

OLH0909V.A1-680-C

BIDOS® Core



Features:

- Chip Technology: GaAs VCSEL
- IR Laser Wavelength: 680nm
- Optical Power Class: 5.5 mW
- Radiation Profile: 21°
- ESD: 250 V acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 1A)

Ordering Information

Type	Operational Mode: $I_F = 11 \text{ mA}$, $T_a = 25^\circ\text{C}$ DC = 100%	Ordering Code
OLH0909V.A1-680-C	5.5 mW	Q65113A7674

Note: OLH0909V.A1-680-C 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.

ABSOLUTE MAXIMUM RATINGS

Stresses beyond those listed below may cause permanent damage to the device. These are stress ratings only. Functional operation of the device at these or any other conditions beyond those indicated for extended periods of time may affect device reliability.

Storage Temperature	-40 °C to +100 °C
Operating Temperature	-20 °C to +50 °C
Laser Continuous Average Current	12 mA (Note 1)
Laser Reverse Voltage	5V

ELECTRO-OPTIC PERFORMANCE SPECIFICATIONS

(At 25°C, I_{op}= 11mA Unless Noted Otherwise)

Parameter	Symbol	Units	Min	Typ	Max	Conditions / Notes	Verification (Note 2)
Threshold current	I _{th}	mA	1.8	2.5	4.0		Qualification
Operating voltage	V _f	Volts	--	2.5	3.0		Wafer test
Series resistance (VCSEL)	R _s	Ohms	--	40	--		Wafer test
Slope efficiency	SE	mW/mA	0.5	0.7	--		Wafer Test
Optical output power	I _{op}	mW	4.0	5.5	--		Qualification
Optical output power	I _{op}	mW	2.0	3.0	--	T=40°C	Wafer test
Reverse breakdown voltage		V	10	--	--	I _r ≤ 1nA	Wafer Test
Operating wavelength	λ _{op}	nm	670	680	690		Wafer Test
Spectral width (RMS)	Δλ	nm	--	--	1.5		Qualification
Beam divergence 1/e ²		deg	23	25	27	Whole angle	
Beam divergence FWHM	FWHM	deg	18	21	23	Whole angle	
Wavelength temp. coefficient		nm/°C		0.045			By Design
Rise time/Fall time		ps	--	--	150	20-80%	By Design

Note 1: The maximum CW laser current in the Absolute Maximum Ratings is valid for the operating temperature noted at the top of this table; however, the maximum CW laser current decreases with increasing temperature. Contact Vixar for maximum CW laser current values at other temperatures.

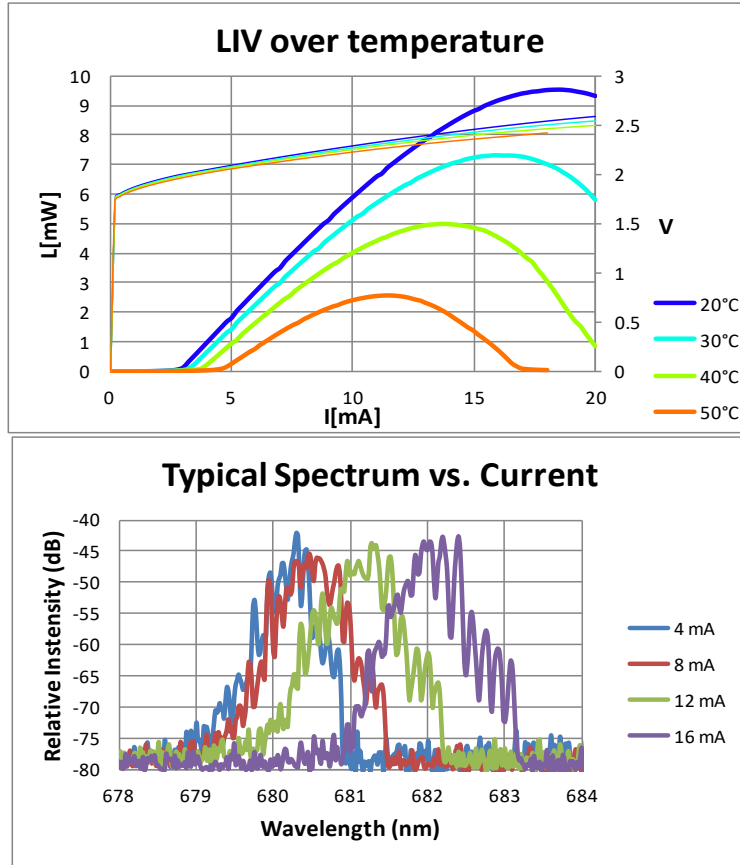
Note 2: Verification indicates how Vixar will verify specification compliance:

“By Design” means that these parameters are built in by design. These are controlled by material properties, mask layout, wafer processing controls, or assembly tolerances.

