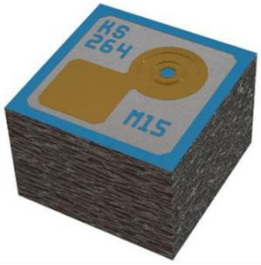
OLH0909V.A1-680-B

BIDOS® Core



Application

- Industrial sensor

Features:

- Chip Technology: GaAs VCSEL
- IR Laser Wavelength: 680nm
- Optical Power Class: 4.8 mW
- Radiation Profile: 21°
- ESD: 250 V acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 1A)

Ordering Information

Type	Operational Mode: I_F = 10 mA, T_a = 40°C DC = 100%	Ordering Code
OLH0909V.A1-680-B	4.8 mW	Q65113A7677

Note: OLH0909V.A1-680-B is a Vixar legacy qualified product.

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.	12 mA
Direct current operation; DC = 100%; T_S = 25°C			
Reverse Voltage	V_R	max.	5 V
Refer to Note 2 below.			
ESD withstand voltage	V_{ESD}	max.	250 V
acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 1A)			

Note 1: Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device.

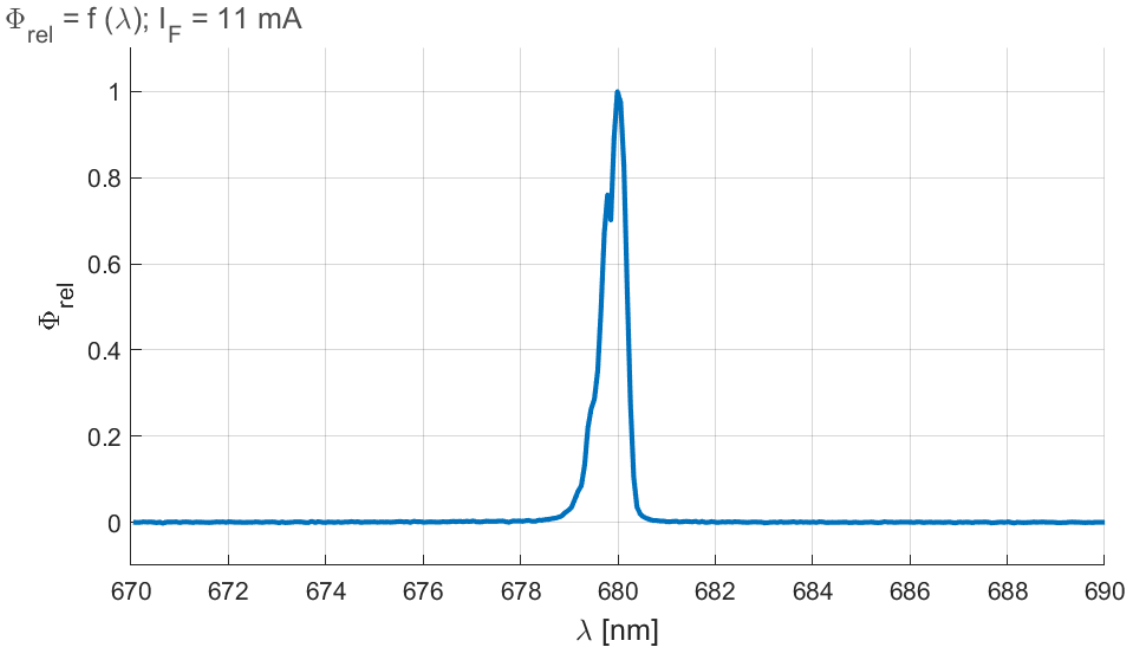
Note 2: For details refer to the Vixar Application Note "VCSEL EOS/ESD Considerations and Lifetime Optimization".

