V100P000A-680

BIDOS®

Applications:

- Biometric Sensor
- Low Light Laser Therapy
- Industrial Sensors
- Pulse Oximetry

Features:

- Chip Technology: GaAs VCSEL
- Laser Wavelength: 680nm
- Optical Power Class: 5.5 mW
- Radiation Profile: Multi-Mode
- ESD: 2 kV acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 2)

Ordering Information

Type	Operational Mode: I_F = 9 mA, T_a = 25°C DC = 100%	Ordering Code
V100P000A-680	5.5 mW	Q65113A6388

Depending on the mode of operation, these devices emit highly concentrated visible and non-visible light which can be hazardous to the human eye. Products which incorporate these devices must follow the safety precautions given in the “Notes” section.

Maximum Ratings

T_a = 25°C

Parameter	Symbol		Values
Operation/Solder temperature	T_S	min.	-20 °C
DC = 100 %		max.	50 °C
Storage temperature	T_{stg}	min.	-40 °C
		max.	125 °C
Forward current	I_f	max.	10 mA
Direct current operation; DC = 100%; T_S = 25°C			
Reverse Voltage	Not designed for reverse operation		
Reflow soldering Temperature	T_{Ref}	max.	260 °C
ESD withstand voltage	V_{ESD}	max.	2 kV
acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 1A)			

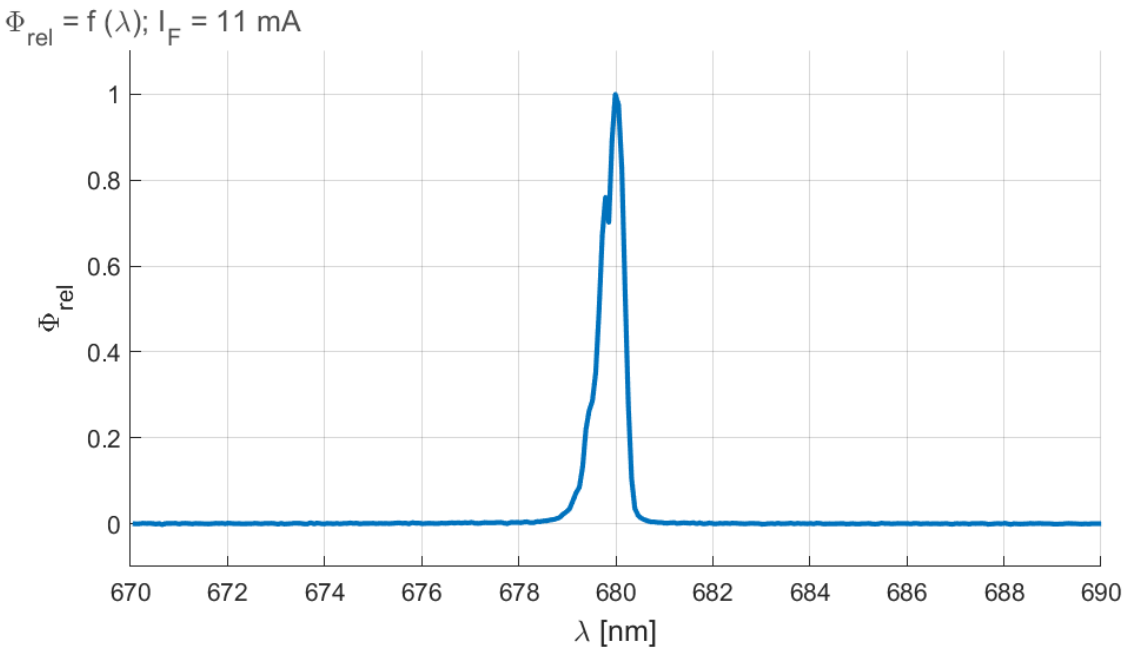
Note: Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device.

