

What is the price of a custom-made laser diode

Article Overview

Custom laser diode prices vary widely, typically ranging from under \$1 for standard low-power diodes to tens of thousands of dollars for high-power, narrow-linewidth, or specialized custom designs.

Factors Affecting Price

The cost of a custom laser diode depends on several key parameters:

- o Wavelength: Common wavelengths for consumer electronics (e.g., 630-670 nm red diodes) are cheaper due to high-volume production, while specialized wavelengths for biomedical or industrial applications can be significantly more expensive .
- o Output Power: Higher power diodes generally cost more, though price also depends on package type and spectral requirements .
- o Spectral Properties: Narrow linewidth, single-mode, or wavelength-stabilized diodes command higher prices, especially for applications like telecommunications or fluorescence imaging .
- o Package Type: Options like TO-can, butterfly, or C-mount affect cost, with more complex or integrated packages being pricier .
- o Quantity: Bulk orders reduce per-unit cost, while small quantities or prototypes are more expensive per unit .
- o Customization Level: Fully custom solutions, including wafer growth, arrays, or quantum cascade lasers, are more expensive than off-the-shelf components .

Typical Price Ranges

- o Standard low-power diodes: Less than \$1 to a few dollars.
- o High-power or specialized diodes: Hundreds to thousands of dollars.
- o Highly customized or narrow-linewidth diodes: Tens of thousands of dollars depending on complexity and performance requirements .

Obtaining Quotes

For precise pricing, it is recommended to request quotes from suppliers:

- o RPMC Lasers: Offers tailored solutions and guidance for custom specifications, including single emitters, arrays, and stacks, with flexible packaging options .
- o GoPhotonics: Allows users to submit detailed requirements and receive quotations from multiple manufacturers, streamlining the comparison process .
- o Direct Manufacturer Price Lists: Some suppliers, like Roithner Laser, provide price lists for standard diodes,

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which can serve as a reference for custom orders .

Summary

Custom laser diode pricing is highly variable and depends on wavelength, power, spectral characteristics, packaging, quantity, and the degree of customization. For accurate pricing, it is best to provide detailed specifications to suppliers like RPMC or GoPhotonics, who can offer tailored quotes and guidance for your application.

A laser diode is a small semiconductor gadget that produces strong and precise light emissions through a cycle called

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