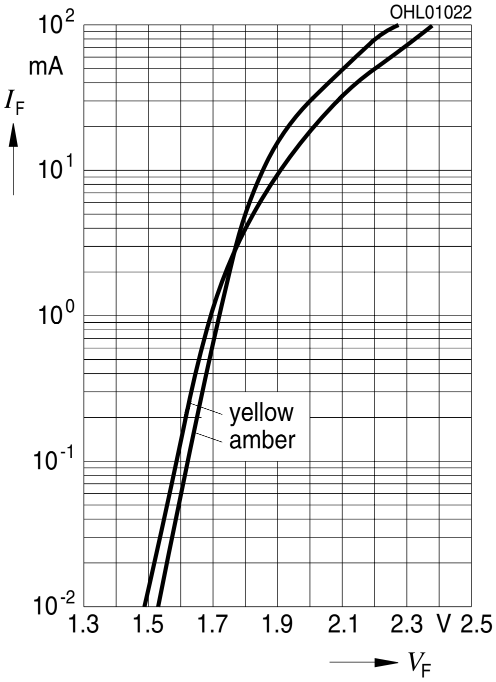
Radiation Characteristics [6)]

$I_{rel} = f(\varphi)$; $T_A = 25$ °C



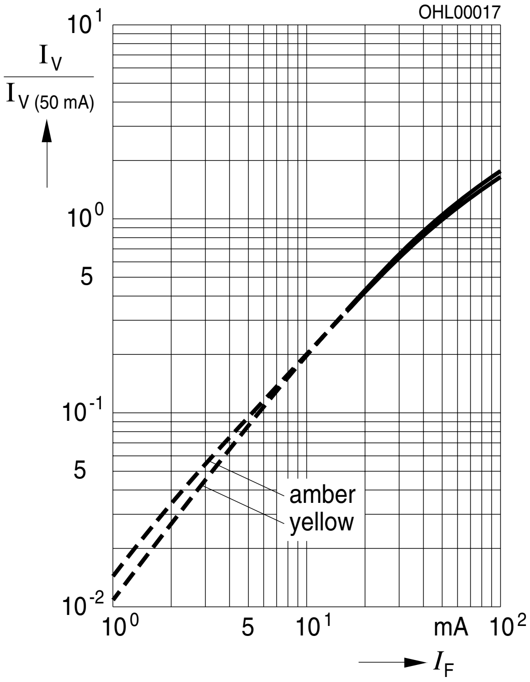
Forward current [6), 7)]

$I_F = f(V_F)$; T_A = 25 °C



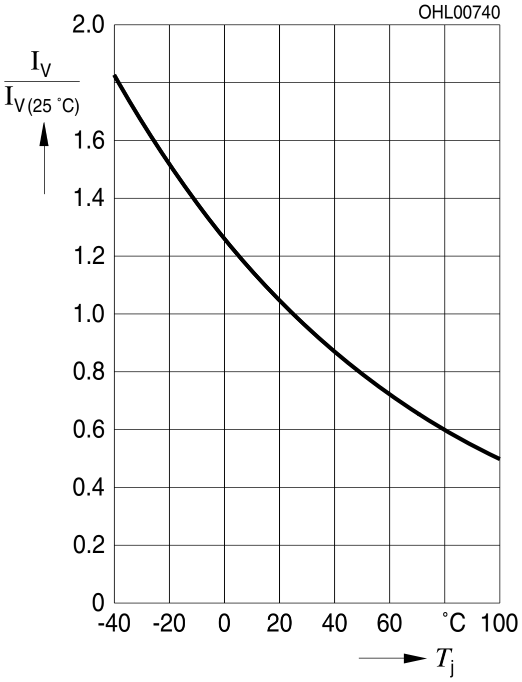
Relative Luminous Intensity [6), 7)]