Characteristics

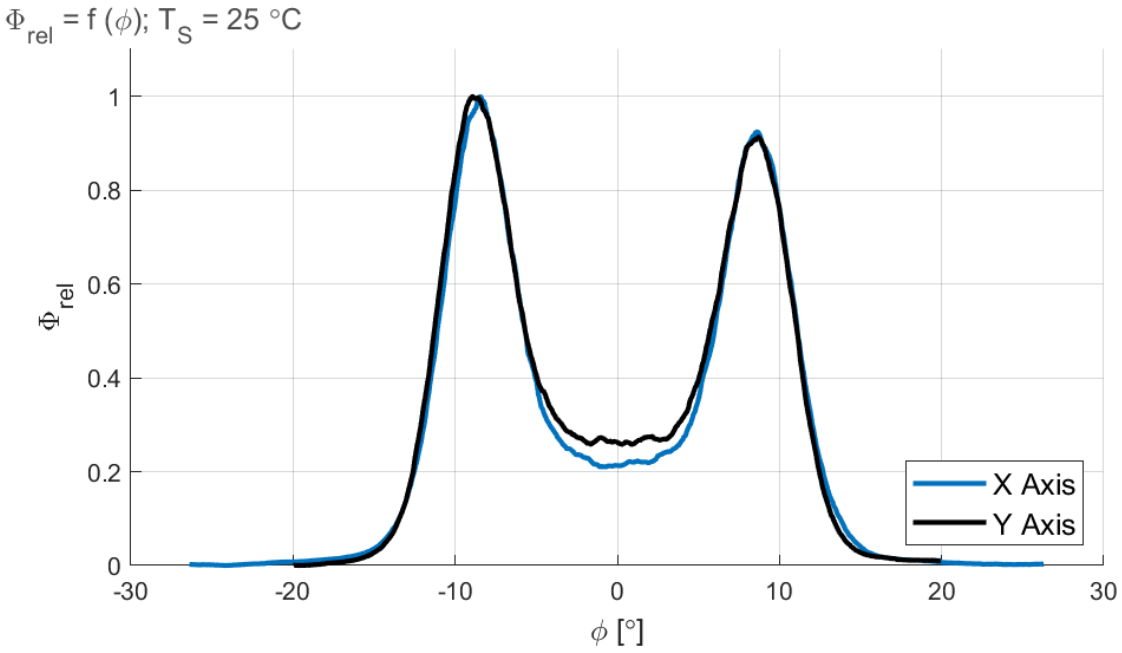
T_a = 25°C, I_F = 9 mA; DC = 100%

Parameter	Symbol		Values
Forward voltage	V_F	typ.	2.4 V
		max.	2.8 V
Output power	Φ	min.	4.5 mW
		typ.	5.5 mW
Threshold current	I_{th}	typ.	2.5 mA
		max.	4.0 mA
Slope efficiency	SE	typ.	0.75 W/A
Peak wavelength	λ_{peak}	min.	670 nm
		typ.	680 nm
		max.	690 nm
Spectral bandwidth at FWHM (50% of Φ_{max})	λ_{FWHM}	typ.	2 nm
Temperature coefficient of wavelength	TC_λ	typ.	0.045 nm /K
Field of view at FWHM (50% of Φ_{max})	ϕ_X	typ.	20°
	ϕ_Y	typ.	20°

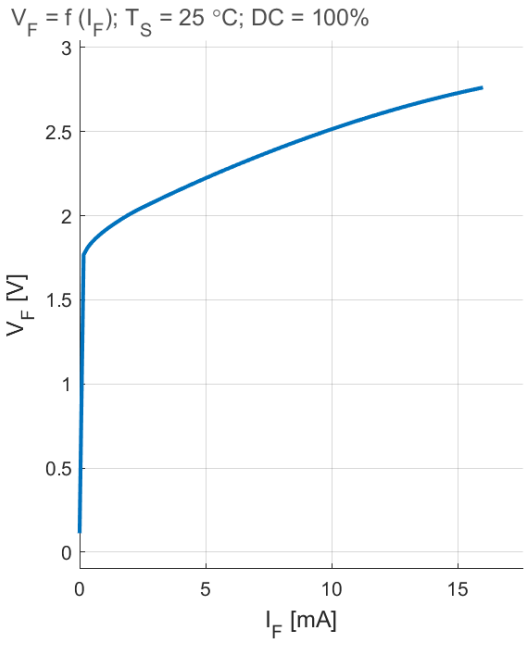
Relative Spectral Emission [1)]



