

850nm 5Gbps VCSEL Chip

VC-0850T-005G-20-01

Features

- Bit data rate more than 5Gbps
- High SNR
- Low wavelength drift
- Oxide isolation technology
- Low threshold current
- High reliability

Applications

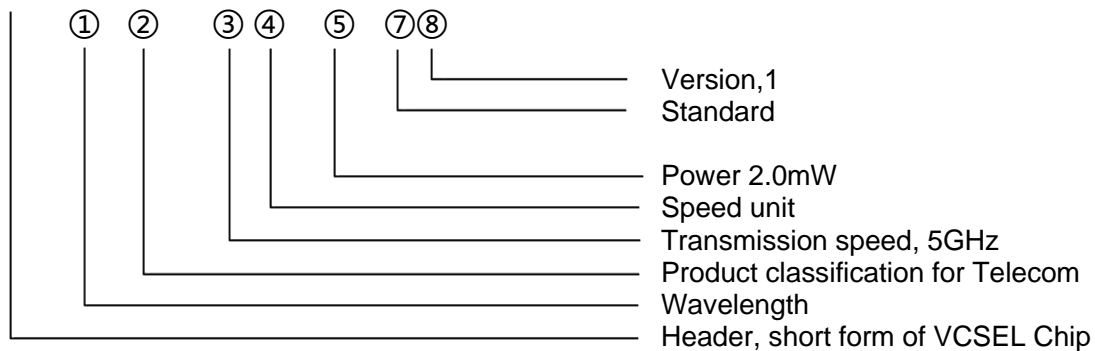
- 5Gbps data transmission
- Optical USB
- Active Optical Cable (AOC)
- HDMI
- Sensing applications

PRODUCT IDENTIFY

Part Number	Description
VC-0850T-005G-20-01	850nm 5Gbps VCSEL Chip

CODE RULES

e.g. VC-0850T - 005G -20 - 01



I. Absolute maximum ratings

Parameter	Symbol	Rating	Unit
Operating Temp	Top	-20 to 85	°C
Storage Temp	Tsto	-40 to 105	°C
Reflow Soldering Temperature	Tsdr	320°C(10s)	°C
Reverse Voltage	Vr	5	V
Maximum output power	Pmax	6	mW
Maximum Continuous Current	I _{max}	10	mA
ESD exposure (Human body) model	ESD	1K	V

Note:

1. Stresses greater than those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or other conditions above those indicated in the operations section for extended periods of time may affect reliability.
2. In its maximum rating diode laser operation could damage its performance or cause potential safety hazard such as equipment failure.
3. Electrostatic discharge is the main reason for the laser fault of the diode. Take effective precautions against ESD. When dealing with laser diodes, use the wrist strap, grounding work surface and strict antistatic technology.

II. Optical-electrical characteristics @25°C

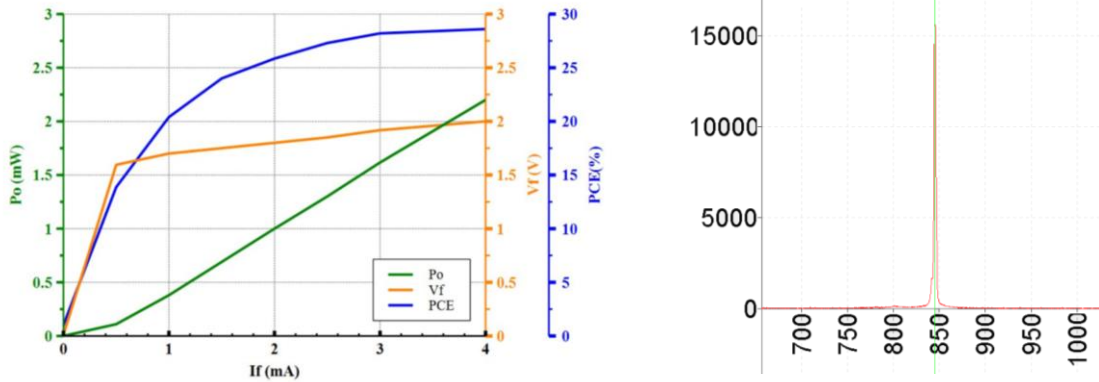
Parameters	Conditions	Symbol	Unit	Min.	Typ.	Max.
Optical output Power	$I_F=3.7\text{ mA}$	P_o	mW	-	2	-
Threshold Current	-	I_{TH}	mA	-	0.5	-
Forward Current	-	-	mA	-	3.7	-
Slope Efficiency	-	-	mW/mA	-	0.59	-
Fall Time (20~80%)	-	-	ps	-	129	132
Rise Time (20~80%)	-	-	ps	-	112	118
Die Size	-	-	um	-	204x228	-
Peak Wavelength	$P_o=2\text{mW}$	-	nm	840	850	860
Laser Forward Voltage	$I_F=3.7\text{ mA}$	V_F	V	-	1.95	-
Series Resistance	$I_F=3.7\text{ mA}$	R	Ω		90	-
Beam Angle	$I_F=3.7\text{ mA}$	-	Degrees	-	25	-
Wavelength Temp. Drift	$I_F=3.7\text{ mA}$	-	nm/°C	-	0.07	-
Modulation bandwidth			GHz		>4	