I_V/I_V(50 mA) = f(I_F); T_A = 25 °C



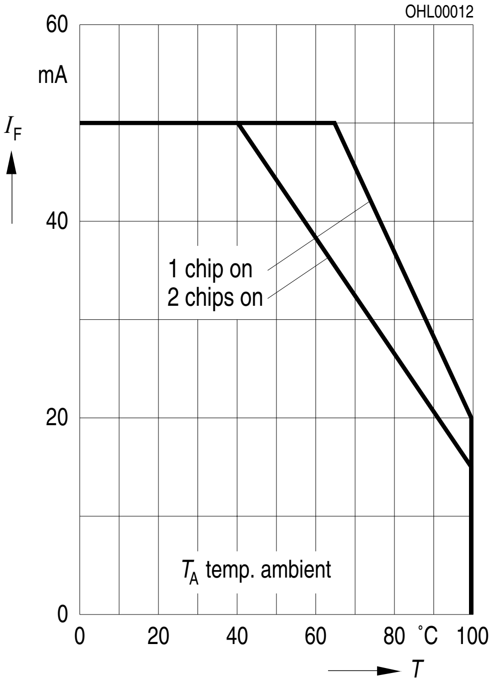
Relative Luminous Intensity [6)]

$I_V/I_V(25\ °C) = f(T_j)$; $I_F = 50$ mA



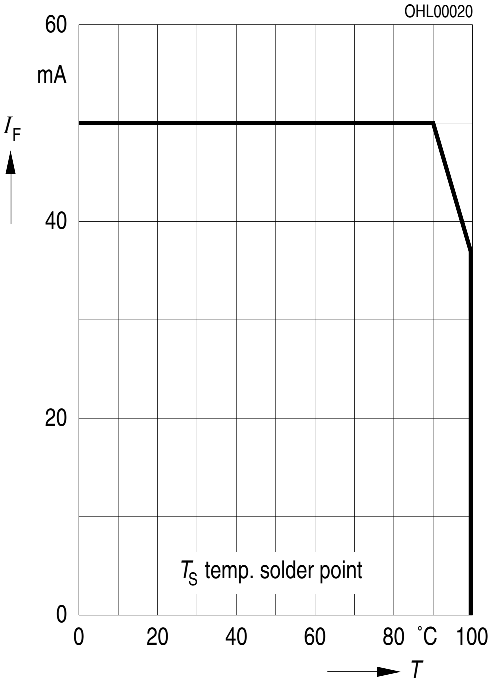
Max. Permissible Forward Current

$I_F = f(T)$; ● yellow



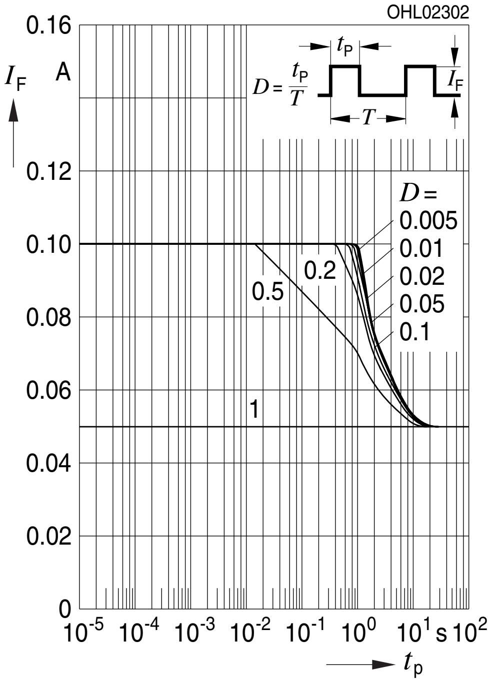
