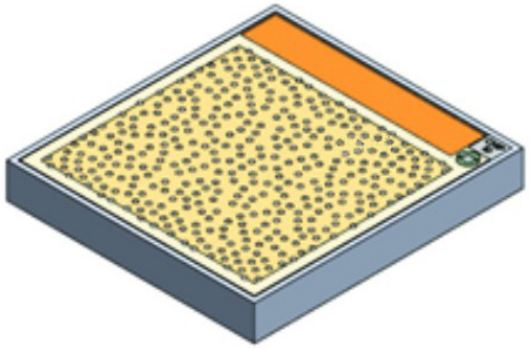
LUMENTUM

2.15 W Semi-Random Pattern 940 nm VCSEL Array

22169698



The Lumentum 2.15 watt semi-random pattern 940 nm VCSEL array is an ideal solution for structured light and active stereo vision 3D sensing applications such as biometric authentication, robotics, and contactless access control.

Key Features

- 2.15 W peak optical power
- 940nm VCSEL array for both indoor and outdoor usages
- 366 emitters for high-density projection

Applications

- Structured light 3D sensing applications
- Active stereo vision 3D sensing applications
- Biometric authentication
- Contactless access control
- Smart building
- Robotics

Specifications

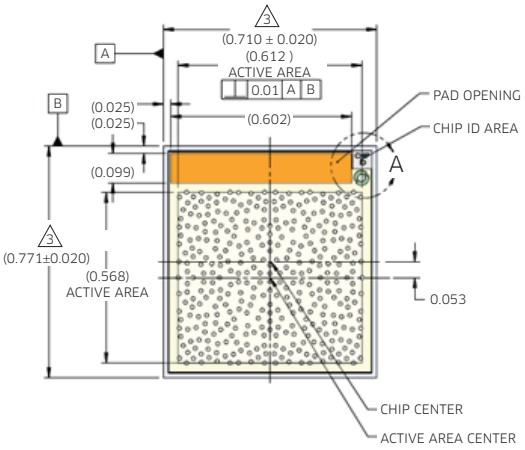
Parameter	Units	Minimum	Typical	Maximum	Comments
Device Layout					
Emitter pattern		366e SL Pattern			
Emitter pitch	µm	minimum 27.3 µm			
Optical aperture	µm	8.5 ± 0.8			
Electro-Optical @ 2.5A in Range of Pulse Conditions					
Operating temperature	°C	0	50	70	
Operating temperature, extended	°C	-20	-	85	Expected <1% of time
Operating current (Iop)	A	-	2.5	2.5	6.8mA/e
Threshold current	A	-	0.40	0.60	0 to 70°C chip backside temperature
Operating voltage	V	1.80	1.95	2.10	2.5A, 60°C chip backside temperature
Maximum voltage	V	-	-	2.70	2.5A, -20°C chip backside temperature
Peak power at 25°C	W	2.00	2.15	2.50	2.5A, 25°C chip backside temperature
Peak power at 60°C	W	1.85	2.00	2.30	2.5A, 60°C chip backside temperature
PCE[1] at 25°C	%	40%	42%	48%	2.5A, 25°C chip backside temperature
PCE[1] at 60°C	%	39%	41%	47%	2.5A, 60°C chip backside temperature
Slope efficiency	W/A	0.85	0.90	1.00	2.0 to 3.0A, 60°C chip backside temperature
Differential resistance	ohm	-	0.21	0.25	2.0 to 3.0A, 60°C chip backside temperature
Beam Quality @ IOP in Range of Pulse Conditions					
Center wavelength	nm	933	940	947	2.5A, 60°C chip backside temperature
Spectral width (1/e2 width)	nm	-	2.5	4.0	0 to 60°C chip backside temperature
Divergence (FW D86)	deg	16.0	18.5	21.0	2.5A, 60°C chip backside temperature
Pulsed Operation Conditions					
Pulse duration	ms	-	1	3	
Duty cycle	%	-	3	10	
Rise time	ps	-	-	100	by design
Fall time	ps	-	-	500	by design
Maximum Ratings in Range of Pulse Conditions					
Forward voltage Vmax	V	-	-	2.7	to prevent die damage / power drop
Forward current Imax	A	-	-	4.5	
Junction temperature Tjmax	°C	-	-	150	

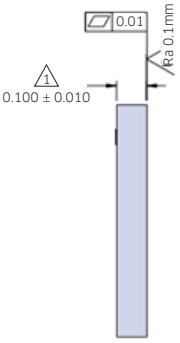
1 PCE is power conversion efficiency = Pop / Iop*Vop at peak of pulse

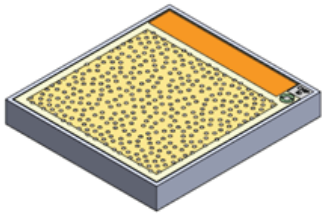
Mechanical Specifications

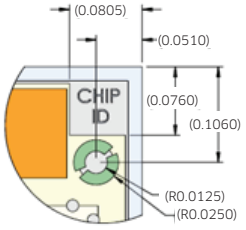
NOTE: UNLESS OTHERWISE SPECIFIED

1. DIE THICKNESS = 100µm ± 10µm
2. DIE SIZE: X = 710µm ± 20µm
   Y = 771µm ± 20µm









DETAIL A
SCALE 300:1

Laser Safety

Notes:
1. This is an OEM component laser product and does not comply with 21 CFR 1040.10 or IEC 60825-1 requirements for complete laser products. Both IEC 60825-1 and FDA/CDRH certifications are system level requirements.

2. This component requires the provision of drive and control electronics before emitting laser radiation.

3. Laser classification depends upon the system control circuit and any laser safety features provided.

4. Lumentum has registered this laser component with the FDA/CDRH as an OEM component. Please contact Lumentum for an FDA accession no. for this laser component.

Ordering Information

For more information on this or other products and their availability, please contact your local Lumentum account manager or Lumentum directly at customer.service@lumentum.com.

Description	Ordering Number
2.15 W semi-random pattern 940 nm VCSEL array	22169698

LUMENTUM

North America
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