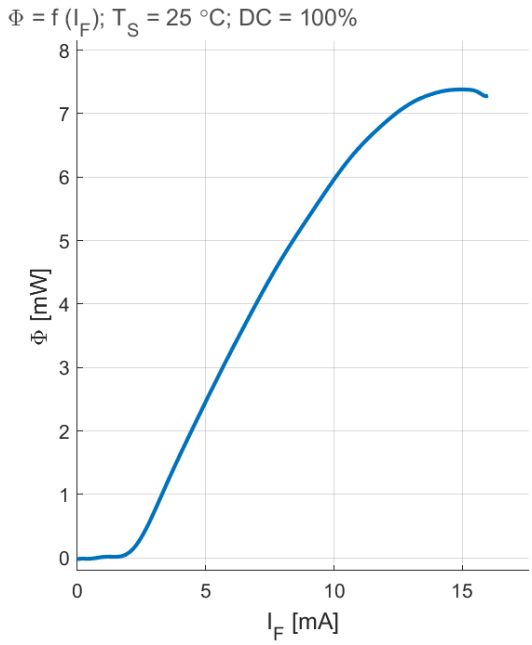
Radiation Characteristics [1)]



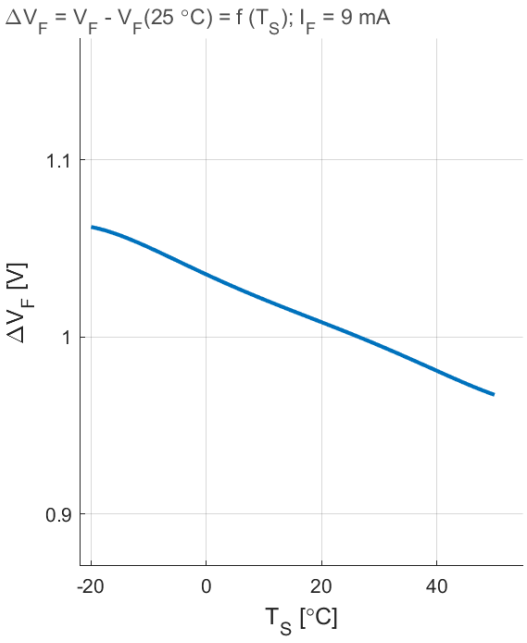
Forward Voltage [1) 2)]



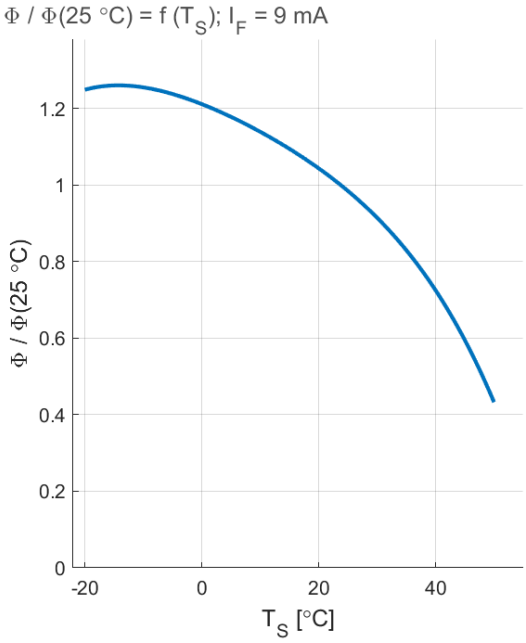
Optical Output Power [1) 2)]



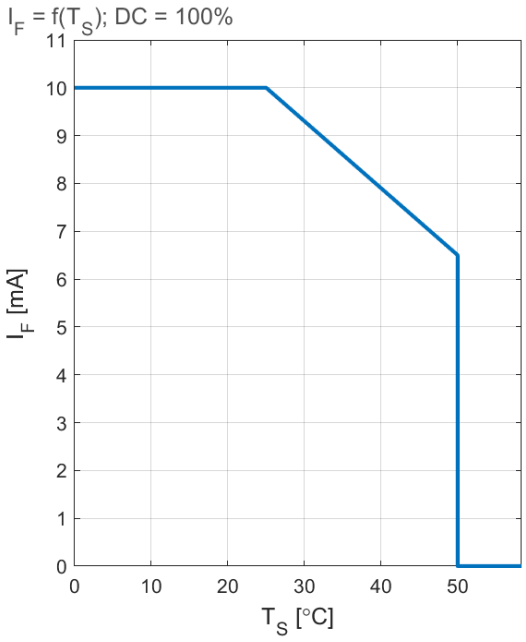
Relative Forward Voltage [1)]



