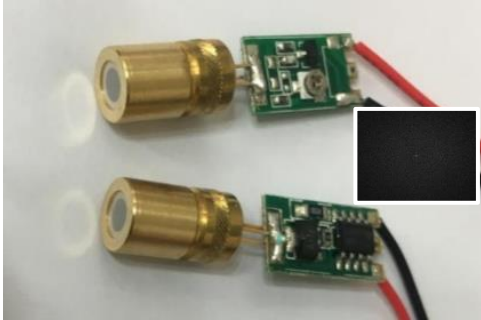


MDOE940A200R613 940nm DOE Laser Module

With Diffractive Optical Element 61,000 Random Dot Pattern, 3V DC PCB Driver



Overview

The MDOE940 series laser module is an 940nm laser module that can be integrated with different collimating DOE types. Designed for R&D purposes, the laser module comes with an adjustable focusing lens and with adjustable current to set the output power within a certain range.

Features

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

Applications

- Structured light for 3D sensing
- Machine vision

Specifications

| Electrical-Optical Characteristics | | | | | | |
|------------------------------------|-----------|------|------|-----|-------|-------------|
| Parameter | Symbol | Min. | Typ. | Max | Unit | Conditions |
| Threshold current | I_{th} | - | 20 | 50 | mA | 25 °C |
| Operating current | I_{op} | - | 270 | 320 | mA | |
| Operating voltage | V_{op} | 1.6 | 2.0 | 2.4 | V | |
| Power input with PCB | | | 3 | 3 | V | 25 °C |
| Wavelength | λ | 930 | 940 | 950 | nm | $P_o=200mW$ |
| Differential efficiency | η | 0.6 | 0.8 | 1.2 | mW/mA | $P_o=200mW$ |

| Laser Diode Power Ratings | | | | |
|---------------------------|-----------|-----------|------|------------|
| Parameter | Symbol | Rating | Unit | Conditions |
| CW output power (max) | | 200 | mW | |
| Operating temperature | T_{op} | -10 to 60 | °C | |
| Storage temperature | T_{stg} | -40 to 85 | °C | |

| Mechanical Characteristics | |
|----------------------------|-----------------------|
| Diameter | 8mm |
| Length | 14~15mm |
| PCB driver | 9(W) x 12(L) x 3(H)mm |

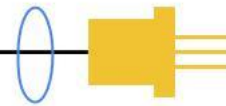
Notes:

- Length varies as the position of the collimating lens varies case by case.
- Total module length varies with the length of metal pins left after welding.

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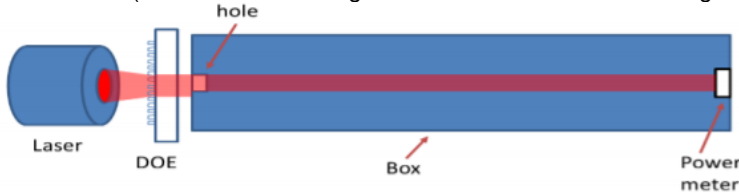


| Optical Specifications | |
|--------------------------------------|-------------------|
| Total dots | 61,000 |
| Field of View (FOV) | 68° x 48.5° (HxV) |
| Contrast ¹ | ≥2 |
| Uniformity ² in FOV at 1m | ≥45% |
| Zero order ³ | ≤0.2% |

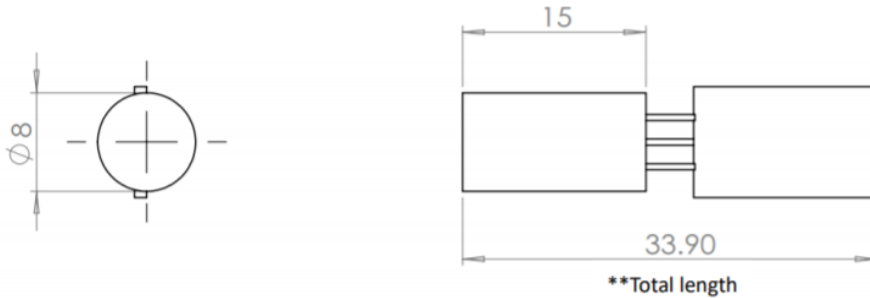
¹ Contrast: in the defined area, the ratio of the 95th percentile of the grayscale value over the mode grayscale value of the background, $C = I_{95\%} / I_{\text{median}}$

² 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, $U = I_{\text{each area}} / I_{\text{max of each area}}$

³ Zero order: $(\text{Power meter reading with DOE} / \text{Power meter reading without DOE}) \times 100\%$



Outline Dimensions (unit: mm)



Projection Pattern



Caution

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

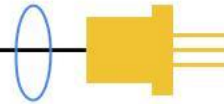
Additional Notes

- The laser modules are designated solely as OEM components for incorporation into the customer's end products. Therefore, it is the customer's responsibility to comply with the appropriate requirements of FDA 21CFR,



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section 1040.10 and 1040.11 for complete laser products. For the code of FDA regulations, please refer to [FDA Performance Standards for Light-Emitting Products](#) for detailed information.

- Specifications are subject to change without notice.

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