Max. Permissible Forward Current

$I_F = f(T)$; ● yellow



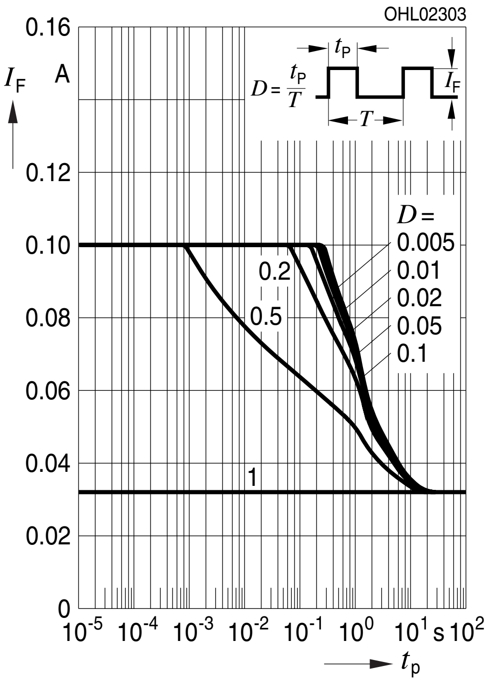
Permissible Pulse Handling Capability

$I_F = f(t_p)$; D: Duty cycle; T_A = 25 °C; ● yellow

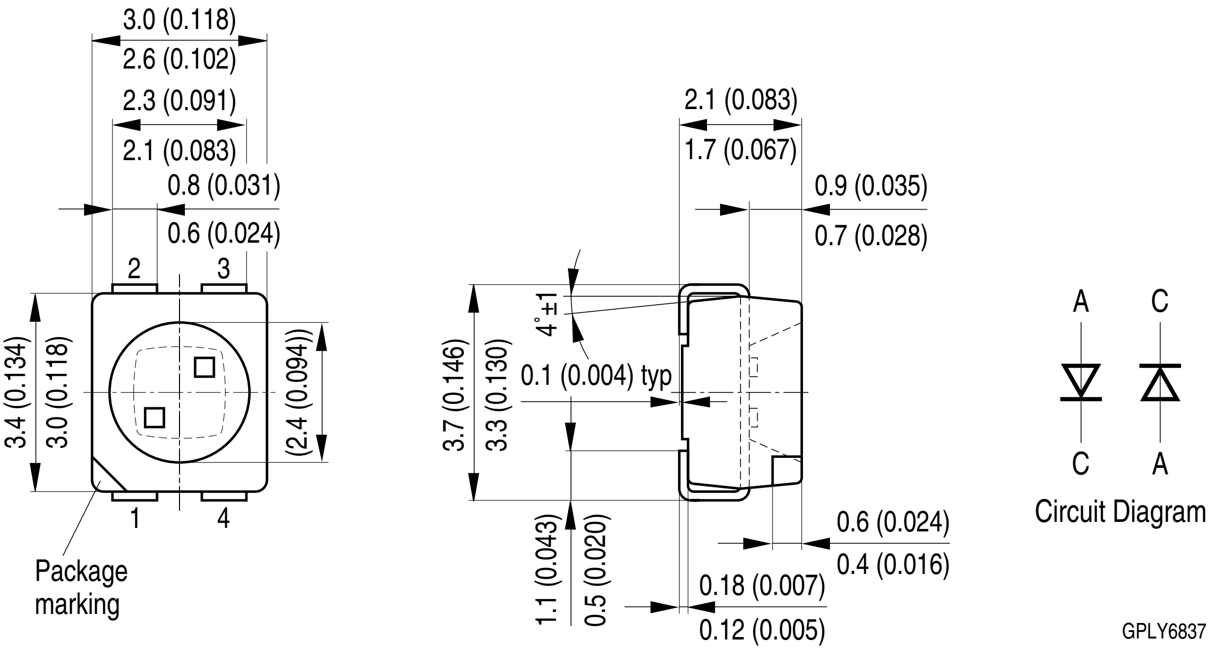


Permissible Pulse Handling Capability

$I_F = f(t_p)$; D: Duty cycle; T_A = 85 °C; ● yellow