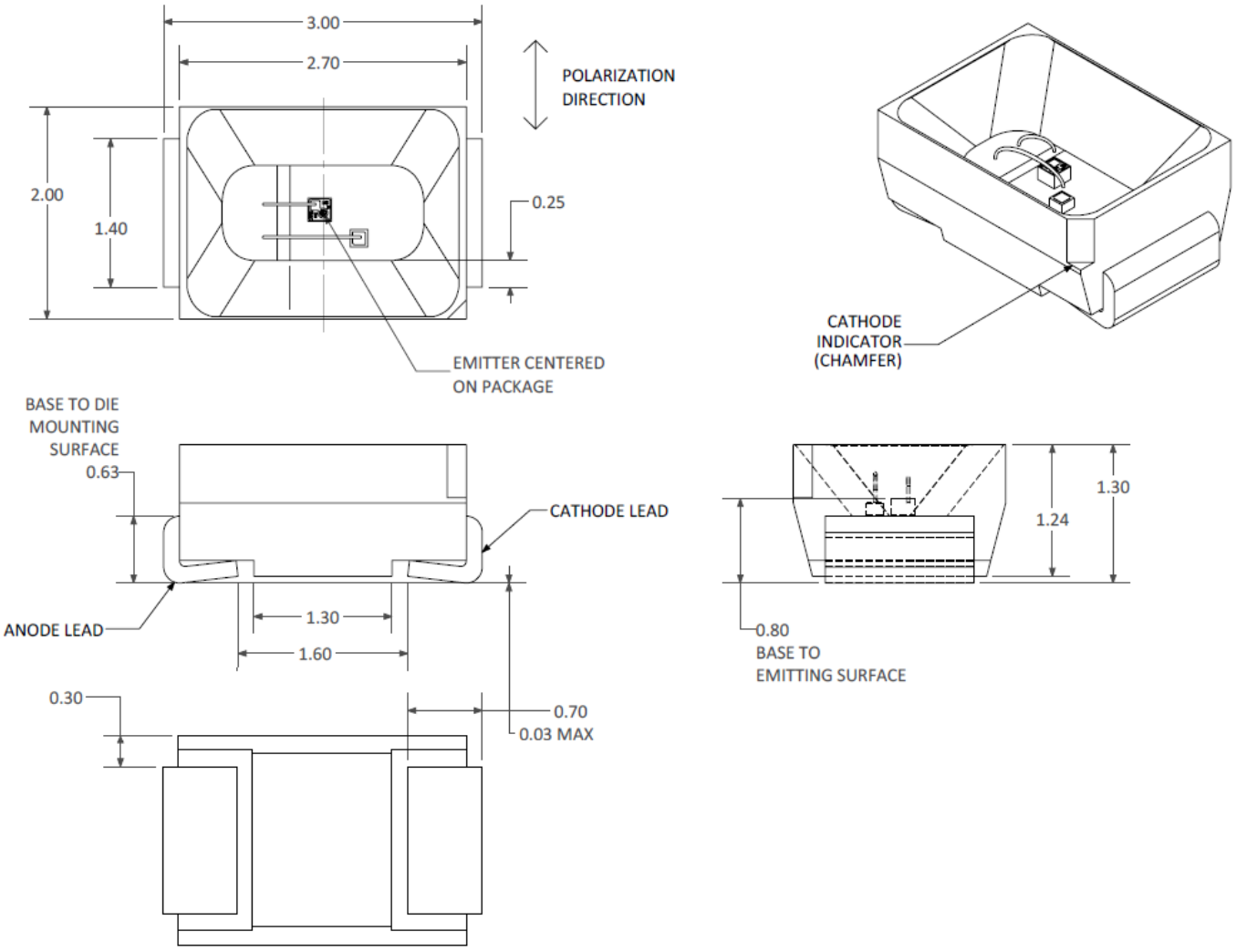
Relative Radiant Power [1)]



Max Permissible Current



Dimension Drawings [3)]



MOISTURE SENSITIVITY CLASSIFICIATION & HANDLING

The package should be treated as Moisture Sensitivity Level 5a (MSL 5a) prior to assembly. The shelf life in the sealed bag is 12 months at 5°C-30°C and < 60% R.H.

