

Photointerrupter, small type, VCSEL + Photodiode VP-0940C-008M-31-1A0

Features

- 940nm VCSEL
- High sensitivity photodiode
- Detection gap =3.2mm
- High speed
- High reliability
- Low power consumption
- Compact

Applications

- Product counting
- Width measurement
- Speedometer
- Automatic sensing system
- Defect recognition
- High speed TIA
- Gas sensor
- Liquid sensor

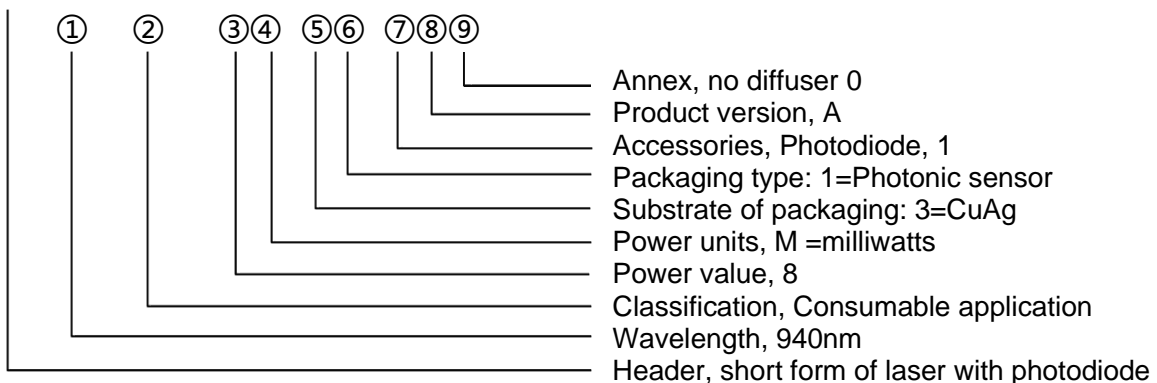


PRODUCT IDENTIFY

Part Number	Description
VP-0940C-008M-31-1A0	VCSEL Photointerrupter, small type

CODE RULES

e.g. VP- 0940C - 008M - 3 1 - 1 A 0



I. Absolute maximum ratings

Parameter	Symbol	Rating	Unit
Case Operating Temp	T _{op}	-40 to 85	°C
Storage Temp	T _{sto}	-40 to 105	°C

Input (VCSEL)			
Forward Current	I_{VF}	20	mA
Reverse Voltage	V_{VR}	5	V
Power dissipation	P_{VD}	56	mW
Output (PIN photodiode)			
Minimum Reverse Breakdown Voltage	V_{PBR}	33	V(min.)
Reverse Dark Current	I_{PDR}	5	nA

Note:

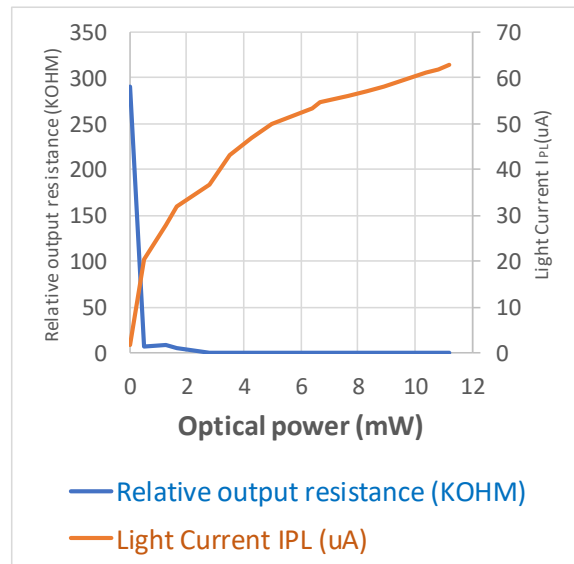
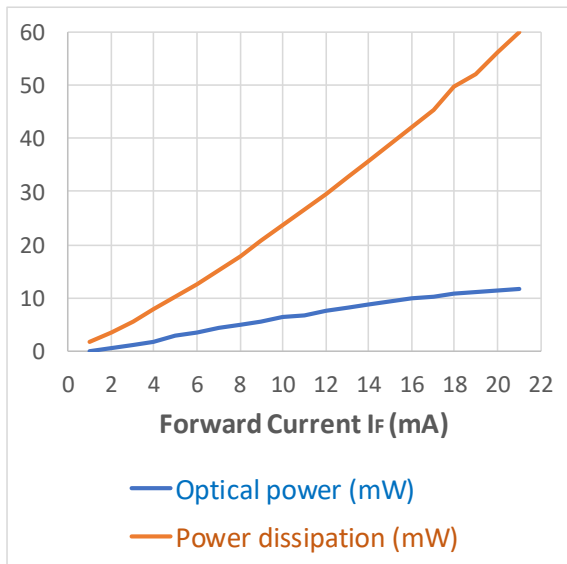
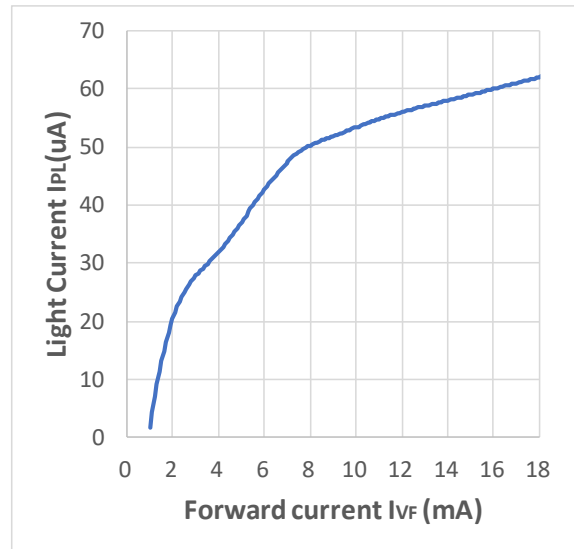
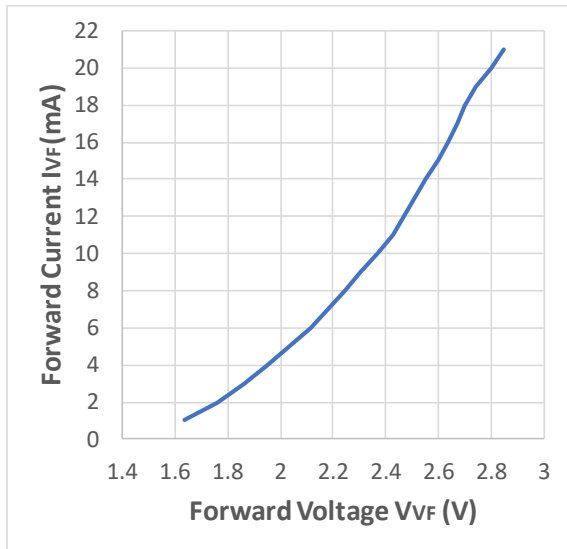
1. Stresses greater than those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or other conditions above those indicated in the operations section for extended periods of time may affect reliability.
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