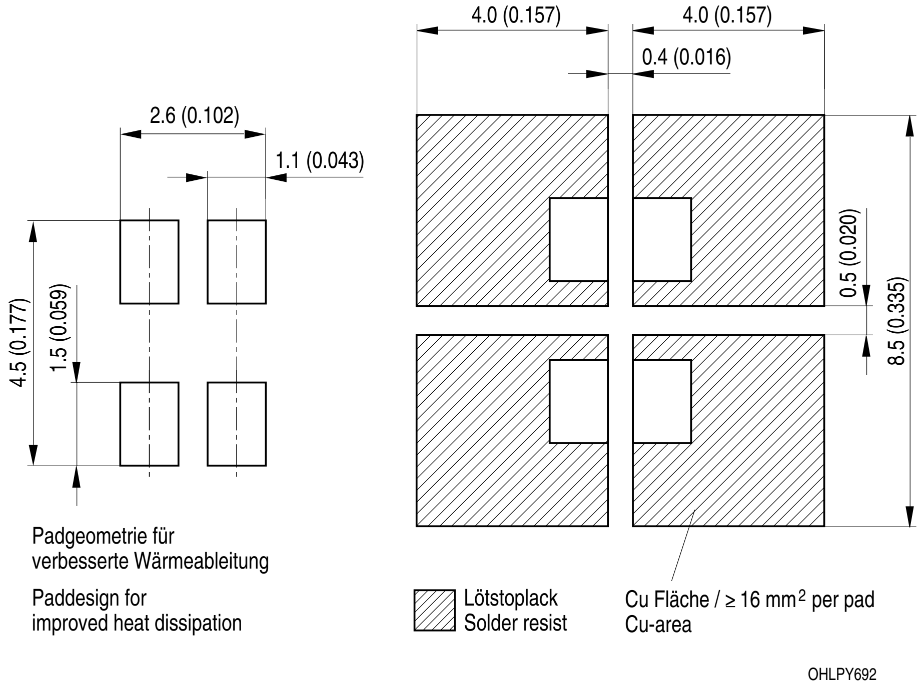
Dimensional Drawing [8]



Further Information:

Approximate Weight:	31.0 mg
Corrosion test:	Class: 3B Test condition: 40°C / 90 % RH / 15 ppm H_2S / 14 days (stricter than IEC 60068-2-43)

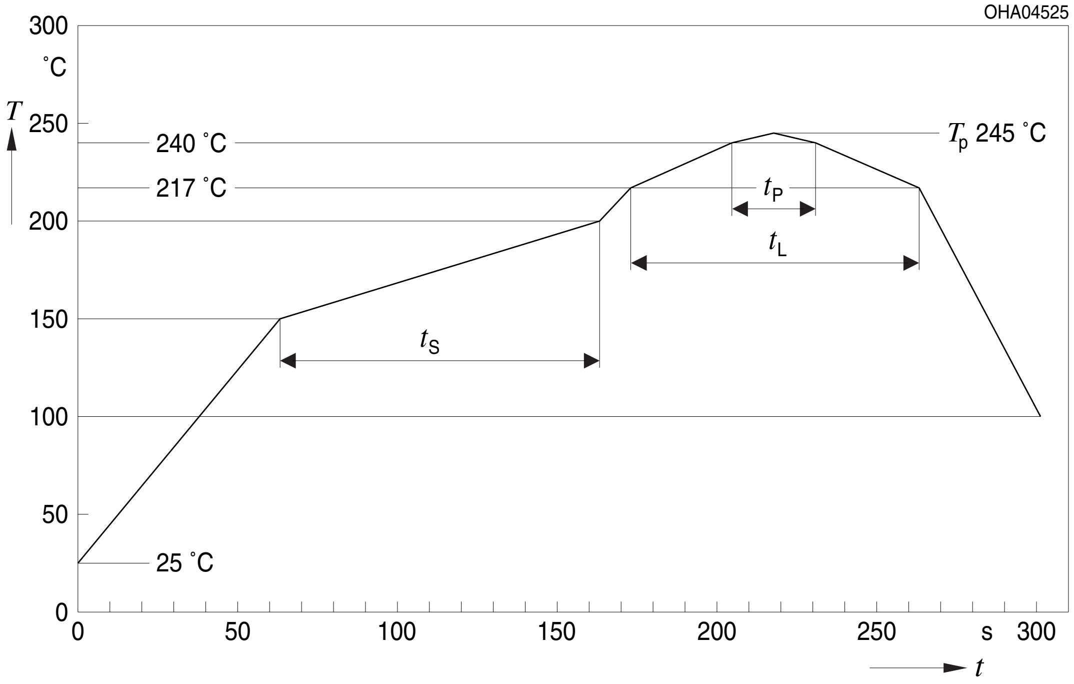
Recommended Solder Pad [8)]



