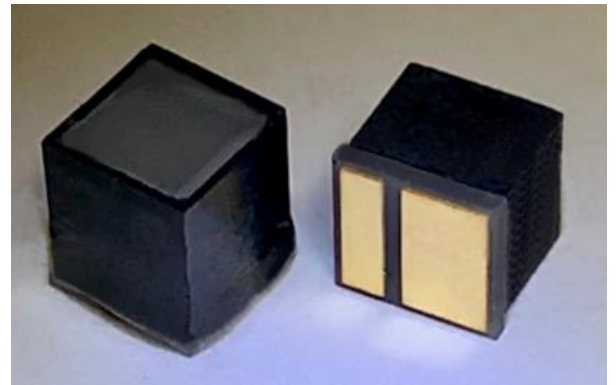


## Viewer-03 PS

### Low power consumption, ultra-compact VCSEL 680nm emitter

#### Description

The Viewer-03 PS surface mounted VCSEL 680nm emitter incorporates a unique VCSEL chip along with Digigram's advanced diffractive optical element (DOE). It is specially designed for open-space visible light emission and includes a DOE indicator which produces a highly uniform far-field pattern. The Viewer-03 PS comes in an ultra-small thermally-efficient COB package. Its compact footprint enables economies of scale and excellent integration flexibility.



#### Features

- Low distortion high uniform pattern
- Unique 680nm wavelength VCSEL
- Ultra-small COB package
- Standard solder reflow-able
- Low power consumption
- IEC 60825 eye safety standards

#### Applications

- Indicator for barcode reader
- Portable device

## Electrical Optical Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Threshold Current	$I_{th}$	-	4	-	mA	
Forward Voltage	$V_f$	-	2.5	-	V	$I_f = 9\text{mA}$ , CW
Slope Efficiency (S.E.)	$\eta_s$	-	0.5	-	W/A	$I_f = 9\text{mA}$ , CW
Output Power	$P_o$	-	3	-	mW	$I_f = 9\text{mA}$ , CW
Output Power	$P_o$	-	4	-	mW	$I_f = 9\text{mA}$ , Pulsed 1% duty cycle, $T=100\mu\text{s}$
Center Wavelength	$\lambda_c$	670	680	690	nm	$I_f = 9\text{mA}$ , CW
Beam Divergence	$\theta$	-	25	-	degree	$I_f = 9\text{mA}$ , Full Width $1/e^2$

Note:

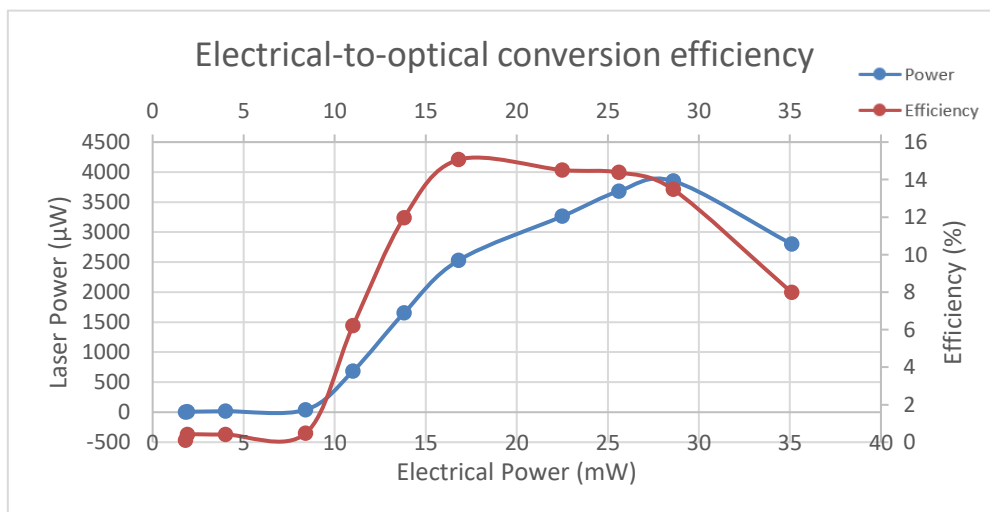
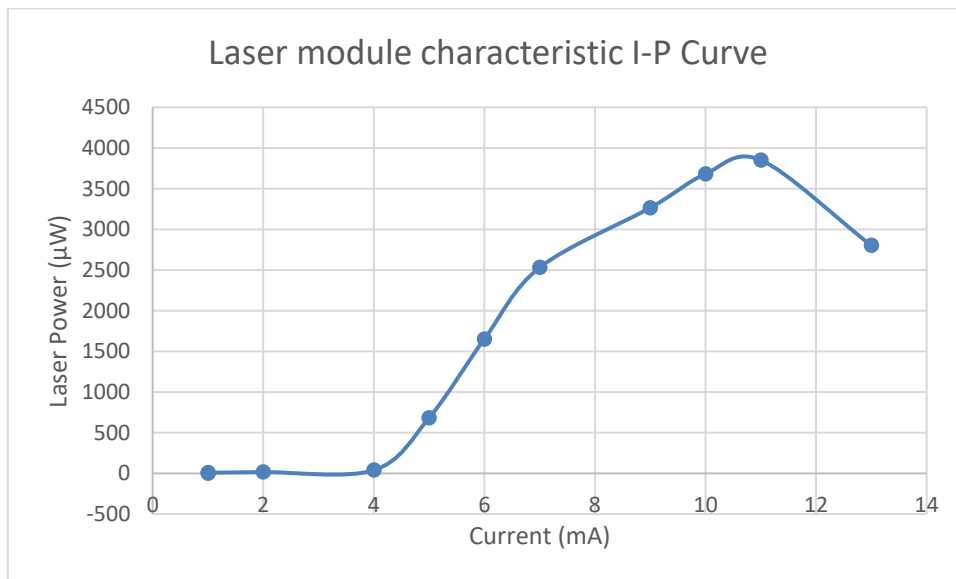
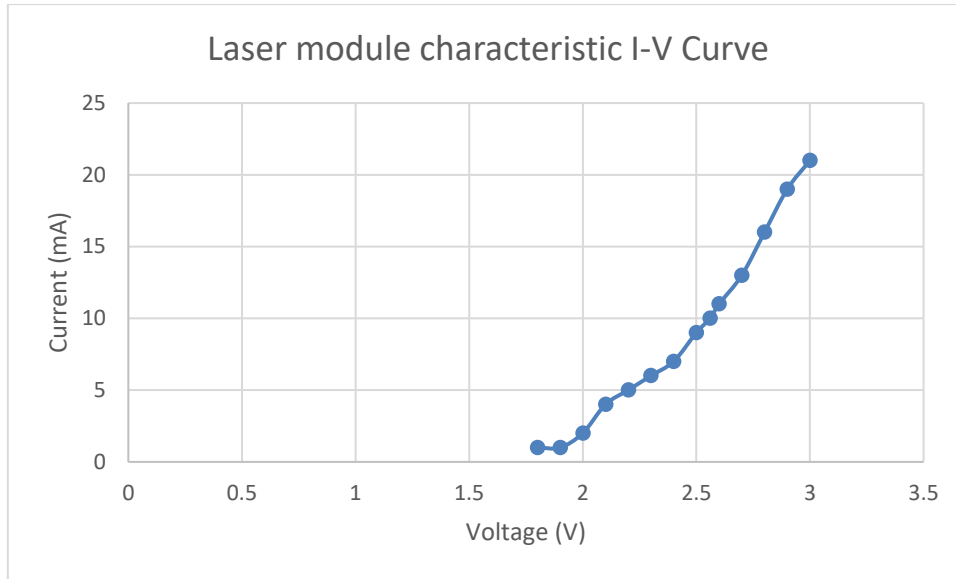
- All parameters except mentioned are measured at  $I_f = 9\text{mA}$ ,  $T_a = 25^\circ\text{C}$ , CW unless otherwise stated
- Forward Voltage ( $V_f$ ) measurement allowance is  $\pm 0.1\text{V}$ .
- Center Wavelength ( $\lambda_c$ ) measurement allowance is  $\pm 1.5\text{nm}$ .
- Others measurement allowance is  $\pm 5\%$ .

## Absolute Maximum Rating

Parameter	Symbol	Condition	Range
Continuous Forward Current	$I_f$	$25^\circ\text{C}$	12mA
Maximum Pulsed Current	$I_{pulse}$	$< 1\mu\text{s}$ pulse width, 1% duty cycle,	25mA

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.

## Characteristic Curves



## Optical Specifications

Pattern Size @100cm	709.7 × 453.3mm (HxV)
Field of View (FOV)	39.1° × 25.5° (HxV)
Contrast <sup>1</sup>	>10
Uniformity <sup>2</sup> in FOV at 1m	>50%

