

1W Ultraviolet Laser Diode



AI Overview

A 1W UV laser diode is a high-power semiconductor laser emitting ultraviolet light, typically in the 375–405nm range, used for precision industrial, biomedical, and photolithography applications.

Key Specifications

- Wavelength:** Common UV laser diodes operate at 379nm (Nuvoton KLC330FL01WW) or 405nm (Ushio HL40033G), providing short-wavelength light suitable for fine-feature applications.
- Optical Power:** Continuous-wave output of 1.0W, delivering high-intensity UV light for demanding tasks.
- Package:** Typically in 9mm TO-can (TO-9) or similar high-thermal-conduction packages to efficiently dissipate heat and maintain stable operation.
- Thermal Management:** Advanced packaging and proprietary device structures enhance wall-plug efficiency and reduce self-heating, extending diode lifetime.
- Beam Quality:** Narrow emission area and high optical density allow precise focusing for micromachining, lithography, and marking.

Applications

- Maskless Lithography:** Directly exposes patterns without photomasks, improving throughput and reducing costs in semiconductor packaging.
- Resin Curing:** UV light initiates polymerization in 3D printing and coating processes.
- Marking and Micromachining:** High-intensity UV enables fine engraving on plastics, metals, and other materials.
- Biomedical Uses:** Fluorescence excitation, sterilization, and diagnostic instrumentation.
- Mercury Lamp Replacement:** Serves as an environmentally friendly alternative to traditional mercury lamps in optical systems.

Advantages

- High Output Power:** 1W-class diodes provide sufficient intensity for industrial and research applications.
- Compact and Efficient:** Small form factor with high thermal conduction allows integration into existing systems.
- Long Lifetime:** Optimized device structure and heat dissipation reduce degradation from UV exposure and self-heating.
- Flexible Integration:** Available in free-space or fiber-coupled configurations, suitable for OEM or turnkey systems.

Sourcing

Nuvoton KLC330FL01WW: 379nm, 1W UV diode, TO-9 package, widely use...

Article Content

Nuvoton Releases High-Power Ultraviolet Laser Diode

Kyoto, Japan, January 16, 2026 – Nuvoton Technology announced today the start of mass production of its high-power ultraviolet semiconductor laser (379 nm, 1.0

Laser Diodes by Wavelength

Laser diodes, which are capable of converting electrical current into light, are available from Thorlabs with center wavelengths in the 375 - 2000 nm range and

Power: 1 W

This product is available with an optional fiber Bragg grating. This option provides a more narrow linewidth and tighter wavelength tolerance. Please see details below.

KLC330FL01WW 1W 379nm UV Laser Diodes

These Nuvoton UV laser diodes are designed for maskless lithography, resin curing, marking, 3D printing, and biomedical applications, and as alternative light sources for mercury lamps.

Nuvoton Releases High-Power Ultraviolet Laser Diode (379 nm, 1.0 W)

To meet these requirements, we have leveraged over 40 years of experience in laser design and manufacturing to develop and commercialize an ultraviolet semiconductor laser with a wavelength of

Nuvoton releases high-power 1W 379nm UV laser diode

To meet these requirements, Nuvoton says that it has leveraged over 40 years of experience in laser design and manufacturing to develop and commercialize an ultraviolet

1.01-W narrow-linewidth ultra-violet laser by Pr: YLF

In summary, we have successfully demonstrated the generation of a narrow-linewidth continuous-wave 261-nm ultraviolet laser employing a diode-pumped Pr: YLF ring oscillator.

Nuvoton KLC330FL01WW 1W 379nm UV Laser Diodes

Nuvoton KLC330FL01WW 1W 379nm UV Laser Diodes are 379nm, 1.0W high-power ultraviolet semiconductor lasers that deliver high optical output in a 9.0mm-diameter CAN package

KLC330FL01WW

KLC330FL01WW is a 379 nm Ultraviolet laser that delivers 1.0 W high output. Featuring a TO-9 CAN package, it offers both high output and high reliability for

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1W Laser Diode

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405nm 1W Violet Laser Diode by Ushio (HL40033G)

USHIO's HL40033G 405nm 1W Violet Laser Diode provides intense violet laser light.

Nuvoton releases 379 nm, 1W UV laser diode

Japanese firm Nuvoton Technology has started mass production of its high-power UV semiconductor laser (379 nm, 1.0 W), which delivers industry-leading optical output in a 9.0 mm

LD | NICHIA CORPORATION

Nichia's laser diodes deliver world-class quality and optical output power. With stable emission performance and exceptional durability, they offer high reliability

Nuvoton Releases High-Power Ultraviolet Laser Diode

This product achieves short wavelength, high output power, and long lifetime -- three elements previously considered difficult for ultraviolet

IPG Photonics Showcases New and Innovative Laser Solutions at

Nikolai Platonov, Director, R& D and Scientific Lasers 8 kW single-mode ytterbium fiber laser with beam quality M2-parameter < 1.1 and SRS-to-signal ratio < -40 dB using direct diode pumping 19 January

UVC Photonics

UVC Photonics produces the worlds only deep ultraviolet diode laser modules. The Model 261 lasers are OEM components which provide greater than 10 mW of

Ultraviolet laser diode delivers 1.0 W output at 379 nm

Nuvoton Technology has started mass production of the KLC330FL01WW, a 379 nm ultraviolet semiconductor laser delivering 1.0 W

Ultraviolet Lasers | Edmund Optics

These lasers operate similarly to laser diodes and do not require complicated electronics for locking resonance cavities or stabilizing temperatures. Figure 2: Compact UV lasers from UVC Photonics

Uv laser diode-AliExpress

UV laser diode A semiconductor device that emits ultraviolet light when electrically stimulated, used for high-precision material processing. UV laser wavelength The specific

Diode Lasers Jump to the Deep Ultraviolet

After years of delays, a semiconductor diode laser has finally operated in the deep ultraviolet, pointing the way to bio-sensors and sterilization

Widely tunable and narrow-linewidth chip-scale lasers from near ...

Here we demonstrate a chip-scale visible laser platform that enables tunable and narrow-linewidth lasers from near-ultraviolet to near-infrared wavelengths.

Compact CW UV laser and DPSS Q-switched UV Laser

UV laser includes compact CW UV laser and DPSS Q-switched Ultraviolet laser. CrystaLaser manufactures ultra-compact CW UV lasers and diode pumped

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://sphplantsales.co.za>

Email: info@sphplantsales.co.za

Phone: +27 64 827 3915

Address: Unit 9, Highveld Technopark, 43 Atlas Road, Johannesburg, 2196, South Africa

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