Characteristics

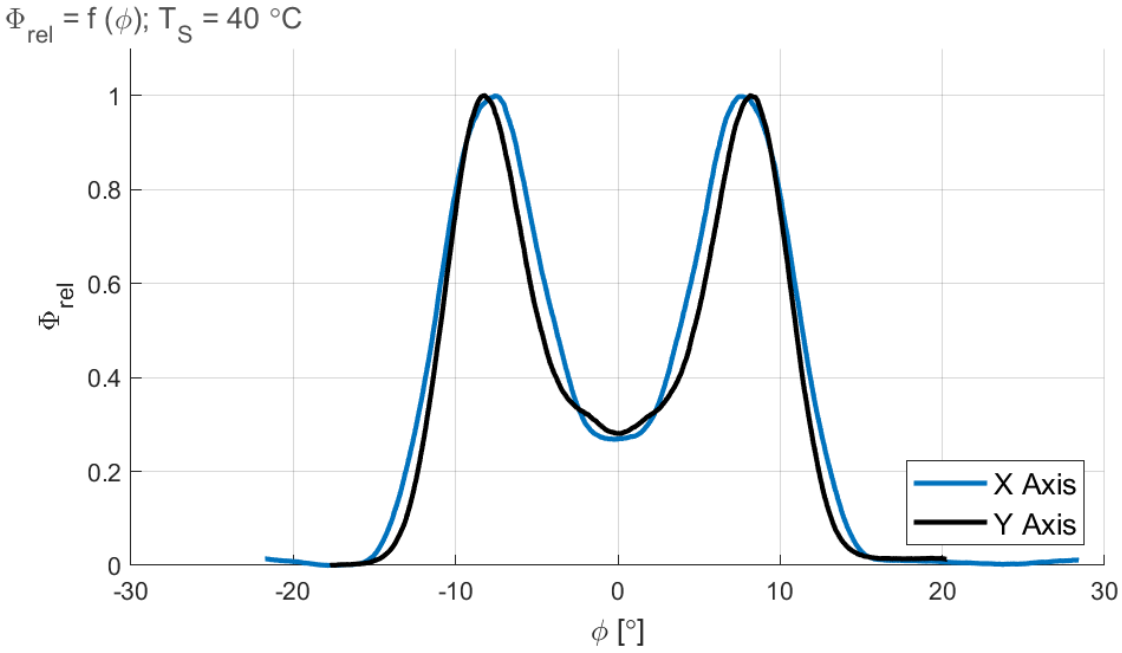
T_a = 40°C, I_{test-1} = 9.5 mA; I_{test-2} = 10 mA, I_{test-3} = 10.5 mA, DC = 100%

Parameter	Symbol		Values	Notes
Forward voltage	V_F	min.	2.25 V	
		typ.	2.4 V	@I_{test-2}
		max.	2.65 V	
Output power	Φ	min.	3.5 mW	
		typ.	4.8 mW	@I_{test-2}
		max.	6.8 mW	
Threshold current	I_{th}	min.	1.5 mA	
		typ.	2.5 mA	
		max.	4.5 mA	
Slope efficiency	SE	min.	0.1 W / A	@I_{test-1},
		typ.	0.4 W / A	I_{test-2},I_{test-3},
		max.	0.75 W / A	
Series Resistance	Rs	min.	25 Ω	@I_{test-1},
		typ.	40 Ω	I_{test-2},I_{test-3},
		max.	70 Ω	
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.	21°	@T=25°C
	ϕ_Y	typ.	21°	

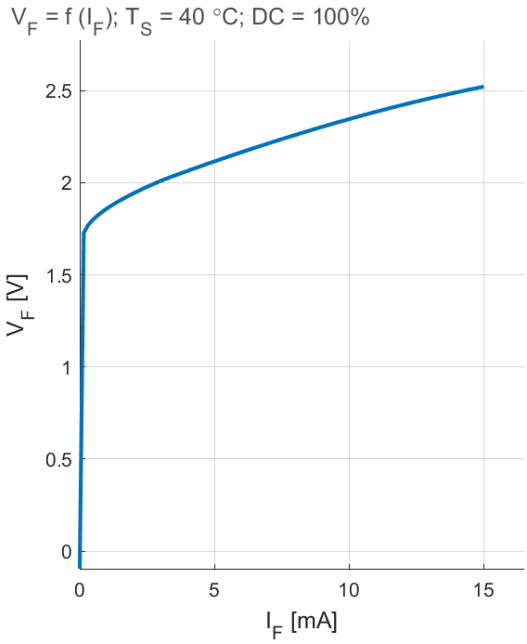
Relative Spectral Emission [1)]



