

## 445 nm 100 W Fiber Coupled Blue Laser Diode

K445HR6FN Series V1.1



### Features:

- 445 nm wavelength
- 100 W output power
- 105  $\mu\text{m}$  fiber core diameter
- 0.22 NA
- Cooling mode: water cooling

### Applications:

- Material Processing
- 3D Printing
- EV Battery Production

Specifications (20°C)		Symbol	Unit	K445HR6FN-100.0WN1N-10522		
				Minimum	Typical	Maximum
Optical Data <sup>(1)</sup>	Total CW Output Power	$P_{bol}^{(4)}$	W	100	-	-
	Number of submodules	pcs	-	-	2	-
	Submodule CW Output Power	$P_o$	W	-	50	-
	Center Wavelength	$\lambda_c$	nm	445±20		
	Spectral Width (FWHM)	$\Delta\lambda$	nm	-	6	-
	Wavelength Shift with Temperature	$\Delta\lambda/\Delta T$	nm/°C	-	0.1	-
	Wavelength Shift with Current	$\Delta\lambda/\Delta A$	nm/A	-	1	-
Electrical Data	Electrical-to-Optical Efficiency	PE	%	-	30	-
	Operating Current	$I_{bol}^{(4)}$	A	-	3	3.5
	Threshold Current	$I_{th}$	A	-	0.35	-
	Operating Voltage (single module)	$V_{op}$	V	-	52	60
	Slope Efficiency (single module)	$\eta$	W/A	-	18.5	-
	Power Supply Mode	-	-	-	2 modules	-
Fiber Data	Core Diameter	$D_{core}$	$\mu\text{m}$	-	105	-
	Numerical Aperture	NA	-	-	0.22	-
	Minimum Bending Radius	-	mm	50	-	-
	Fiber Length	-	m	5.5		
	Fiber Termination	-	-	-	HP-SMA905	-
Thermistor	-	$R_t$	$(\text{K}\Omega)/\beta(25^\circ\text{C})$	-	10±3%/3450	-
Others	ESD	$V_{esd}$	V	-	-	500
	Storage Temperature <sup>(2)</sup>	$T_{st}$	°C	-20	70	
	Lead Soldering Temp	$T_{ls}$	°C	-	260	
	Lead Soldering Time	$t$	sec	-	10	
	Operating Temperature <sup>(3)</sup>	$T_{op}$	°C	15	-	30
	Relative Humidity	RH	%	15	-	75

(1) Data measured under operation output at 100W@20°C.

(2) A non-condensing environment is required for operation and storage.

(3) Operating temperature defined by the thermistor. Acceptable operating range is 15°C~30°C, but performance may vary.

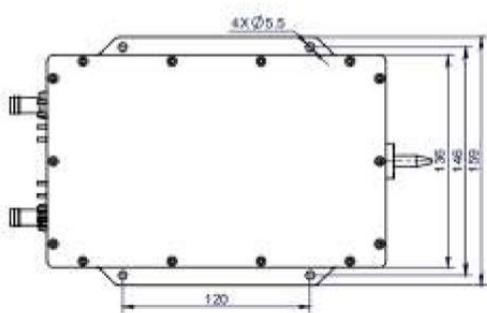
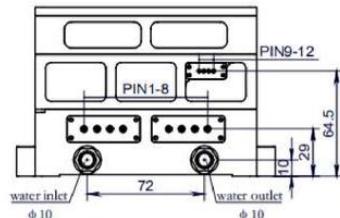
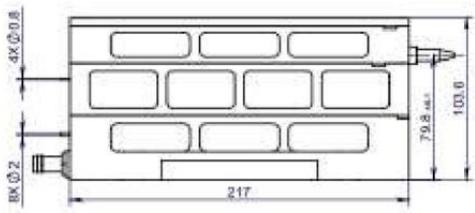
(4) Product delivery qualification standards: I<sub>b</sub>beginning of life ≤ 3.5A, P<sub>b</sub>eginning of life ≥ 100W;

(5) Within the warranty period, the product is considered qualified with I<sub>e</sub>nd of life =3.5A, P<sub>e</sub>nd of life≤80W.

## 445 nm 100 W Fiber Coupled Blue Laser Diode

K445HR6FN Series V1.1

### Package Dimensions (mm)



Pin	Function
1	LD1(+)
2	LD1(-)
3	LD2(+)
4	LD2(-)
5	LD3(+)
6	LD3(-)
7	LD4(+)
8	LD4(-)
9	*Thermistor
10	*Thermistor
11	*Aiming Beam+
12	*Aiming Beam-

1. The K445HR6FN Series blue laser consists of up to 4 submodules (50W per module). Power can be supplied separately or in series.
2. The K445HR6FN Series blue laser cooling water inlet and outlet size: Outer 10mm\* Inner 6.5mm. The water flow should be at least 5L/min.
3. \*: Optional functions.

## OPERATING NOTES

- Avoid eye and skin exposure to direct radiation during operation.
- ESD precautions must be taken during storage, transportation and operation.
- Short-circuit is required between pins during storage and transportation.
- Please connect pins to wires by solder instead of using socket when operation current is higher than 6A. Soldering point should be close to the middle of the pins. Soldering temperature should be lower than 260°C and time shorter than 10 second.
- Make sure the fiber output end is properly cleaned before operation of laser. Follow safety protocols to avoid injury when handling and cutting the fiber.
- Use constant current power supply to avoid surge current during operation.
- Laser diode must be used according to the specifications.
- Laser diode must work with good cooling.
- Operation temperature ranges from 15°C to 35°C.
- Storage temperature ranges from -20°C to +70°C.