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

Reflow Soldering Profile

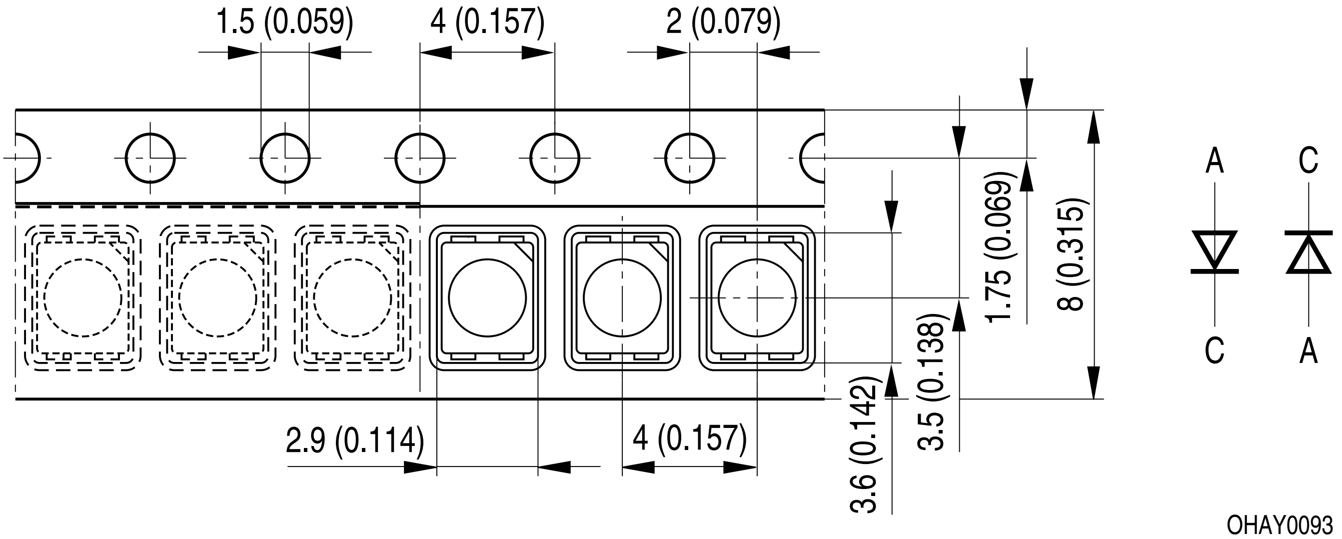
Product complies to MSL Level 2 acc. to JEDEC J-STD-020E



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

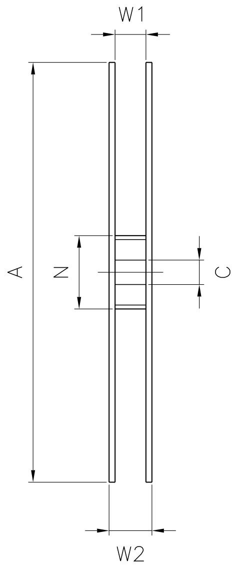
All temperatures refer to the center of the package, measured on the top of the component
* slope calculation DT/Dt: Dt max. 5 s; fulfillment for the whole T-range

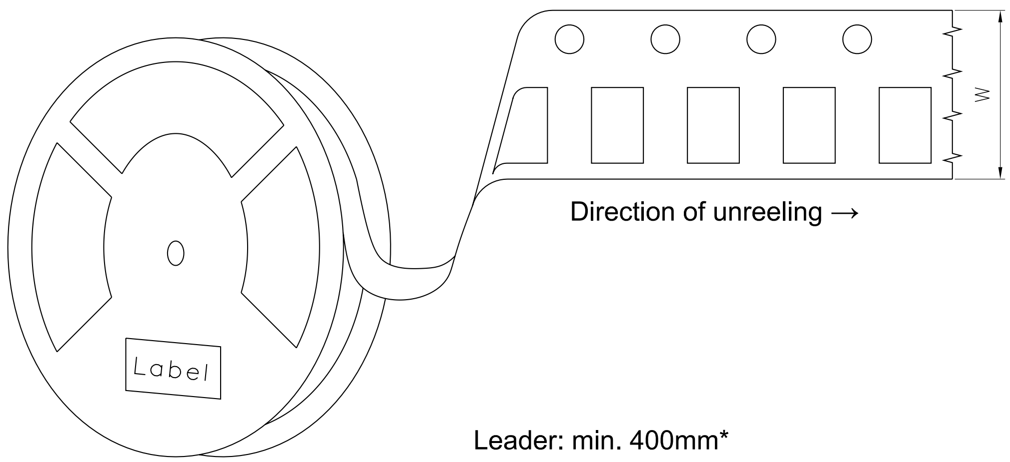
Taping [8)]