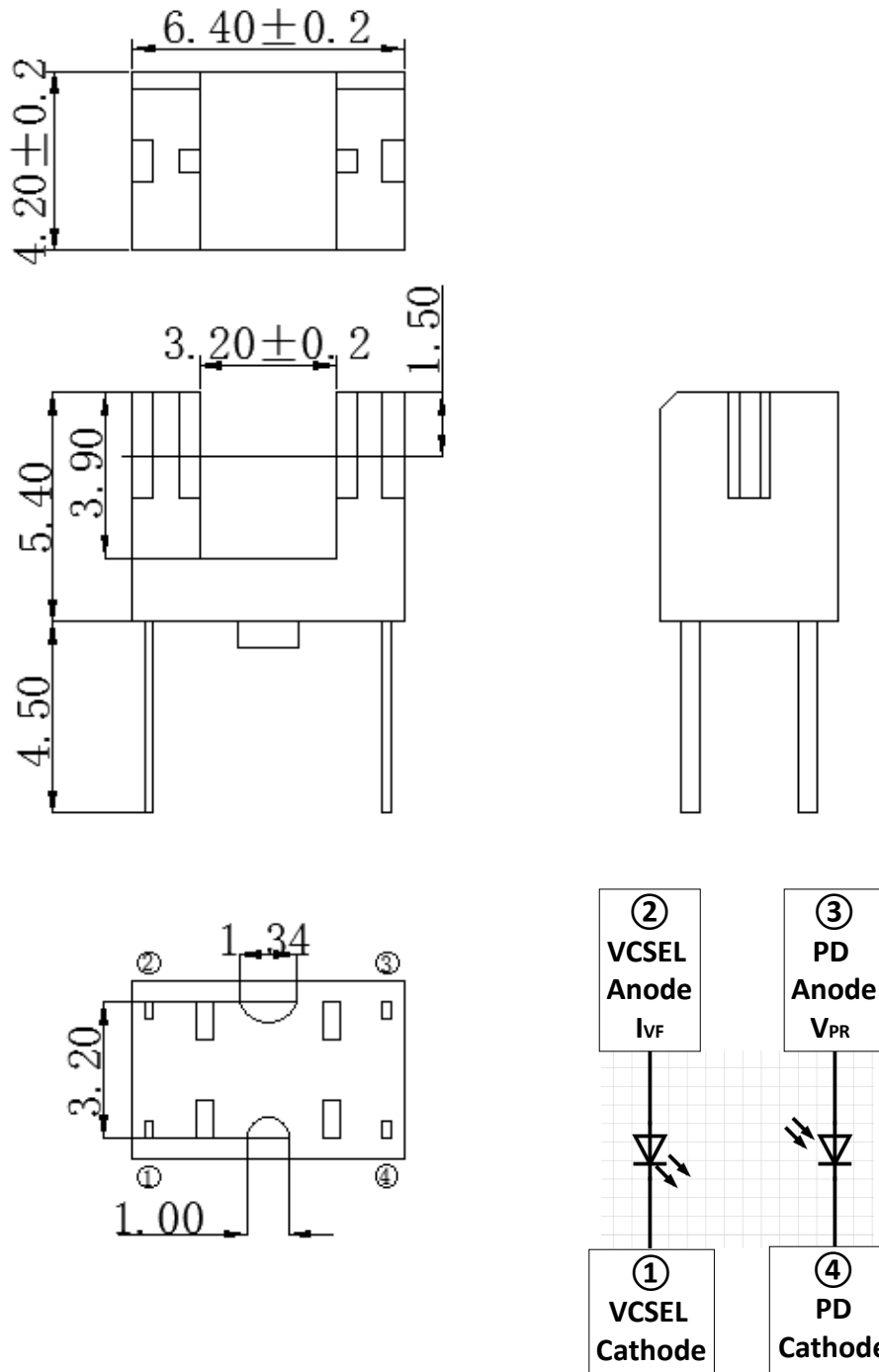
Parameter		Symbol	Conditions	Min.	Typ.	Max.	Unit
Input characteristics	Forward Voltage	V_{VF}	$I_{VF}=13\text{mA}$	-	2.51	-	V
	Threshold Current	I_{VTH}	-	-	0.5	-	mA
	Optical Power	P_{VO}	$I_{VF}=13\text{mA}$	-	8	-	mW
	Total Power consumption	P_{VD}	$I_{VF}=13\text{mA}$	-	32	-	mW
Output characteristics	Dark Current	I_{PD}	$V_{PR}=10\text{V}$, $P_{VO}=0\text{mW}$	-	1.12	-	nA
	Light Current	I_{PL}	$I_{VF}=13\text{mA}$, $P_{VO}=8\text{mW}$	-	57	-	μA
	Saturated Light Voltage	V_{PL}	$I_{VF}=13\text{mA}$, $I_{PL} > 0.01\text{mA}$	-	0.91	-	V
			$I_{VF}=13\text{mA}$, $I_{PL} = 0.001\text{mA}$	-	0.71	-	V
	Response time	t_r/t_f	$V_{PR}=3\text{V}$, $I_F=13\text{mA}$, $R_L=1\text{k}\Omega$	-	10~12	-	μs
$V_{PR}=3\text{V}$, $I_F=13\text{mA}$, $R_L=50\Omega$			-	17~29	-	ns	

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

III. Electrical and optical characteristics curves



IV. 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.

V. Revision history

Revision	Date	Description
V.01	2021/08/19	The first official edition

**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.

Laser diode product components are intended for use in a user-devised end system. However, these products are capable of emitting laser radiation. Extreme care must be exercised during their operation. Only persons familiar with the appropriate safety precautions should operate a laser product. Directly viewing the laser beam or exposure to specular reflections must be avoided. Serious injury may result if any part of the body is exposed to the beam. The eye is extremely sensitive to the infrared radiation and therefore, proper eye wear must be worn at all times. Use of optical instruments with these products may increase eye hazard. Always wear eye protection when operating.