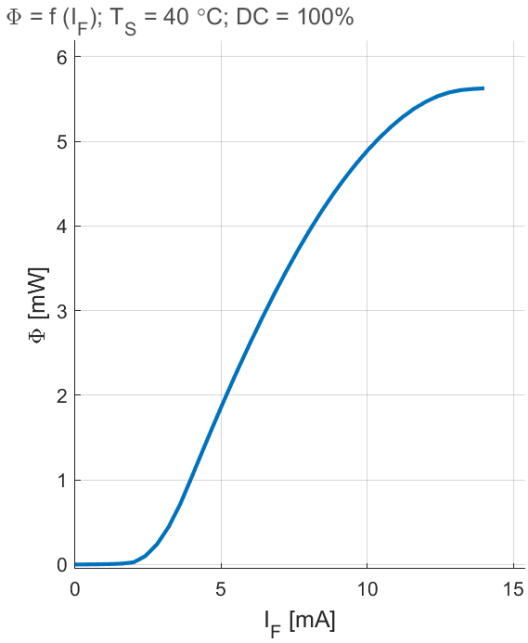
Radiation Characteristics [1)]



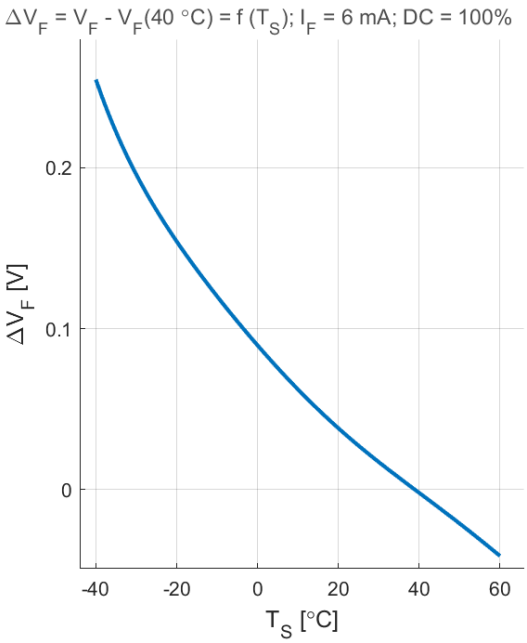
Forward Voltage [1) 2)]



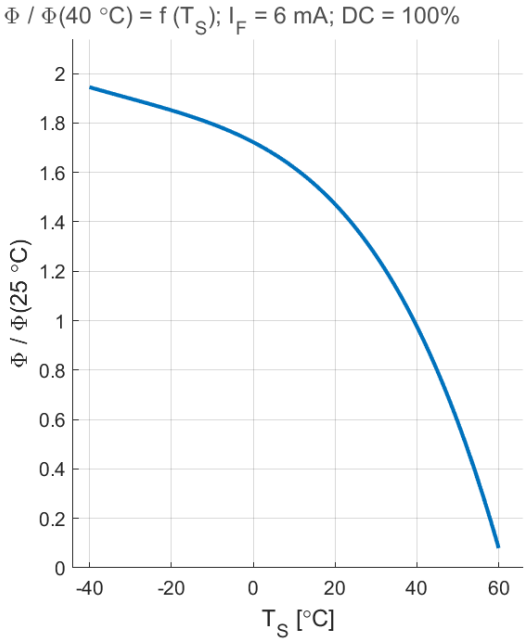
Optical Output Power [1) 2)]



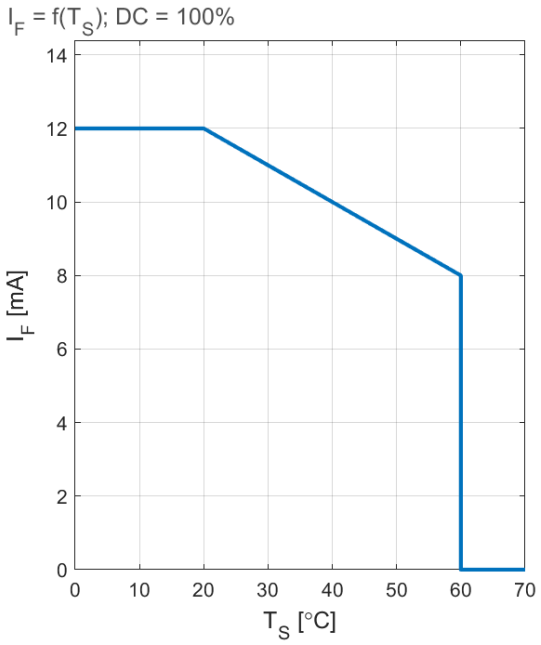
Relative Forward Voltage [1)]