After the package is opened it is recommended to bake before the first use:

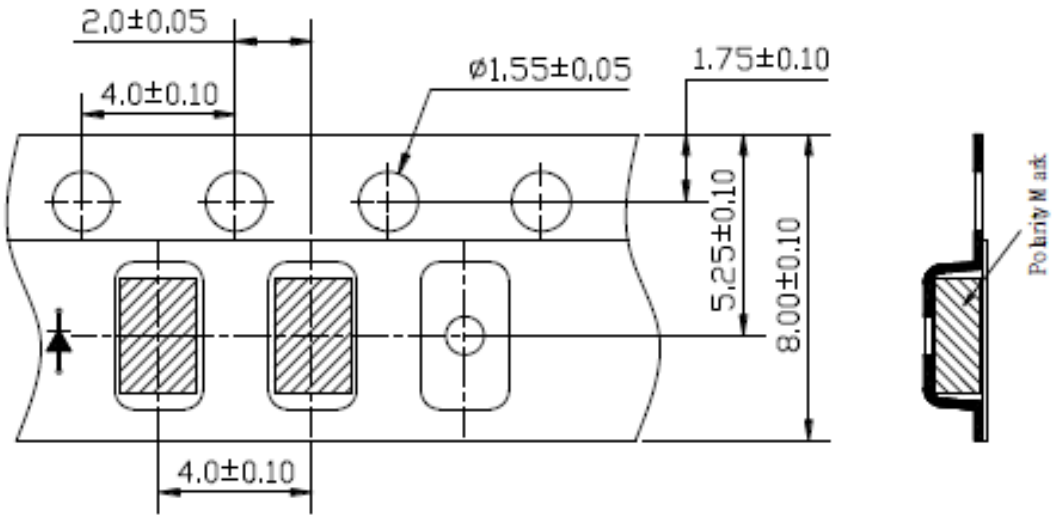
Baking condition:

1. 60°C ± 5°C for 24-48 hours and <5% R.H. in tape and reel
2. 110°C ±5°C for 8-16 hours in bulk type

The devices should be used within a week and to be stored at <20% R.H. with zip lock sealed:

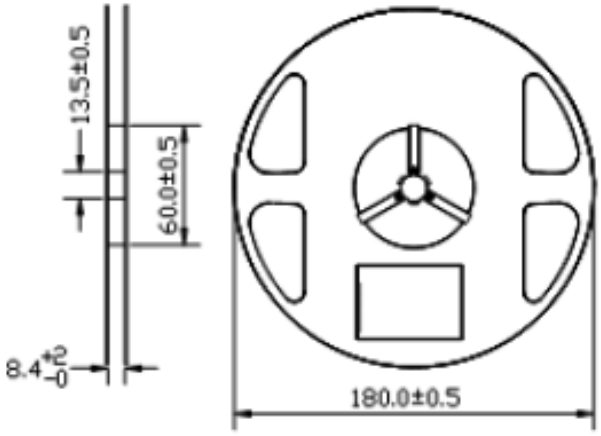
1. Baking is required before soldering when the pack is unsealed after 24 hours
2. Bake conditions as described above.

Taping[3) 4)]



Unit: mm

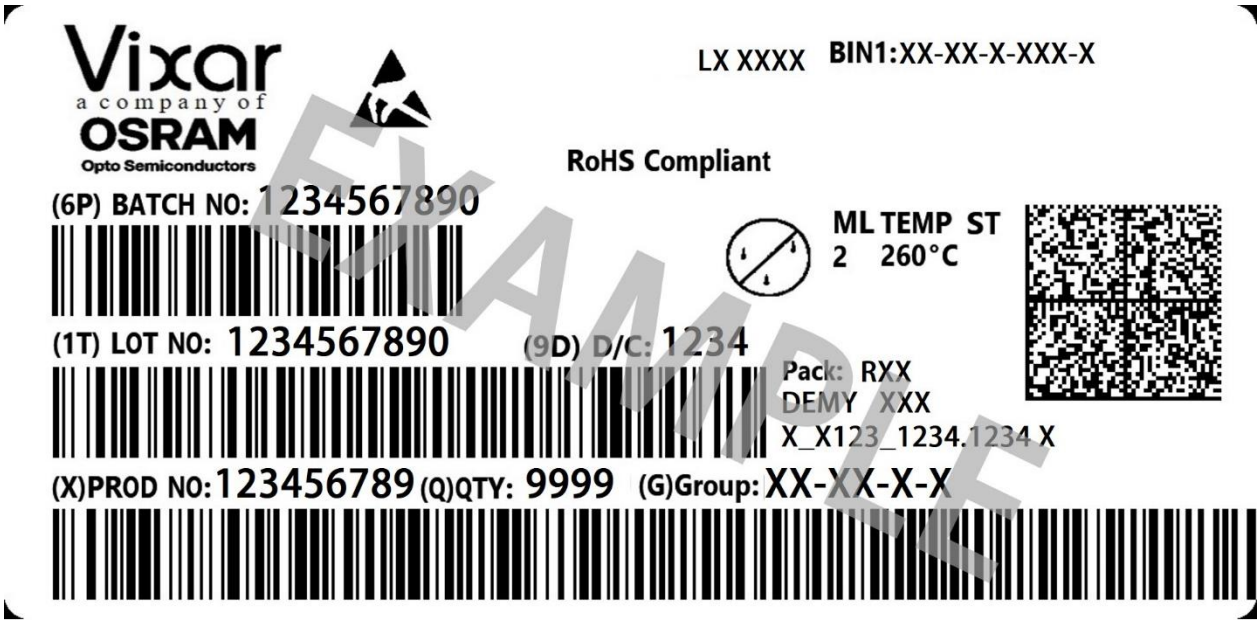
Tape and Reel [4)]