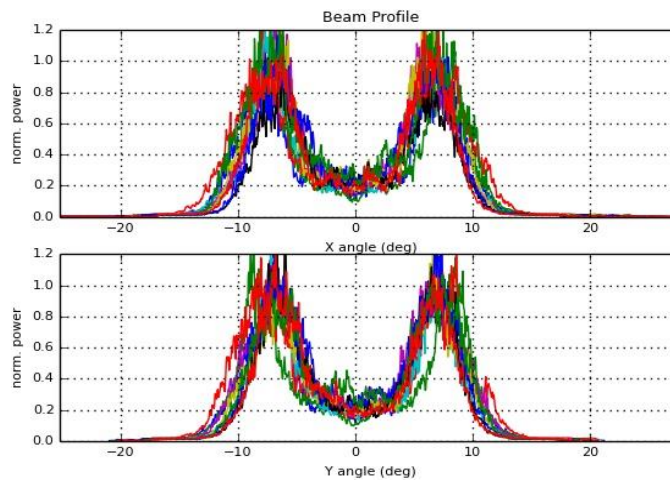
“Qualification” means testing that is performed on product to check that these specifications are met with sufficient design margin during the qualification testing process. These will not be measured during production.

“Wafer” means that these parameters will be measured during wafer level testing, 100% during production, so that Known Good Die (KGD) are shipped to customer.

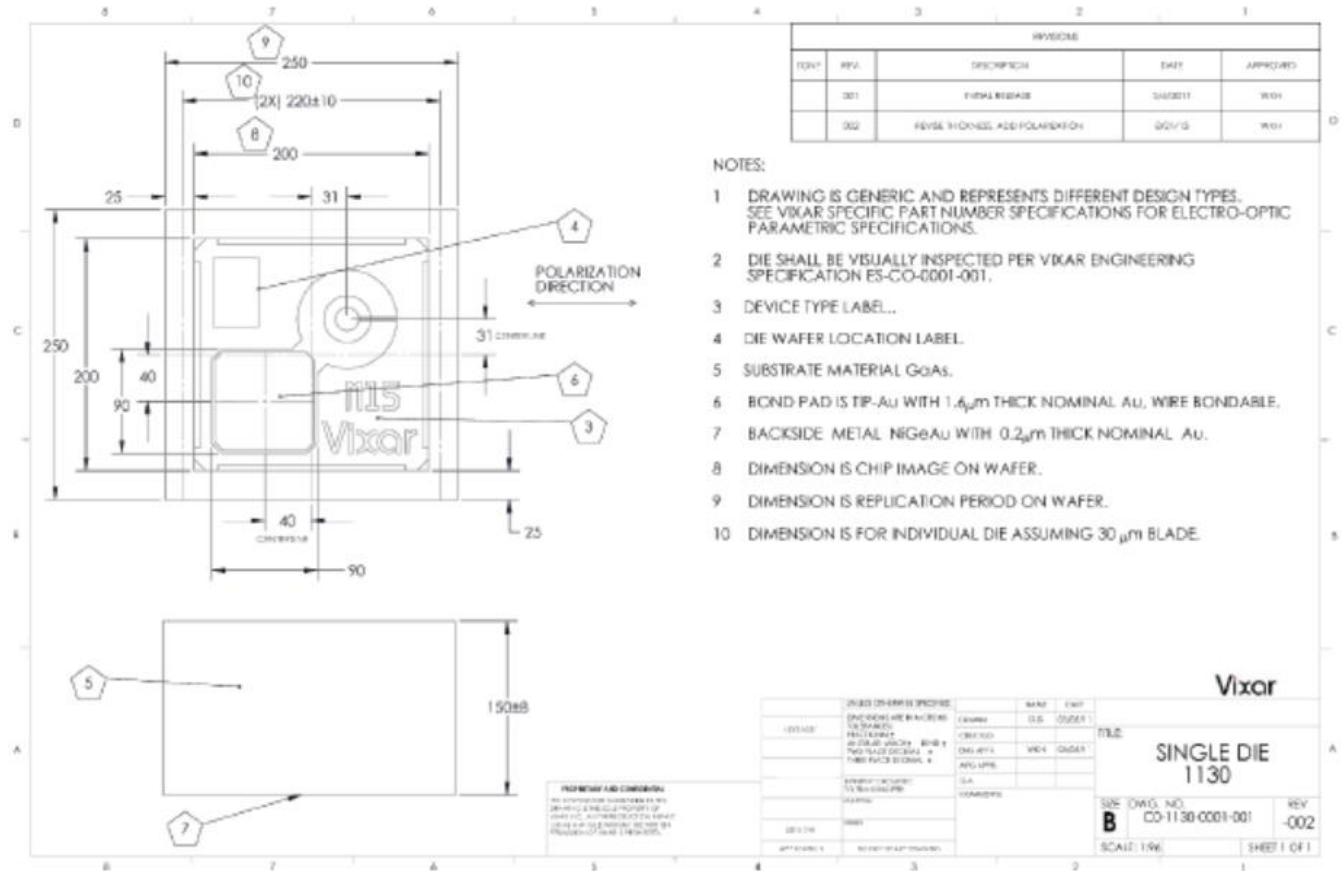
TYPICAL PERFORMANCE CURVES (for reference)