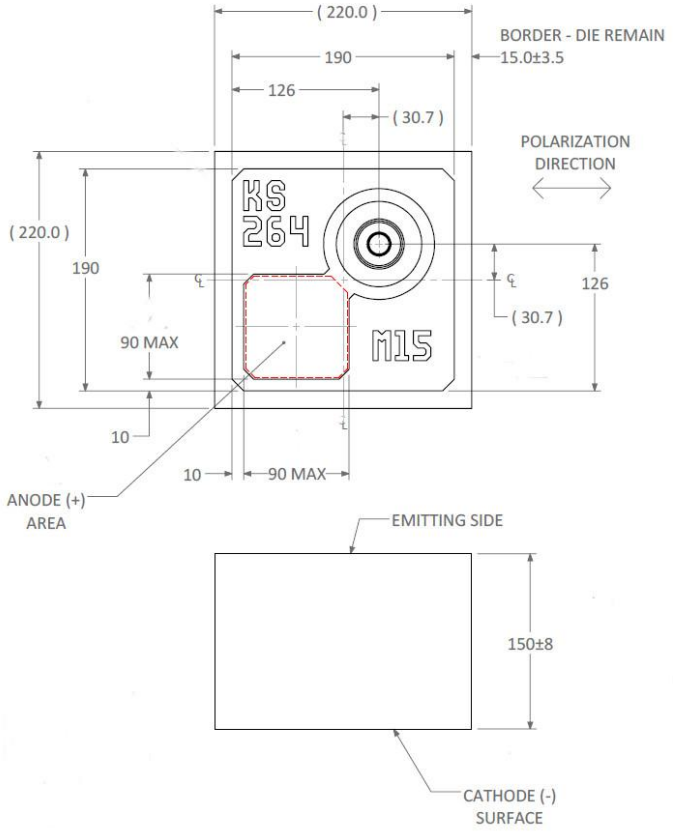
Relative Radiant Power [1)]



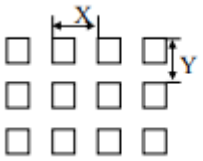
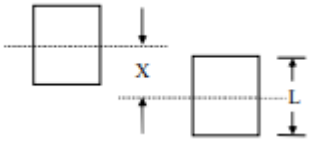
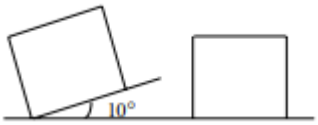
Max Permissible Current



Dimensional Drawing [3)]

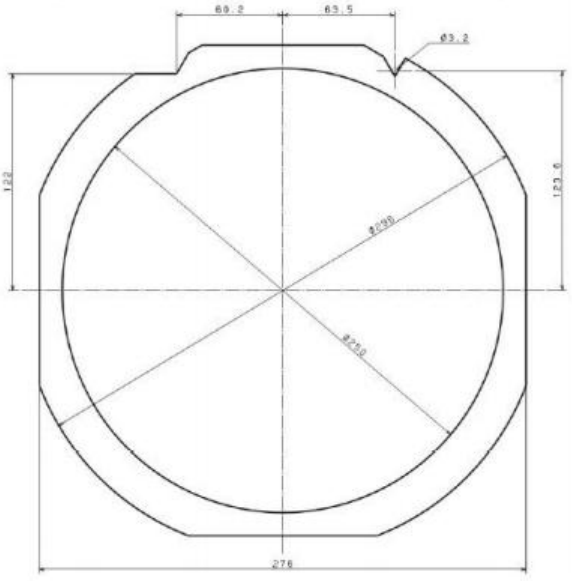


Visual Inspection

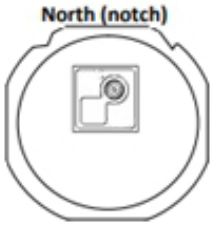
Parameter	Item	Acceptance/Defective	Example
Die packing	Alignment	Accepted: Within ±20% of typical X & Y Values	
	Misalignment	Accepted: $X \leq \frac{L}{5}$	
	Twisted	Accepted: Tilt Angle ≤10°	

Packing

コード番号 Code Number	MDTFR200-04
呼称 Name	フレーム(R200) Frame(R200)
最大外径(mm) Outer Diameter	φ296
二面幅(mm) Width Across Flats	276
内径(mm) Inner Diameter	φ250
厚さ(mm) Thickness	1.2
材質 Material	ステンレス Stainless
磁性 Magnetism	あり Yes



