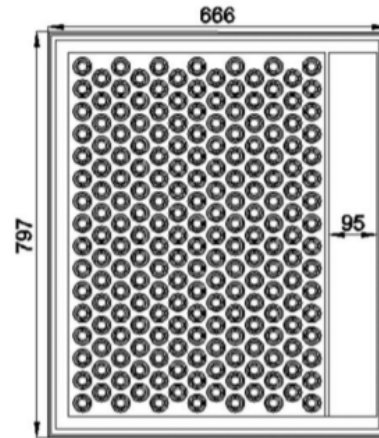


## Model No. VCC-85A1WH

### Features:

- 850nm VCSEL chip
- Typical 1W peak pulse output at 1.2A
- High PCE (Power Conversion Efficiency) >38%
- -20 to 85 °C operating temperature
- Chip size: 666 x 797± 15 μm
- Electrode Side:  
Gold alloy on both anode P (emission side) and cathode N (backside)



Chip size

### Applications:

- Sensing light source
- Optical encoders
- Photoelectric sensors
- 3D sensing
- 3D imaging including Time of Flight, Structure light, Iris/ Facial recognition etc.

### Absolute Maximum Ratings (TA = 25°C unless otherwise noted)

Parameter	Symbol	Rating
Storage Temperature	Tstg	-40 to 85 °C
Operating Temperature	Top	-20 to 85 °C
Continuous Forward Current	I <sub>f</sub>	1.3A
Maximum package SMT solder reflow Temperature	-	260°C, 10 seconds

Note: The maximum CW laser current 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.

### Electro-Optics Characteristics (Ta=25°C unless otherwise noted)

Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Threshold Current	I <sub>th</sub>	-	180	300	mA	
Slope Efficiency	η	0.9	1.0	-	W/A	I <sub>f</sub> = 1.2A
Optical Output Power	P <sub>o</sub>		1000	-	mW	I <sub>f</sub> = 1.2A
Center Wavelength	λ <sub>c</sub>	840	850	860	nm	I <sub>f</sub> = 1.2A
Beam Divergence	Θ		24		degree	Full Width 1/e <sup>2</sup>
Operating Voltage	V <sub>f</sub>	1.7	2.0	2.3	V	I <sub>f</sub> = 1.2A
Power Conversion Efficiency	PCE	38	43	-	%	I <sub>f</sub> = 1.2A
Wavelength Shift	Δλ/ΔT	-	0.07	-	nm/°C	I <sub>f</sub> = 1.2A

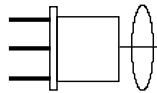
Note 1: Forward Voltage (V<sub>f</sub>) measurement allowance is ±0.1V.

Note 2: Center Wavelength (λ<sub>c</sub>) measurement allowance is ±1.5nm.

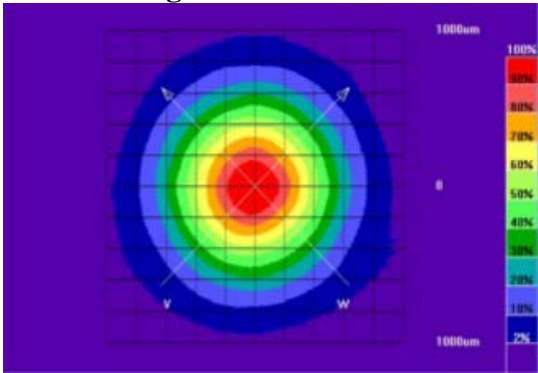
Note 3: Others measurement allowance is ±10%.

**Note 4: Test DUTs are mounted on star board and measured with operating bias current @ 1.2A, Duty Cycle:10%.**

**Note:** The specifications are subject to change without notice.

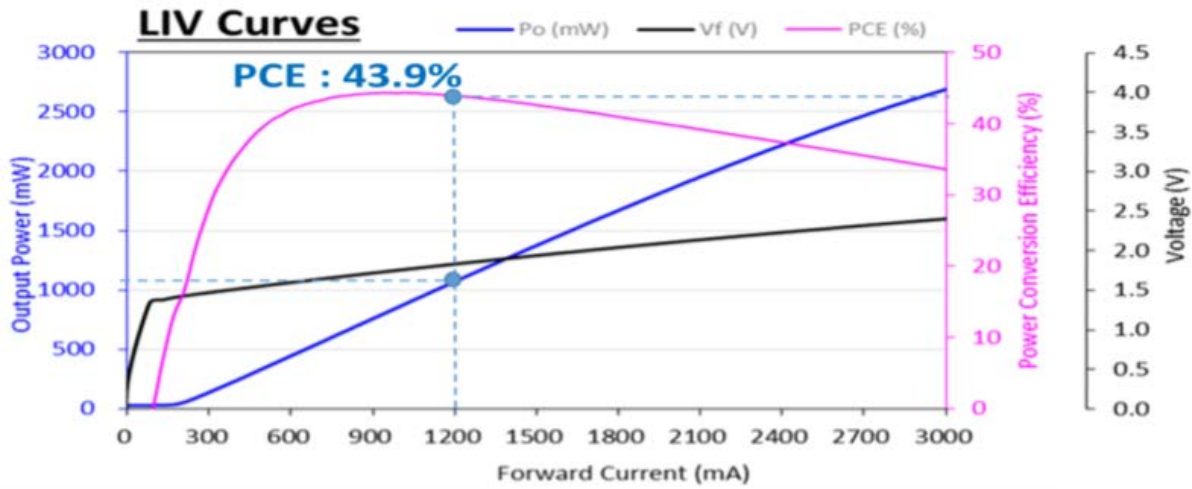


**Typical Performance Graph:  
Beam Divergence**



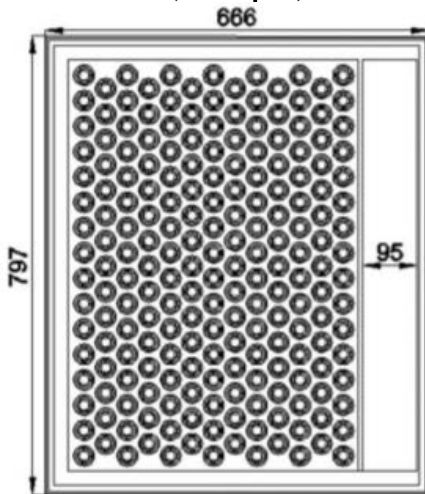
Full Width  $1/e^2$  24 degree

**LIV Graph at 25 °C**



Note: Curves measurement at 0 ~ 3A current sweep with 10% duty cycle.

**Dimensions (unit: µm):**



Specification	Min	Typ	Max
Chip width	651	666	681
Chip length	782	797	812
Chip thickness	105	120	135
Bond pad width	-	95	-

Unit: µm

Note: The specifications are subject to change without notice.