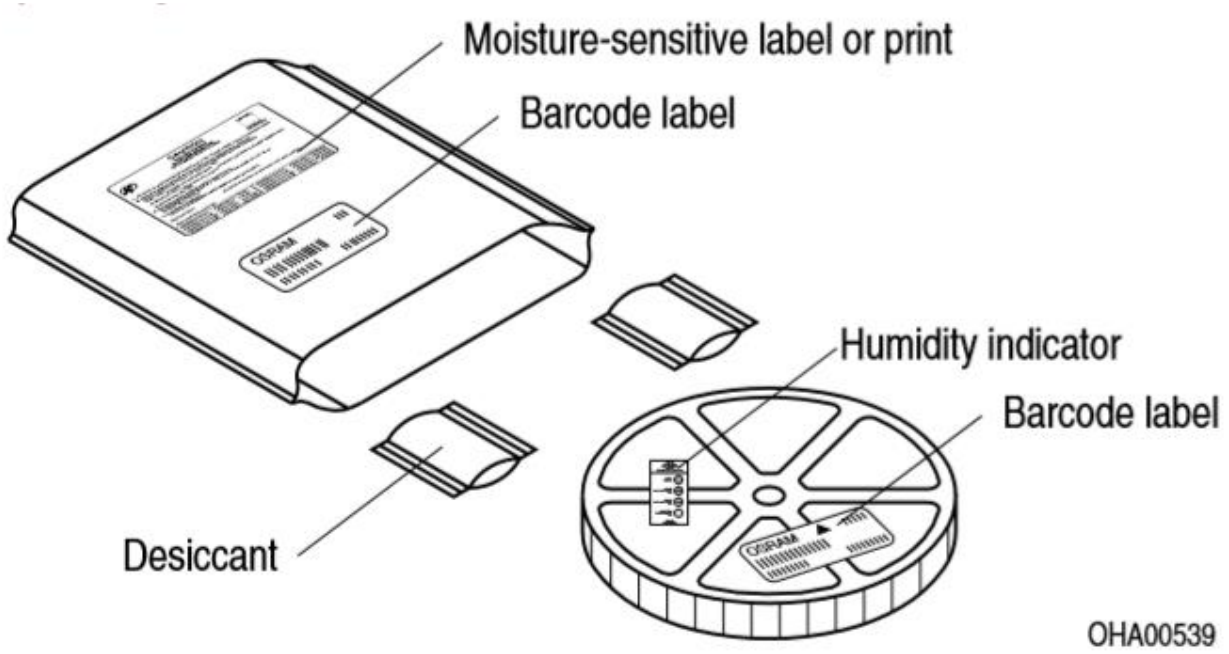
Unit: mm

Pieces per PU
2500

Barcode-Product-Label (BPL)



Dry Packing Process and Materials



Notes

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

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

OSRAM OS assumes no liability whatsoever for any use of this document or its content by recipient including, but not limited to, for any design in activities based on this preliminary draft version. OSRAM OS may e.g. decide at its sole discretion to stop developing and/or finalizing the underlying design at any time.

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 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.
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) **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.

2) **Testing temperature:** T_a = 25°C

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

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

Revision History

Version	Date	Change
1.0	March 2nd, 2023	Release of Datasheet

Published by OSRAM Opto Semiconductors GmbH
Leibnizstraße 4, D-93055 Regensburg

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。

Vixar OSRAM Opto Semiconductors

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

ams OSRAM:

V100P000A-680