

Ho:YAG

Ho ion is used as active ion, the pump wavelength is 1.9 μm , and the output wavelength is 2.05 μm unpolarized laser. Due to the excellent physical and chemical properties of the YAG matrix, it can withstand high thermal loads, so it can output 2.05 μm lasers with high power and high repetition frequency. It is an important pump source laser crystal for mid-wave infrared lasers.



Main features:

Unpolarized laser output
high thermal conductivity
Strong thermal shock resistance
Suitable for 1.9 μm laser pumping

Material properties:

Crystal structure	Cubic system
Lattice constant	12.01 \AA
Melting point	1970 $^{\circ}\text{C}$
Moh's hardness	8.5
Density	4.56 \pm 0.04g/ cm^3
Specific heat	0.59J/g. cm^3 @0-20 $^{\circ}\text{C}$
Elastic Modulus	310GPa
Young's modulus	3.17 $\times 10^4$ Kg/mm 2
Poisson's ratio	0.3
Tensile strength	0.13~0.26GPa
Coefficient of thermal expansion	[100] Direction: 8.2 $\times 10^{-6}$ /K@ 0~250 $^{\circ}\text{C}$
	[110] Direction: 7.7 $\times 10^{-6}$ /K@0~250 $^{\circ}\text{C}$
	[111] Direction: 7.8 $\times 10^{-6}$ /K@0~250 $^{\circ}\text{C}$
Thermal conductivity	14W/m/K@20 $^{\circ}\text{C}$
	10.5W/m/K@100 $^{\circ}\text{C}$
Thermo-optic coefficient (dn/dT)	dn/dT =7.3 $\times 10^{-6}$ /K
Thermal shock resistance	790W/m
Solubility	Insoluble in water, slightly soluble in common acids

Product parameters:

Doping concentration	0~3at% Can be customized according to customer requirements
Orientation	$\langle 111 \rangle \pm 5^{\circ}$
Wavefront distortion	$\leq 0.25\lambda/25\text{mm}$ @632.8nm
Size	Diameter: 3~15mm, Length: 5~180mm, can be customized
Dimensional tolerance	Diameter: +0.00/-0.05mm, Length: $\pm 0.5\text{mm}$
Cylindrical processing	Grinding or Polishing
Parallelism of end faces	$\leq 10''$
Perpendicularity between end face and rod axis	$\leq 5'$
Flatness of end face	$\leq \lambda/10$ @632.8nm
Surface Quality	10-5 (MIL-O-13830A)
Chamfer	0.15 \pm 0.05mm
AR Coating Reflectance	$\leq 0.25\%$