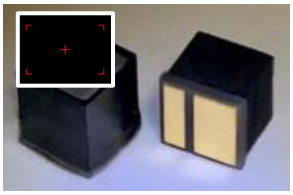
VDOE680COBVF

680nm 3mW VCSEL with Viewfinder Pattern



Description

The Lasermate VDOE680COBVF is a 680nm wavelength, VCSEL integrated with advanced viewfinder pattern diffractive optical element (DOE). The VCSEL is characterized by its low power consumption and ultra-compact VCSEL 680nm emitter. The VCSEL is specially designed for open-space visible 3D structure light. With ultra-small thermally efficient COB package, its compact footprint enables economics of scale and excellent integration flexibility.

Features

- 680nm wavelength VCSEL
- Ultra-compact COB Chip-On-Board package
- Low distortion high uniform pattern
- Low power consumption
- IEC 60825 eye safety standards
- Viewfinder pattern

Applications

- Portable device
- Indicator for barcode readers

Specifications

Electrical-Optical Characteristics						
Parameter	Symbol	Min.	Typ.	Max	Unit	Conditions
Threshold current	I_{th}	-	4	-	mA	
Forward voltage	V_f	-	2.5	-	V	I_f=9mA, CW
Slope efficiency (S.E.)	η_s	-	0.5	-	W/A	I_f=9mA, CW
Output power	P_o	-	3	-	mW	I_f=9mA, CW
Output power	P_o	-	4	-	mW	I_f=9mA, Pulsed; 1% duty cycle, T=100us
Center wavelength	λ_c	670	680	690	nm	I_f=9mA, CW
Beam divergence	ɵ	-	25	-	degree	I_f=9mA, Full width 1/e^2

Notes:

- All parameters except mentioned are measured at I_f=9mA, T_a=25ºC, CW unless otherwise stated.
- Forward voltage (V_f) measurement allowance is ±0.1V.
- Center wavelength (λ_c) measurement allowance is ±1.5nm.
- Others measurement allowance is ±5%.

Absolute Maximum Rating				
Parameter	Symbol	Rating	Unit	Conditions
Continuous forward current	I_f	12	mA	25 ºC
Maximum pulse current	I_{pulse}	25	mA	<1us pulse width, 1% duty cycle

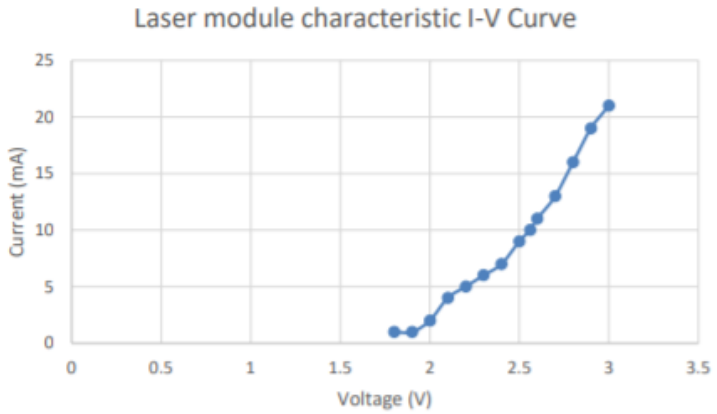
Note: The maximum CW laser current is in the Absolute Maximum Ratings is valid for the operating temperature noted at the table above. Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device.

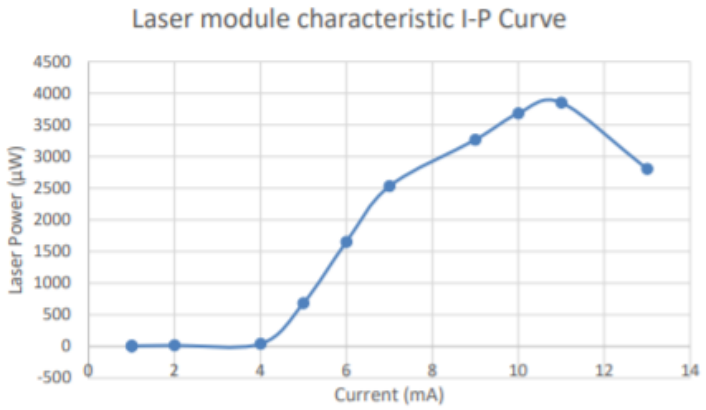
DOE Specifications	
Pattern size @ 100cm	709.7 x 453.3mm (HxV)
Field of View (FOV)	39.1º x 25.5º (HxV)
Contrast[1]	>10
Uniformity[2] in FOV at 1m	>50%

