



VCC-85A4H

850nm 4mW VCSEL Chip

Description

The Lasermate VCC-85A4H is an 850nm wavelength, 4mW output power, Vertical Cavity Surface Emitting Laser (VCSEL) chip designed for use in sensing applications.

Features

- 850nm single emitter VCSEL chip
- Typical 4mW output power at 9mA
- Chip size: 210 x 210 ± 15 μm
- Chip thickness: 150 ± 15 μm
- Electrode side: Gold alloy on both anode P (emission side) and cathode N (backside)

Applications

- Sensor light source
- Consumer electronics

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	
Junction Temperature	T_j	≤ 80	°C	
Forward Current	I_f	12	mA	

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.

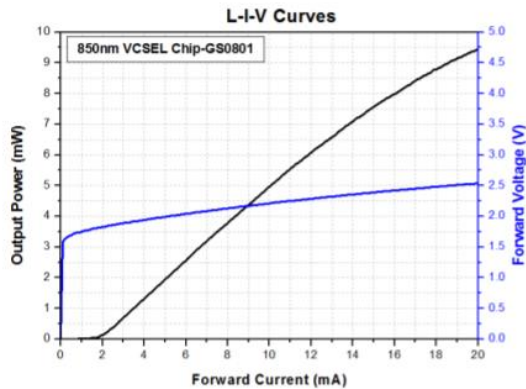
Electro-Optical Characteristics ($T_a=25^\circ\text{C}$ unless otherwise stated)						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	I_{th}	1		2	mA	
Slope Efficiency	η		0.5		W/A	$I_f=9\text{mA}$
Optical Output Power	P_o	3.5	4	5.5	mW	$I_f=9\text{mA}$
Center Wavelength	λ_c	840	850	860	nm	$I_f=9\text{mA}$
Beam Divergence	θ		36	39	°	$I_f=9\text{mA}$ (Full Width $1/e^2$)
Forward Voltage	V_f	2.1	2.2	2.4	V	$I_f=9\text{mA}$
Variation in Output Power	ΔP_o		-0.4		%/°C	$T_a=25$ to 85°C
ESD Threshold	V_{ESD}		200		V	Human body mode / 3 pulse

Notes:

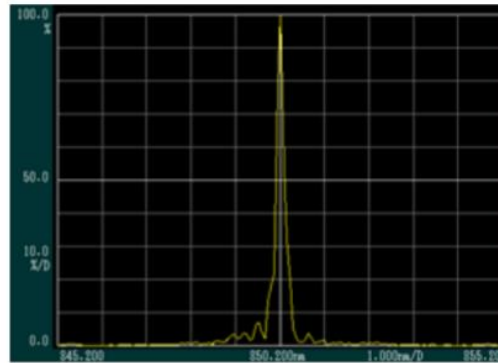
- Forward Voltage (V_f) measurement allowance is ±0.1V.
- Center Wavelength (λ_c) measurement allowance is ±1.5nm.
- Others measurement allowance is ±10%.
- All parameters except mentioned are measured at $I_f=9\text{mA}$, $T_a=25^\circ\text{C}$, CW.

Typical Characteristics

LIV Curves

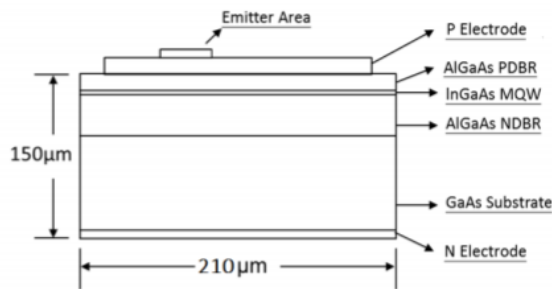
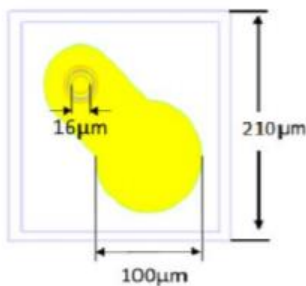


Emission Spectrum (@ 9mA)



Note: Data measure at ambient temperature 25°C.

Outline Dimensions (unit: μm)



Note: Chip size includes die saw street.

Parameter	Min.	Typ.	Max.
Chip width	195	210	210
Chip length	195	210	225
Chip thickness	135	150	165
Bond pad width	-	100	-

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.