Blade Series

1 µm High-power Ultrafast Laser



NPI's Blade series is industrial grade ultrafast laser with high stability and reliability. Its single pulse energy is up to >50 μ J and pulse width is <15 ps. It is the most popular laser light source in ultrafast precision micro fabrication.

Blade series are mainly used in microelectronics processing of 3C products, mobile panels and OLED components, semiconductor wafer dicing, cutting and drilling of metal and hard brittle materials such as stainless steel, glass, sapphire and ceramics.

Different from other hot processing of long pulse lasers (such as nanosecond laser) or CW lasers, when the pulse width of ultrafast laser is short enough (<15 ps), the effect on material will cross the "hot processing" stage into the "cold processing". The heat will disappear before spreading to the micromachining area, which can avoid recasting, micro cracks and molten particles spatter. This ensures that the physical and chemical properties of material are not affected during micro-processing in machining edge area.

C Key Features

- Customized operating wavelength
- Picosecond level
- Linearly polarized
- Diffration limited beam
- Tune-key system

Applications

- Silicon wafer processing
- Solar cell film cutting
- Glass film cutting
- Precision marking



Schematic diagram of structural design :

Main Specification

Parameter	Performance
Operating Wavelength	1064 nm
Pulse Duration	<15 ps
Average Output Power	10 W@1 MHz , 25 W @500kHz
Repetition Rate	100 kHz-5MHz
Single Pulse Energy	لبا 10 μμ , >50 μ
Peak Power	>3 MW
Operating Temperature	15-35 °C
Power Requirement	AC 100-240 V (50 Hz/60 Hz)
Dimensions	548 mm x 409 mm x 154 mm
Weight	25 kg
Output Fiber Type	Armored cable

Machine Drawing











Output power VS. pump power



Typical autocorrelation trace and beam