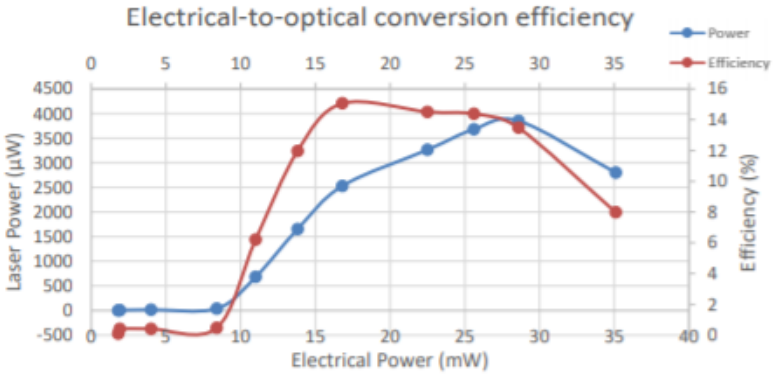
[1] Contrast: in the defined area, the ratio of the 95th percentile of the grayscale value over the mode grayscale value of the background, $C=I_{95\%}/I_{median}$

[2] Uniformity: the ratio of the grayscale value of the area at a given location to the grayscale value of the area in the center of the pattern, $U=I_{each\ area}/I_{max\ of\ each\ area}$

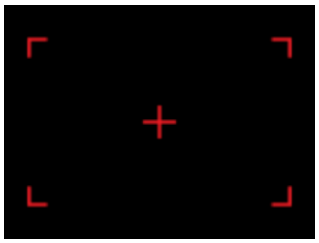
Typical Characteristic Curves



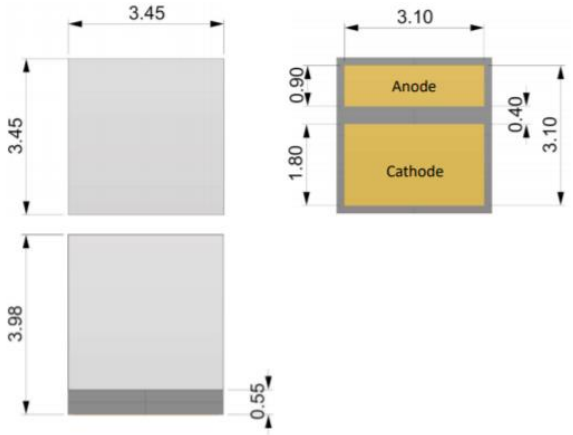




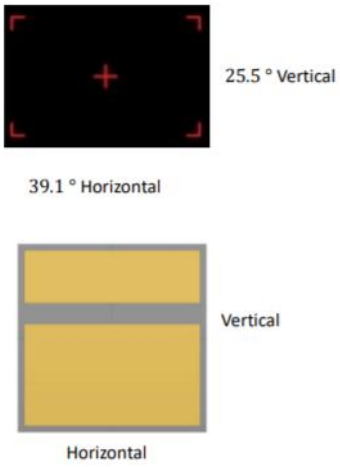
Projection Pattern



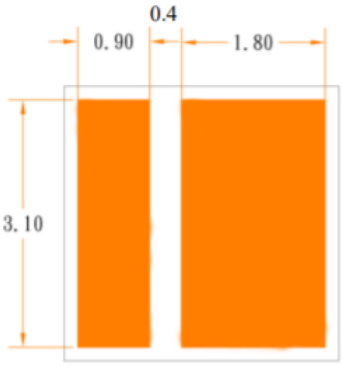
Mechanical Dimensions (unit: mm)



Orientation of Field of View



Recommended Solder Pad (unit: mm)



Caution

- Treat heat dissipation before setting the module to full power
- Avoid touching the emitting area or optical components of the module.
- Never look directly at the light from the emitting area.

Additional Notes

- The VCSELs are designated solely as OEM components for incorporation into the customer's end products. Therefore, it is the customer's responsibility to comply with the appropriate requirements of FDA 21CFR, section 1040.10 and 1040.11 for complete laser products. For the code of FDA regulations, please refer to FDA Performance Standards for Light-Emitting Products for detailed information.
- Specifications are subject to change without notice.