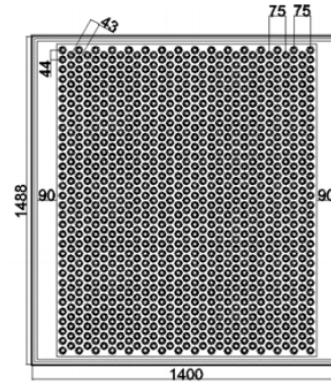


Model No. VCC-85A4WH

Features:

- 850nm VCSEL chip
- Typical 4W peak pulse output at 4.5A
- High PCE (Power Conversion Efficiency): 42%
- -20 to 85 °C operating temperature
- Number of emitters: 977
- Chip size: 1400 x 1488 ± 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 _f	4.6A
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 _{th}	-	800	-	mA	
Slope Efficiency	η	0.9	1.08	-	W/A	I _f = 4.5A
Optical Output Power	P _o		4000	-	mW	I _f = 4.5A
Center Wavelength	λ _c	840	850	860	nm	I _f = 4.5A
Beam Divergence	Θ		25		degree	Full Width 1/e ²
Operating Voltage	V _f	1.7	2.1	2.3	V	I _f = 4.5A
Power Conversion Efficiency	PCE		42		%	I _f = 4.5A
Wavelength Shift	Δλ/ΔT	-	0.07	-	nm/°C	I _f = 4.5A

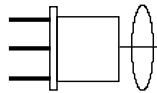
Note 1: Forward Voltage (V_f) measurement allowance is ±0.1V.

Note 2: Center Wavelength (λ_c) measurement allowance is ±1.5nm.

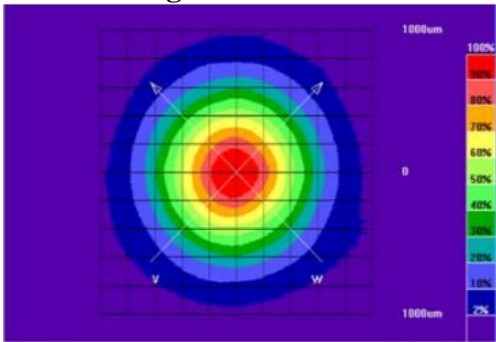
Note 3: Others measurement allowance is ±10%.

Note 4: Test DUTs are mounted on star board and measured with operating bias current @ 4.5A, Duty Cycle:1%.

Note: The specifications are subject to change without notice.

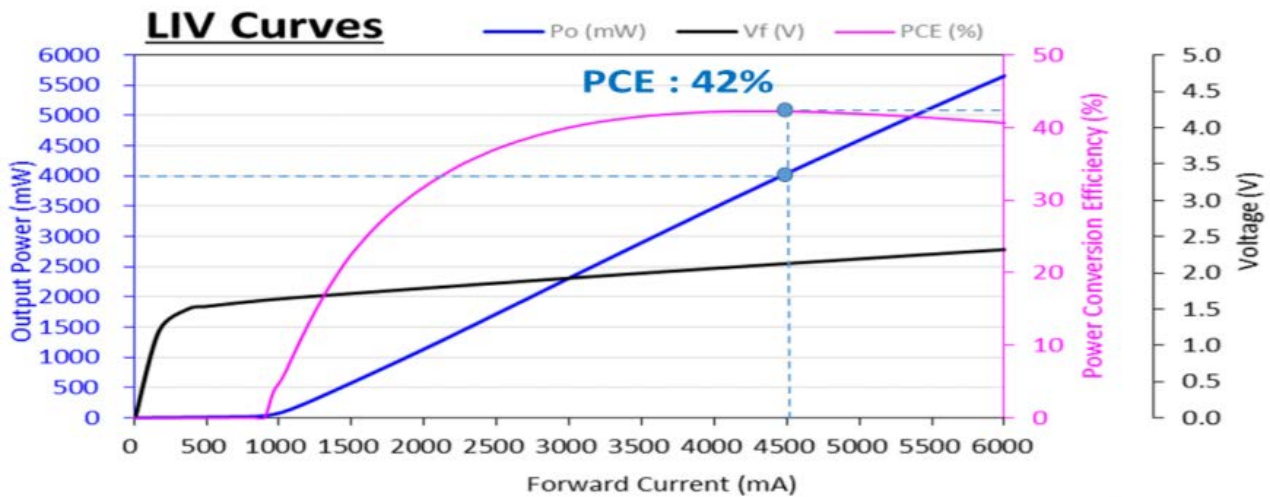


Typical Performance Graph: Beam Divergence



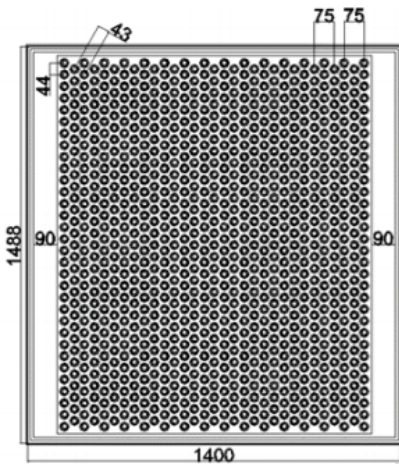
Full Width $1/e^2$ 25 degree

LIV Graph at 25 °C



Note: Curves measurement at 0 ~ 6A current sweep with 1% duty cycle.

Dimensions (unit: µm):



Specification	Min	Typ	Max
Chip width	1385	1400	1415
Chip length	1473	1488	1503
Chip thickness	105	120	135
Bond pad width	-	90	-

Unit: µm

Note: 1. Allowable abnormal aperture is 1%.

2. Continuous abnormal aperture (x, y or diagonal direction) is not allowed.

Note: The specifications are subject to change without notice.