OHAY0093

Tape and Reel [9)]





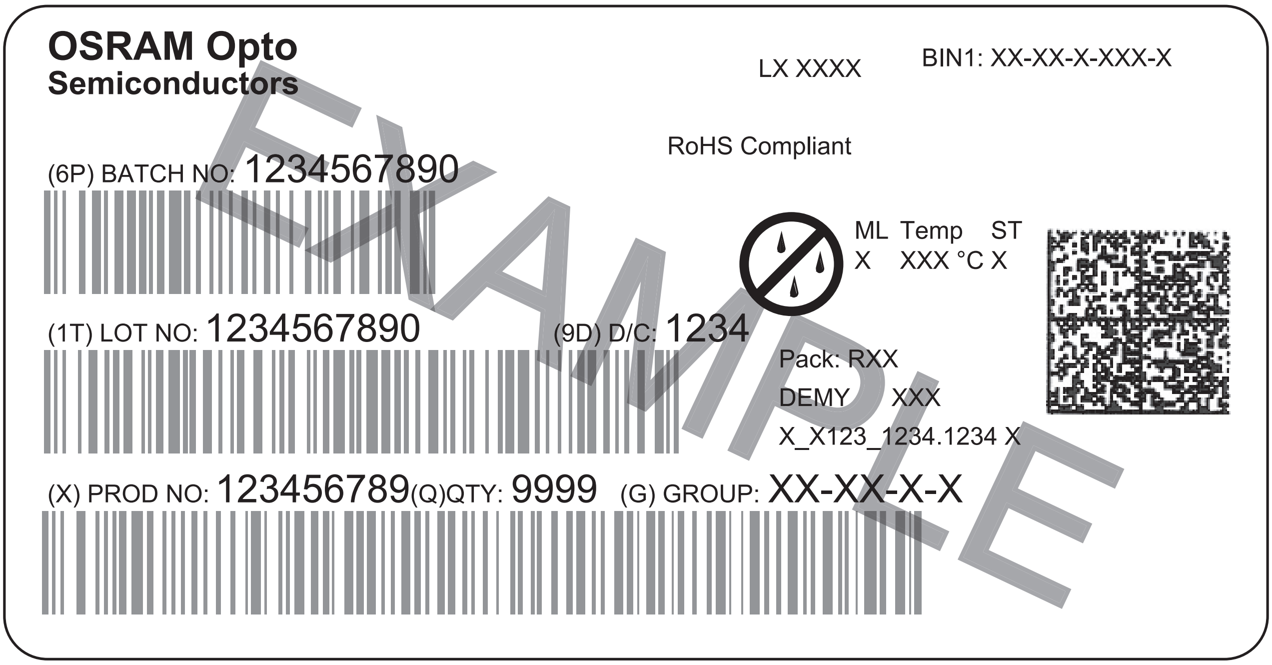
Direction of unreeling →

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	2000
330 mm	8 + 0.3 / - 0.1 mm	60 mm	8.4 + 2 mm	14.4 mm	8000

