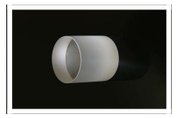

Yb:YAG

Yb:YAG is one of the most promising laser-active materials and more suitable for diode-pumping than the traditional Nd-doped systems. Compared with the company used Nd:YAG crystal, Yb:YAG crystal has a much larger absorption bandwidth to reduce thermal management requirements for diode lasers, a longer upper-laser level lifetime, three to four times lower thermal loading per unit pump power.

ADVANTAGES

- Very low fractional heating, less than 11%
- Very high slope deficiency
- Broad absorption bands, about 8nm@940nm
- No excited-state absorption or up-conversion
- Conveniently pumped by reliable in GaAs diodes
- High thermal conductivity@ 940nm (or 970nm)
- High optical quality

Laser Rods

- Flat/flat
- Parallel/ anti-parallel wedged
- Brewster angle
- Concave/convex radii
- Cylinder grooved

Specifications

Material	Yb:YAG
Yb-dopant concentration	0.5%--25at%
Orientation	or
Dimensions	Diameter:2mm-50mm, Length:5-180mm(Upon customer’ s request)

Clear aperture	Central 95%
Extinction Ratio	>30dB (depends on actual size)
Diameter Tolerance	+0/-0.02mm
Length tolerance	+0.5/-0mm
Flatness	<λ/10@632.8nm
Damage Threshold	>700MW/cm2 @10ns 10HZ
Barrel Finish	Ground Finish 400#Grit
Scratch/Dig	10-5@MIL-0-13830A
Parallelism	<10 arc seconds
Perpendicularity	<5 arc minutes
Wavefront Distortion	λ/8 per inch @632.8nm
Anti-Reflection coating	R<0.2%@1030nm per surface

Properties

Laser transition	2F5/2 →2F7/2
Laser Wavelength	1030nm
Photon Energy	1.93*10⁻19 J@1030nm
Emission Linewidth	9nm
Fluorescence Lifetime	1.2ms
Diode pump Band	940nm or 970nm
Pump Absorption Band Width	8nm
Index of Refraction	1.82@1030nm
Loss Coefficient	0.003 cm-1

