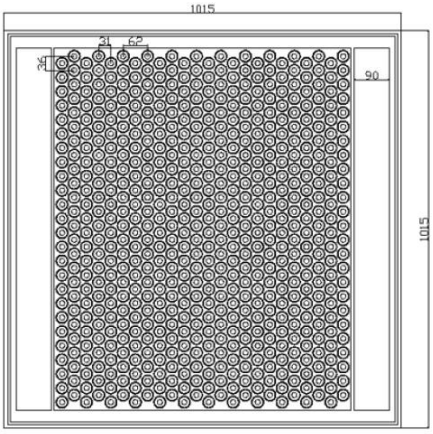
850nm 3000mW Multi-Mode VCSEL Chip

Part No. VCC-85A3WH

Features

- 850nm multi-emitter multi-mode VCSEL chip
- Typical 3W peak pulse output at 3.5A
- Number of emitters: 600
- -20 to 85ºC operating temperature
- Chip size: 1015um x 1015um
- Chip thickness: 100um



Applications

- Photoelectric sensors
- Optical encoders
- 3D sensing

Specifications

Absolute Maximum Ratings				
Parameters	Symbol	Rating	Unit	Conditions
Storage Temperature	T_{stg}	-40 to 150	°C	
Operating Temperature	T_{op}	-20 to 85	°C	1% duty cycle
Maximum package SMT solder reflow temperature	-	260	°C	10 seconds

Note: The maximum pulse 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-Optical Characteristics (T_a=25ºC unless otherwise stated)						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	I_{th}		0.5		A	
Slope Efficiency	η	0.9	1.08		W/A	I_f=3000mA
Optical Output Power	P_o		3000		mW	I_f=3500mA
Center Wavelength	λ_C	840	850	860	nm	I_f=3000mA
Beam Divergence	Θ		23		°	I_f=3000mA, Full width 1/e^2
Forward Voltage	V_f		2.3		V	I_f=3500mA
Wavelength Shift	$\Delta\lambda/\Delta T$		0.07		nm/°C	I_f=3000mA

Notes:

- Forward Voltage (V_f) measurement allowance is ±0.1V.
- Center Wavelength (λ_C) measurement allowance is ±1.5nm.
- Others measurement allowance is ±5%.
- Test DUTs are mounted on star board and measured with operating bias current @ Ta=25°C, 1% duty cycle of T=100ms.

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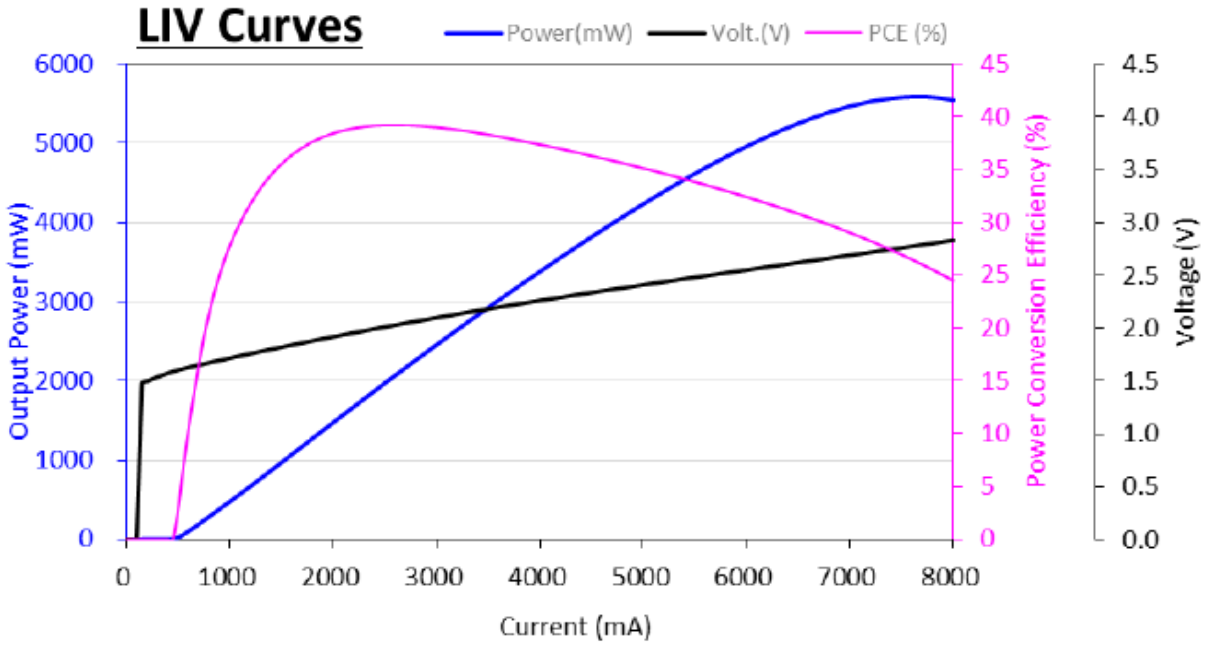
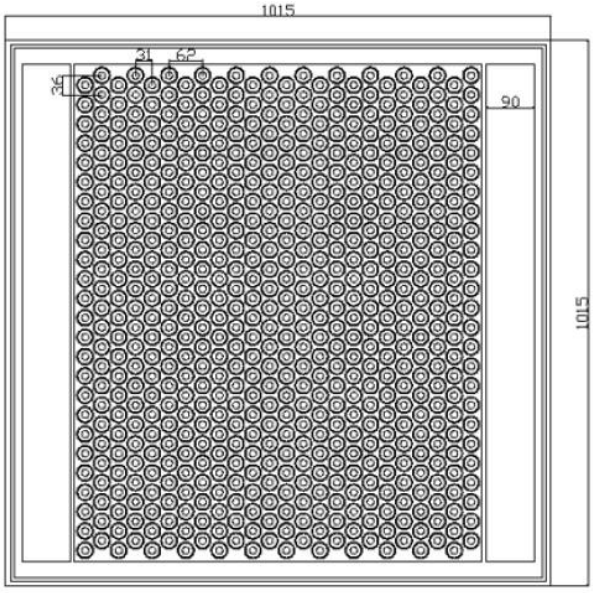
Typical Characteristics

LIV Graph at 25ºC



Note: Curves measurement at 0 ~ 8A current sweep with 1% duty cycle, T=100ms.

Outline Dimensions (unit: μm)



Specification	Unit	Min.	Typ.	Max.
Number of emitters	ea		600	
Length (X), Width (Y)	um	1000	1015	1030
Thickness	um	85	100	115
Bond pad width	um	-	90	-

Note: Chip backside cathode pad is the same as chip size.

Additional Notes

- The inherent design of this component causes it to be sensitive to electrostatic discharge (ESD). To prevent ESD-induced damage and/or degradation to equipment, take normal ESD precautions when handling this product.
- Specifications are subject to change without notice.

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