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

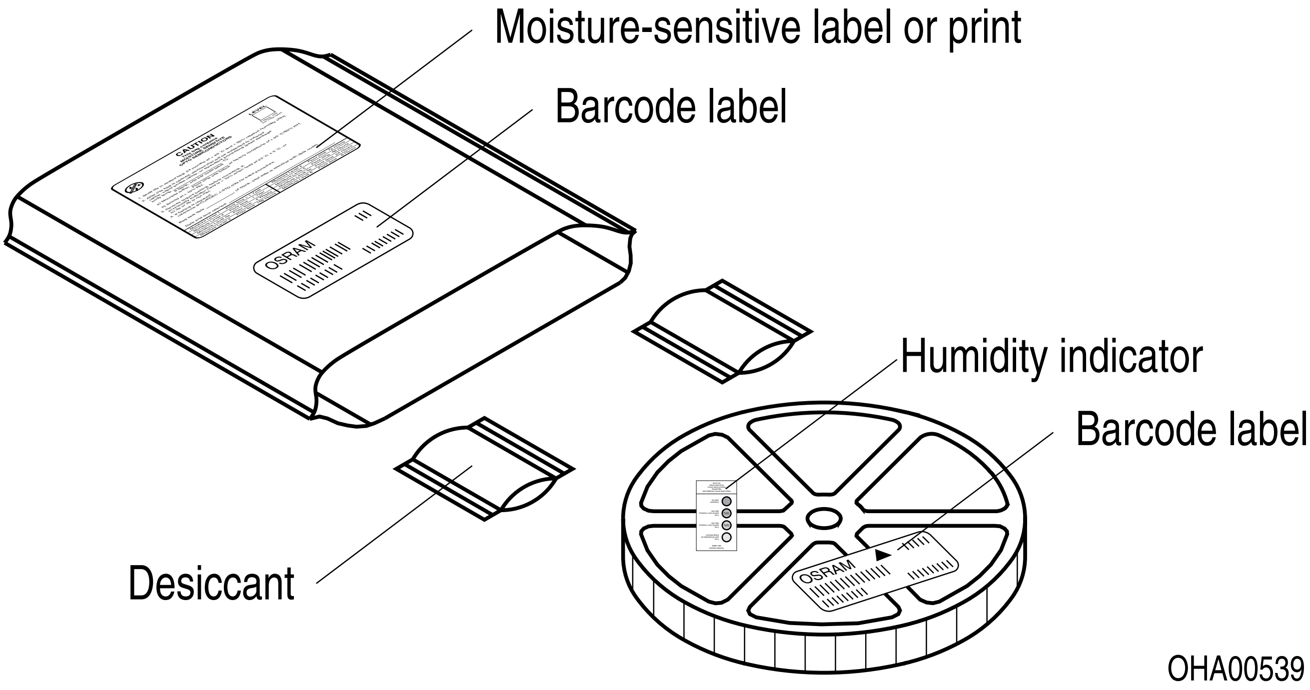
X_X123_1234.1234 X

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

EXAMPLE

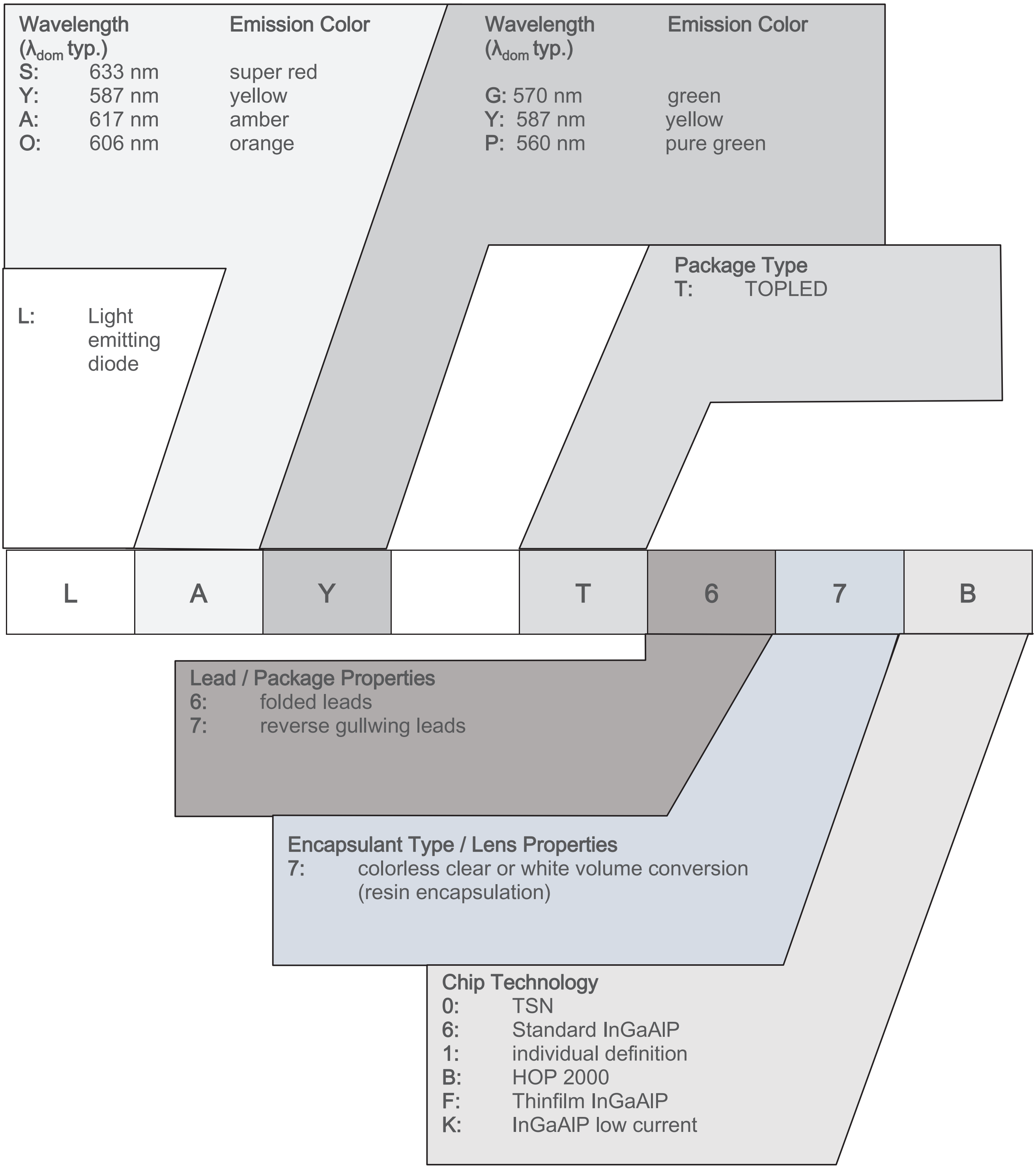
OHA04563

Dry Packing Process and Materials 8)



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

Type Designation System



Wavelength (λ_{dom} typ.)		Emission Color
S:	633 nm	super red
Y:	587 nm	yellow
A:	617 nm	amber
O:	606 nm	orange

Wavelength (λ_{dom} typ.)	Emission Color
G: 570 nm	green
Y: 587 nm	yellow
P: 560 nm	pure green

L: Light emitting diode

Package Type
T: TOPLED

Lead / Package Properties
6: folded leads
7: reverse gullwing leads

Encapsulant Type / Lens Properties
7: colorless clear or white volume conversion (resin encapsulation)

Chip Technology
0: TSN
6: Standard InGaAlP
1: individual definition
B: HOP 2000
F: Thinfilm InGaAlP
K: InGaAlP low current

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 fall 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 our 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

Our components are not developed, constructed or tested for the application as safety relevant component or for the application in medical devices.
Our products are not qualified at module and system level for such application.

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

Glossary

[1] **Brightness:** Brightness values are measured during a current pulse of typically 25 ms, with an internal reproducibility of ±8 % and an expanded uncertainty of ±11 % (acc. to GUM with a coverage factor of k = 3).

[2] **Reverse Operation:** This product is intended to be operated applying a forward current within the specified range. Applying any continuous reverse bias or forward bias below the voltage range of light emission shall be avoided because it may cause migration which can change the electro-optical characteristics or damage the LED.

[3] **Wavelength:** The wavelength is measured at a current pulse of typically 25 ms, with an internal reproducibility of ±0.5 nm and an expanded uncertainty of ±1 nm (acc. to GUM with a coverage factor of k = 3).

[4] **Forward Voltage:** Forward voltages are tested at a current pulse duration of 1 ms and a tolerance of ±0.05 V and an expanded uncertainty of ±0.1 V (acc. to GUM with a coverage factor of k = 3).

[5] **Thermal Resistance:** Rth max is based on statistic values (6σ).

[6] **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.

[7] **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.

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

[9] **Tape and Reel:** All dimensions and tolerances are specified acc. IEC 60286-3 and specified in mm.

Revision History

Version	Date	Change
1.0	2019-10-22	New Layout
1.1	2022-09-28	Discontinued Applications New Layout

Discontinued

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。

Published by ams-OSRAM AG
Tobelbader Strasse 30, 8141 Premstaetten, Austria
Phone +43 3136 500-0
ams-osram.com