

# DTC-RD17 10K\_Random Dots Laser Module

## 650nm TO-Can laser module with DOE and Circuit

### Description

The 650nm TO-Can laser module can integrate with different collimating types of DOE. It is designed for R&D purposes. It comes with an adjustable focusing lens. The default is set as collimating condition.



### Features

- Low distortion and high uniform pattern
- Flexible package for R&D evaluation
- Distance tunable projection
- PWM drivable
- IEC 60825 eye safety standards

### Applications

- Structure Light for 3D sensing
- Machine vision

## Electrical Optical Specifications

Parameters	Condition	min	typical	max	unit
<b><i>Electronical Characteristics (CW)</i></b>					
Threshold Current	25°C	-	14	17	mA
Operating Current		-	24	29	mA
Operating Voltage		-	2.15	2.3	V
Wavelength		640	650	660	nm
Power Input with PCB	25°C		3	3	V
<b><i>Mechanical Characteristics</i></b>					
Diameter		8			mm
Length*		14~15			mm
PCB (WxLxH)		9X12X3			mm
<b><i>LD Power Ratings</i></b>					
CW Output Power (max)			10	12	mW
Operating temperature		-10	-	60	°C
Storage temperature		-40	-	85	°C

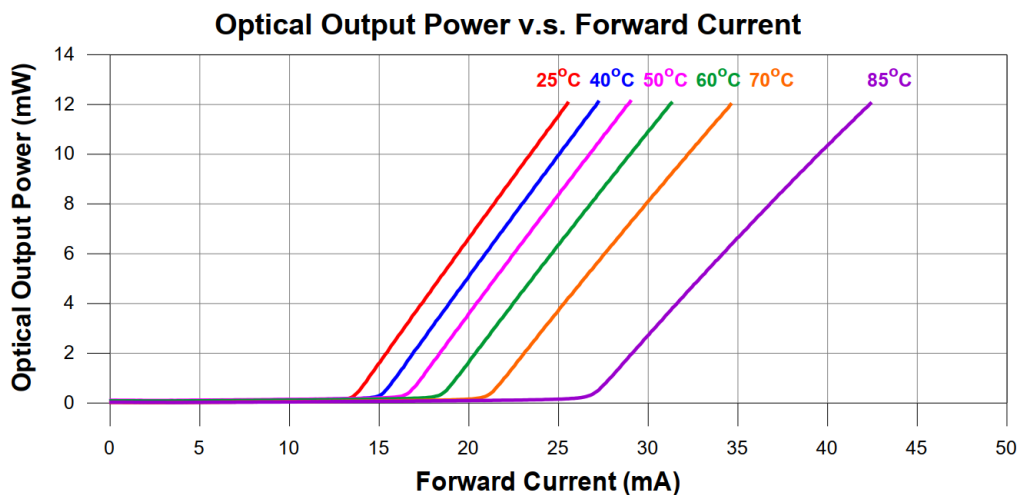
\*Length varies as the position of the collimating lens varies case by case

\*\*Total module length varies as the length of metal lead left after welding

## Characteristic Curves

### I-P curve of Chip

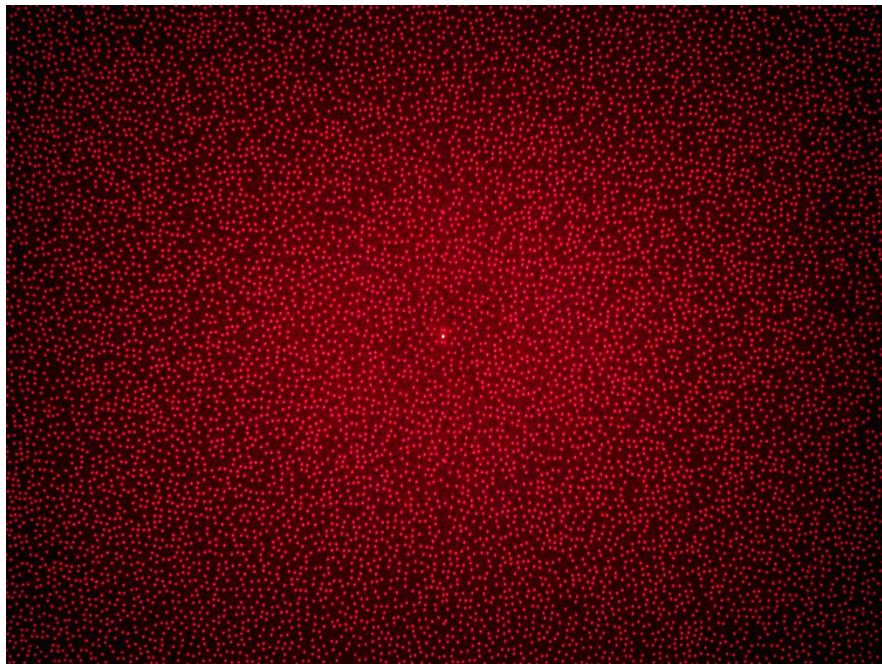
(Module optical power output is lower)



## Optical Specifications

Total dots	10,000
Field of View (FOV)	80° × 64°(HxV)
Contrast <sup>1</sup>	≥ 8
Uniformity <sup>2</sup> in FOV at 1m	≥ 20%
Zero order <sup>3</sup>	≤ 0.55%

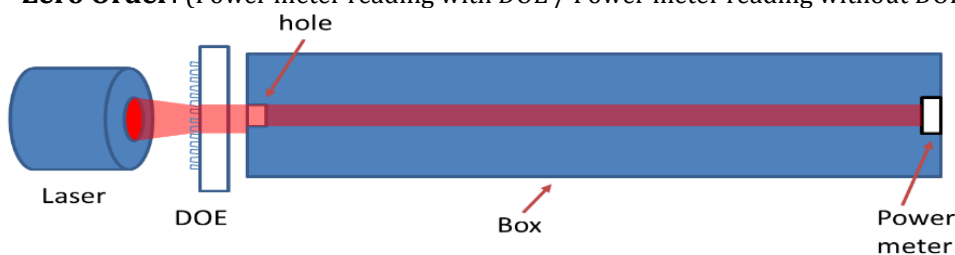
## Projecting Pattern



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

<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,  $U=I_{\text{each area}}/I_{\text{max of each area}}$

<sup>3</sup> **Zero Order:** (Power meter reading with DOE / Power meter reading without DOE ) X 100%



## 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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