## Projection Pattern



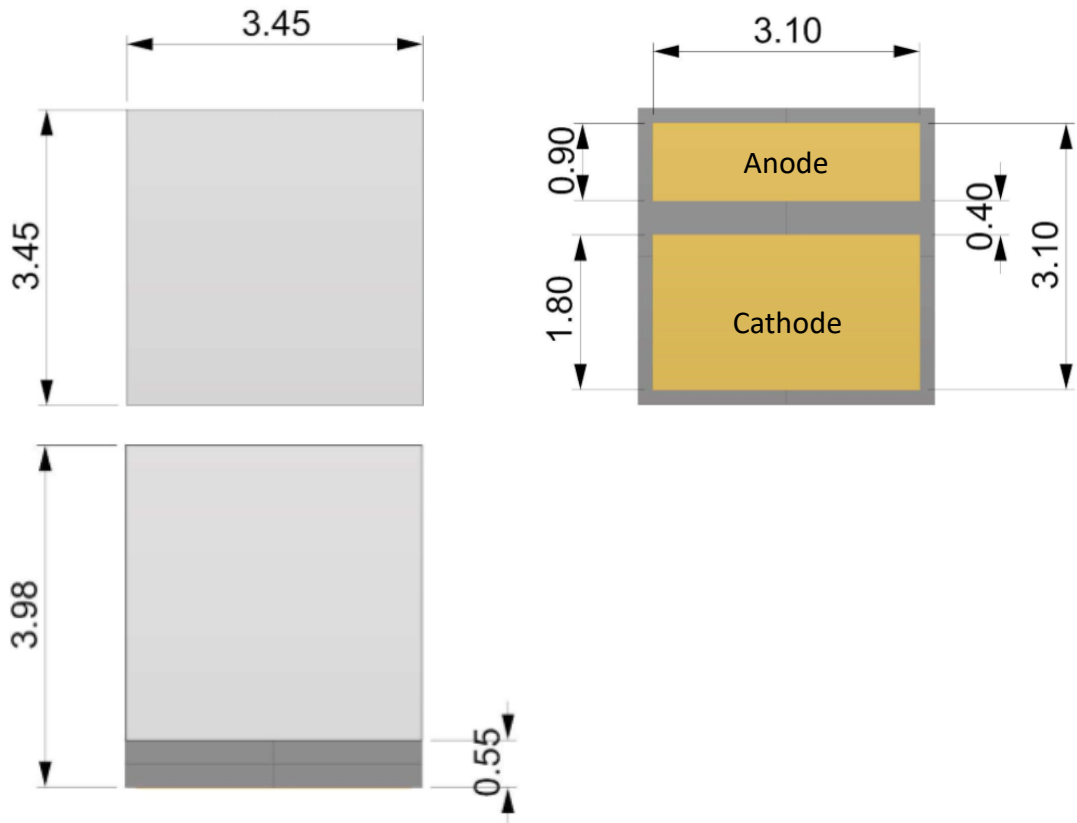
The pattern is taken in ambient light

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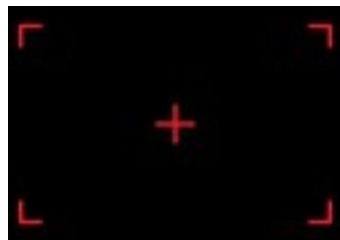
<sup>1</sup> **Contrast:** in the defined area, the ratio of the 95<sup>th</sup> percentile of the grayscale value over the mode grayscale value of the background,  $C=I_{95\%}/I_{mode}$

<sup>2</sup> **Uniformity:** the ratio of the grayscale value of the area at a given location to the grayscale value of the area in the center of the pattern,  $U=I_{each\ area}/I_{max\ of\ each\ area}$

### Mechanical Dimensions



### Orientation of the field of View



25.5 ° Vertical

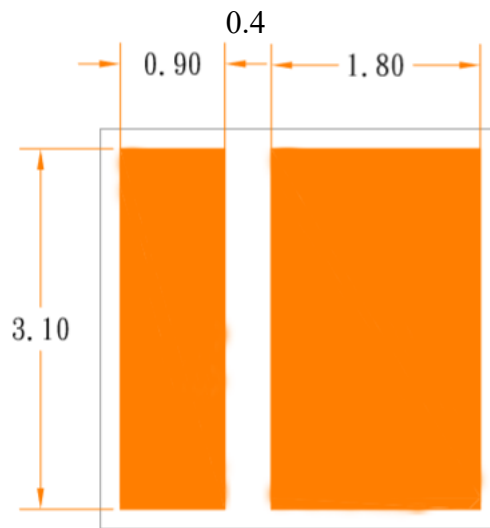
39.1 ° Horizontal



Vertical

Horizontal

## Recommended Solder Pad



## Cautions

1. Treat heat dissipation before setting the module to full power.
2. Avoid touching the emitting area or optical components of the module.
3. Never look directly at the light from the emitting area.



## Disclaimer

1. Semiconductor devices generally fail due to intrinsic characteristics. A DTC module includes an laser chip and a laser diode. Hence, a customer's product needs to be designed with full regard to safety which includes incorporating features to take care of redundancy, fire hazards, and human errors such that any problems or errors arising from the DTC module, does not cause any accidents resulting in injury, death, fire, or property damage. In case the customer uses the module in a system requiring a higher safety level, the customer is responsible to review the conditions for consistency of the entire system to make sure it meets all safety concerns. The DTC is not liable to the user for any losses, costs, damages or expenses incurred arising directly or indirectly from any misuse or unintended use of the product.
2. According to the above specs as provided, DTC reserves the rights to modify, to insert, and/or to withdraw any part of the rules specified herein.

#### About Digigram

Digigram Technology Co., Ltd., established in 2017, is a leading advanced Diffractive Optical Elements (DOE) manufacturer based in Taiwan. The shareholders of Digigram have more than two decades of experience in diffractive optical design, illumination design and optical system integration for industrial applications. Digigram has close ties with many industrial corporations as well as research institutes in Taiwan through collaborative projects and joint developments, with special emphasis on diffractive optical elements and optical technology. Digigram has state-of-the-art technology and can offer customers the best DOE solution.

Digigram looks forward to hearing from you.

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