

Product Specifications

Multi-Mode VCSEL (Vertical Cavity Surface Emitting Laser) Chip
940nm 2.0W

Rev. 1.05

Dec. 2019

940nm VCSEL Array – 2W Bare Chip

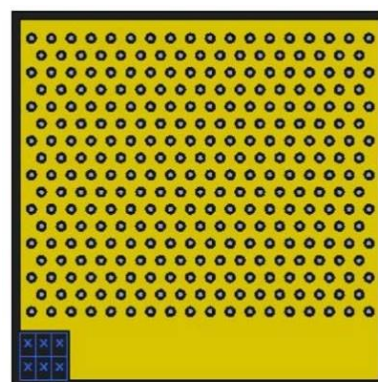
Product Description & Features

940nm Vertical-Cavity Surface-Emitting Laser array with output power of 2W

- Very low wavelength-temperature sensitivity
- Chip on submount or heatsink is available upon request
- Other wavelengths, chip dimensions, and emitter patterns are available upon request

Typical Applications

- Gesture Recognition
- Automotive sensing
- Time of Flight
- IR illumination



Product Nomenclature

LMV	94	200	-	X	X	X
Product Series	Wavelength 94:940nm	200: 2000mW	-	Operating Mode	Temperature Range	Version
				C: CW N: QCW	B: 0-70°C I: -40~85°C C: -55-125°C U: -55-150°C	A B C

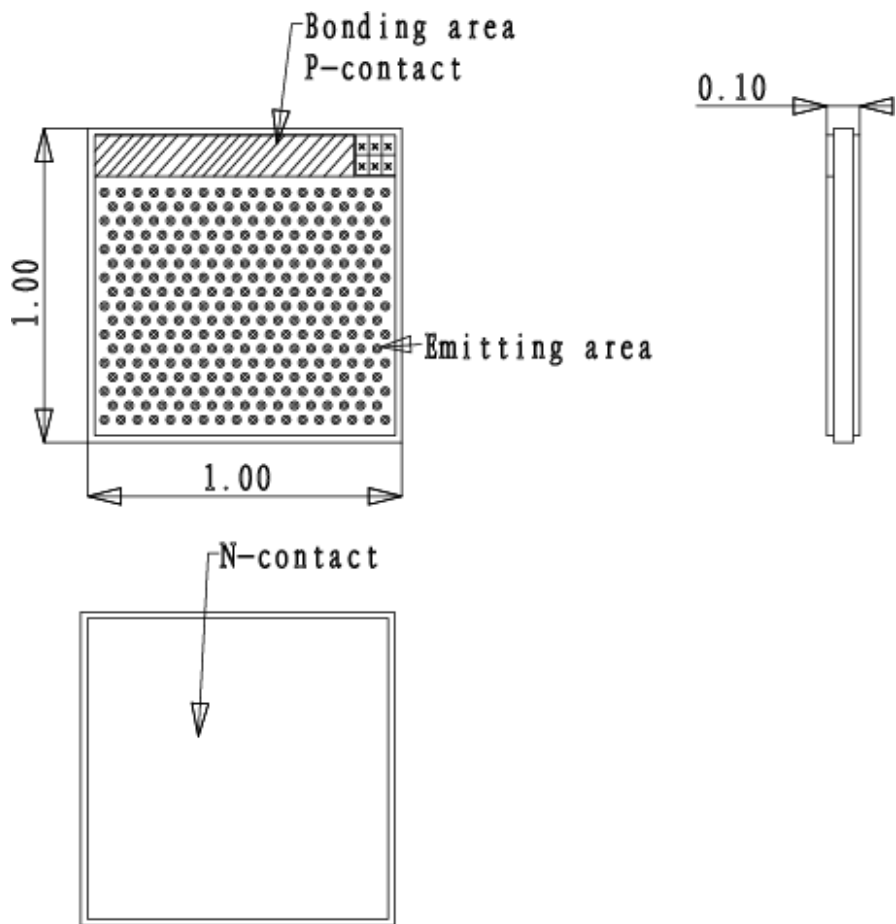
Electro-Optical Characteristics

Parameter	Symbol	Unit	MIN*	Typical Value	MAX*
Center Wavelength	λ	nm	935	940	950
Spectrum Width	$d\lambda$	nm		2.0	3.0
Thermal Wavelength Shift	$d\lambda/dT$	nm/K		0.07	
Optical Power	P_{out}	W		2.0	
Forward Voltage	V_{op}	V		1.9	2.3
Operating Current	I_{op}	A		2.3	
Power Conversion Efficiency	PCE	%	40.0	45.0	
Threshold Current	I_{th}	A		0.35	0.42
Divergence (86.5% power enclosure)	Θ	degree		23	26