Beam Divergence at room temperature



Die drawing



Barcode-Product-Label (BPL)

OSRAM Opto Semiconductors LX XXXX BIN1: XX-XX-X-XXX-X

RoHS Compliant

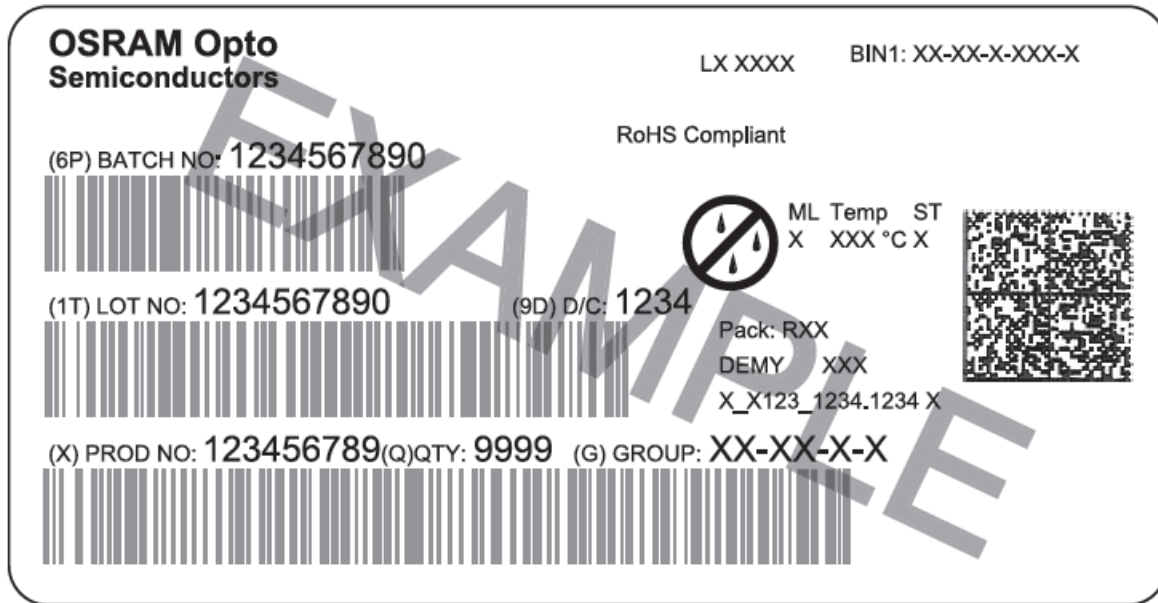
(6P) BATCH NO: 1234567890

(1T) LOT NO: 1234567890 (9D) D/C: 1234

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

ML Temp ST
X XXX °C X

Pack: RXX
DEMY XXX
X_X123_1234.1234 X



OHA04563

Die delivery method

Picked ~5000pcs of bare die on Blue tape Film Frame. Orientation of die shown below, with a step of 1.0mm (Horizontal) and 1.2mm (Vertical) between each die.

Orientation of VCSEL on Film Frame



Revision History

Revision	Date	Change Description
001	05/31/2013	Initial Draft
002	12/13/2017	Changed part number revision to A003. Updated table with improved specs. Updated performance graphs Added a section for 'die delivery method'
003	1/11/2018	Added min spec for slope efficiency Added spec for rise time
004	5/25/2018	Added Die Orientation on Film Frame Updated Delivery Method
5.0	1/24/2022	Release in Propel
5.1	December 4 th - 2023	Update Ordering Code and Product Number. New section Barcode-Product-Label (BPL).



COMPLIES WITH IEC 60825-1, 2nd Edition 2007.
COMPLIES WITH 21 CFR 1040.10 AND 1040-10.11 EXCEPT FOR DEVIATIONS PURSUANT TO LASER NOTICE NO.50 DATED 27 MAY 2001.