Note: Electro-Optical Characteristic with a package or diffuser would require further evaluation. Values are based on limited sample size and estimated values.

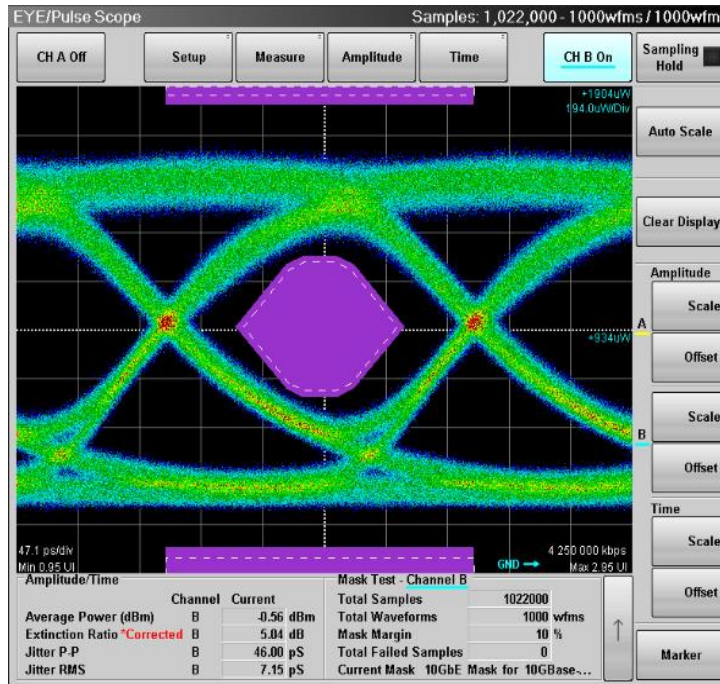
III. Environmental Specifications

Parameter	Symbol	Min.	Typ.	Max.	Units	Ref.
Case Operating Temp	Top	-20	25	85	°C	-
Storage Temp	Tsto	-40	25	105	°C	-

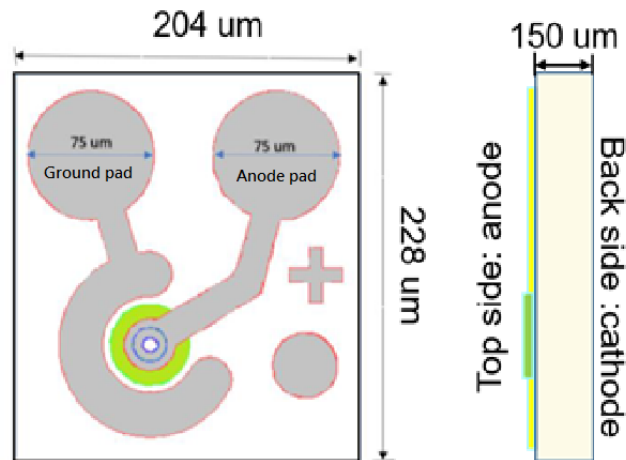
IV. LIV Graph and Wavelength



V. Eye Diagram at 4.25Gbps



VI. Mechanical Schematics



Note: There may be some changes between sample and drawing, thus the actual spec please refer to the sample that you received. And if any question please contact us.

VII. Treatment and protection measures

Soldering precautions

The operator should examine grounding of machines before die attachment; and operator should wear electrostatic bracelet to prevent die from damaging caused by electrostatic discharging.

Storage precautions

VCSEL bare dies must be stored in Nitrogen gas cabinet with >99% concentration at 20°C.

VIII. Revision history

Revision	Date	Description
V.02	2020/02/21	The first official edition (0003C5)

**Brightlaser reserves the right to make modification at any time due to improved design from time to time, the merit behind is in order to supply the best product possible.