* Test Conditions: Heatsink temperature at 25°C, under CW operation

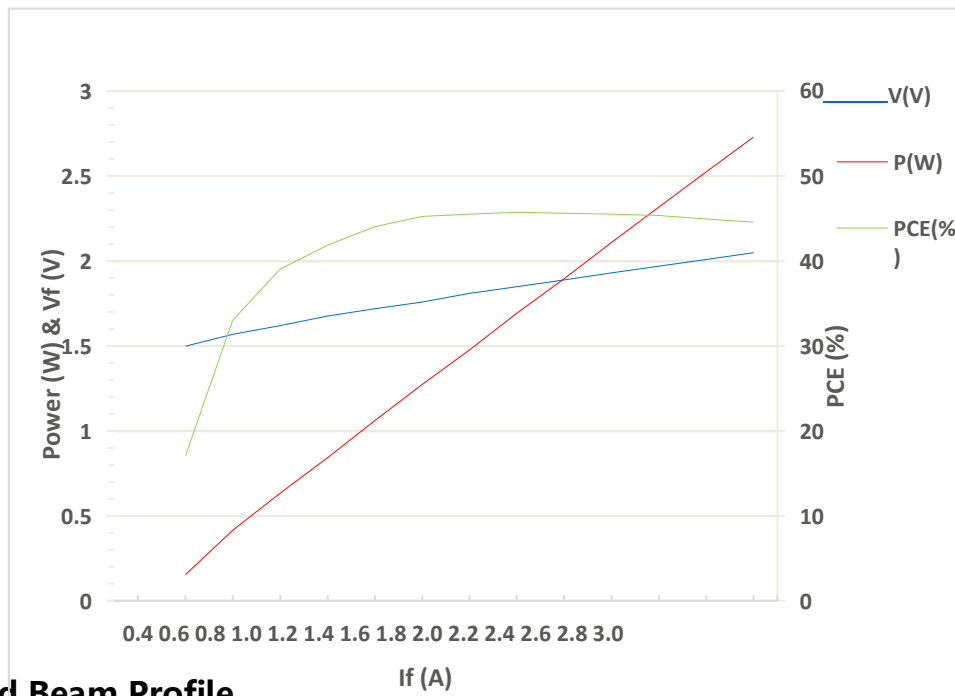
Appearance Mechanical Properties of Products

Parameter	Symbol	Min.	Typical	Max.	Unit
Chip Size	L x W	-	975 × 975	-	um
Die Thickness	-	-	100	-	um
Bond Pad	-	-	110	-	um
Maximum Package SMT Solder Reflow Temperature	-	-	250	-	°C



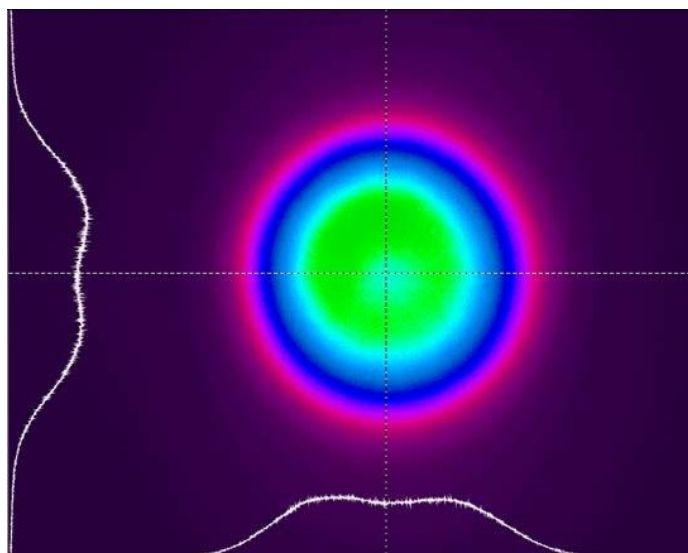
Function Test LIV

Test conditions : Heatsink temperature at 25°C, under CW operation



Far Field Beam Profile

Test conditions : Heatsink temperature at 25°C, under CW operation, Operating Current: 2.3A
Divergence: 23 degree, 86.5% power enclosure



Absolute Maximum Ratings

Parameter	Conditions	Units
Operating Temperature	B: 0-70°C I: -40~85°C C: -55-125°C U: -55-150°C	°C
Storage Temperature	-40 to 85°C	°C

Stresses beyond the parameters listed under Absolute Maxim Ratings may cause permanent damage to the chips.

Product Compliance Information

ESD Sensitivity Ratings:

ESD Rating: Class 2

Value: ≥ 2000 V

Test: Human Body Model (HBM)

ESD Rating: Class C3

Value: ≥ 1000 V

Test: Charged Device Model (CDM)

RoHs Compliance:

This part is compliant with EU 2011/65/EU RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment).

Shipping Instruction

The unmounted chips are shipped on adhesive blue tape rings or Gel-Pak boxes.

Note: No responsibility is assumed for the use of these products. The products can emit Class IV radiation and must be operated with extreme care. Avoid directly viewing the laser beam or exposure to specular reflections. Proper eye-wear must be worn at all times when operating. VCSEL Chips are electrostatic-sensitive device and proper ESD protection is required for handling.