Orientation of die

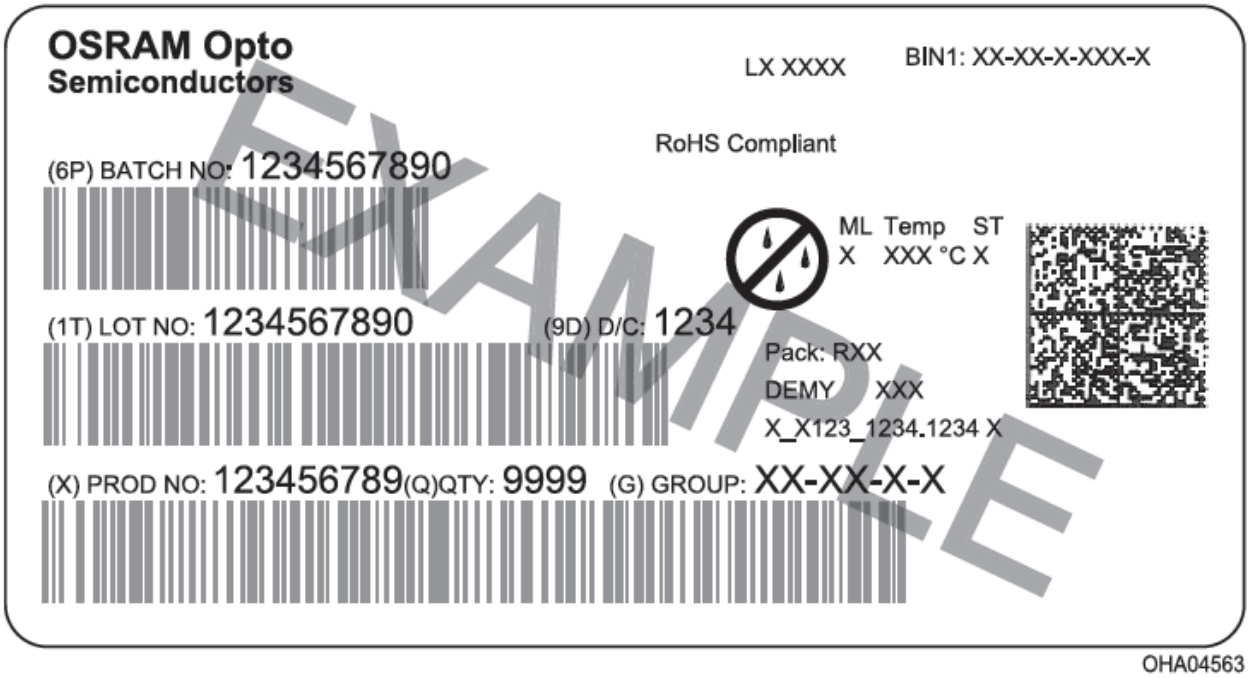


Packaging for shipment

1. The sheet (adhesion tape + glossy film) must be packed in a plastic bag and plastic/paper box for shipment. One plastic bag should contain less than 25 sheets. One plastic/paper box should contain less than 15 plastic bags.
2. The plastic/paper box should be protected from shock; impact and contamination.

3. Plastic bag will contain dry pack to reduce moisture and be vacuumed sealed.

Barcode-Product-Label (BPL)



Shipping Information

Document similar to below to be provided electronically with every shipment. Document provides information on the Minimum, Average, Maximum, Standard Deviation and Median values for parameters Ith, SE, Lop, and Vop.

Customer:	
Part No:	V00183
Customer Part No.	
PO No.	
Operational Mode	Ta = 40°C; IF = 10mA; DC = 100%

Item	Lot No.	Wafer No.	Ith					SE					Lop					Vop					Qty
			Min.	Avg.	Max.	StDev	Median	Min.	Avg.	Max.	StDev	Median	Min.	Avg.	Max.	StDev	Median	Min.	Avg.	Max.	StDev	Median	

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 http://vixarinc.com/vcsel-technology/application-notes

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:** TA = 40 °C

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

Revision History

Version	Date	Change
1.0	October 20 – 2021	Initial version
1.1	July 20 – 2023	Update Shipping Information section.
1.2	December 4 – 2023	Update Ordering Code, Product Number and Barcode-Product-Label (BPL).
1.3	April 14 - 2026	Product image
1.4	May 8 - 2026	Dimensional Drawing

COMPLIES WITH IEC 60825-1, 3rd EDITION MAY 2014.
COMPLIES WITH 21 CFR 1040.10 AND 1040-10.11 EXCEPT FOR DEVIATIONS PURSUANT TO LASER NOTICE NO.50 DATED 27 MAY 2001.