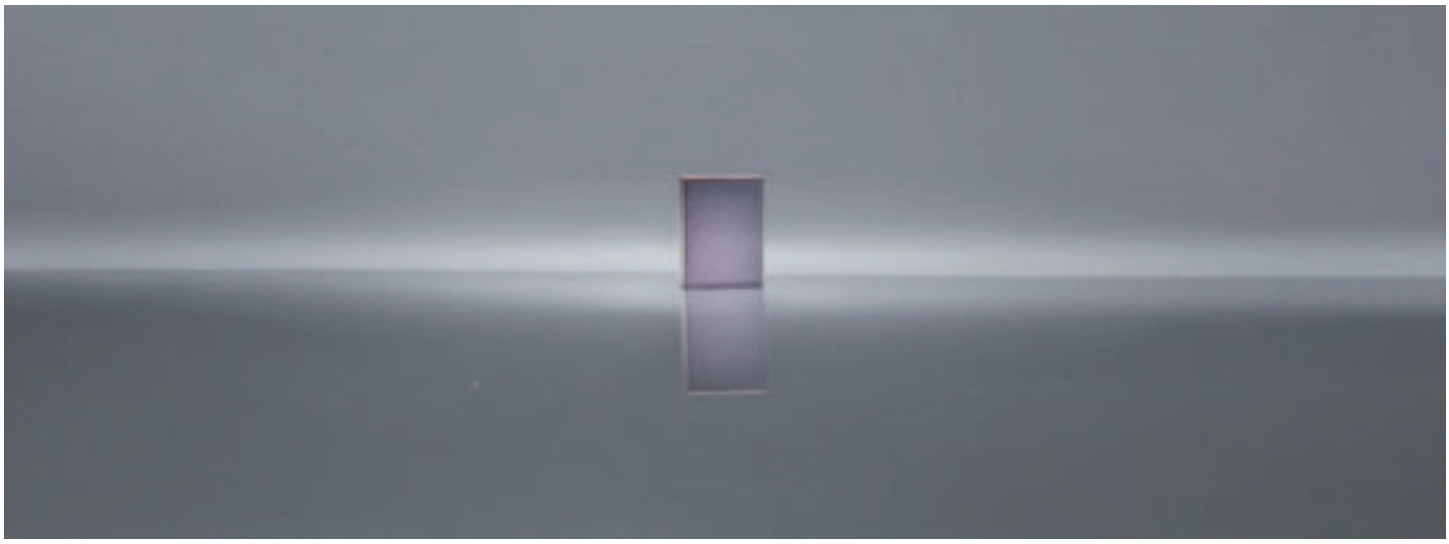
$AgGaGe_5Se_{12}$



DESCRIPTION

$AgGaGe_5Se_{12}$ (AGGSe, Selenium-Germanium-Gallium-Silver) crystals have a large band gap, a large laser damage resistance threshold (225 MW/cm^2), about three times that of $AgGaS_2$, a large nonlinear coefficient (d_{31}=30 pm/V), a wide transmission band (0.6~16.5 μm), and are expected to be used in mature 1.064 μm Nd:YAG lasers pumped to output larger power mid- and far-infrared lasers. It can also be used for 1μm source pumped OPO laser output, CO^2 laser SHG tuning.

FEATURES

- High damage threshold
- Large band gap
- More phase matching schemes
- Can be a substitute for AgGaS2 and AgGaSe2
- Wide infrared transmission range
- Large nonlinear coefficient
- Large laser damage threshold
- Good mechanical performance, not easy to break

APPLICATIONS

- Infrared remote sensing
- 1um solid state laser
- High power laser
- Frequency shift the 1 μ m solid-state laser to the mid infrared (2-12 μ m) band. laser ranging

MATERIAL SPECIFICATIONS

Dimensional tolerance	(W+/-0.1MM)×(h+/-0.1MM)×(L+1mm/-0.5mm)
Luminous aperture	>90%
Flatness	λ/8@633nm when T>=1mm
surface quality	60-40scratch/dig after plating
Parallelism	>30″
verticality	10′
Orientation accuracy	<30°

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PHYSICAL AND CHEMICAL PROPERTIES

Orthogonal crystal system Fdd2 space group	Orthogonal crystal system Fdd2 space group
Lattice constants	a=1.2422nm,b=2.3767nm,c=0.7136nm
Cell volume	2.105nm^3
Density	4.6947g/cm^3
Melting point	713-731℃
Band Gap	2.2eV
Nonlinear coefficient	d_{31}=30pm/V
Light transmission range	0.63-16μm
Absorption coefficient	0.1cm^{-1}
Damage Threshold	225MW/cm^2
Birefringence	0.16

SPECTRA