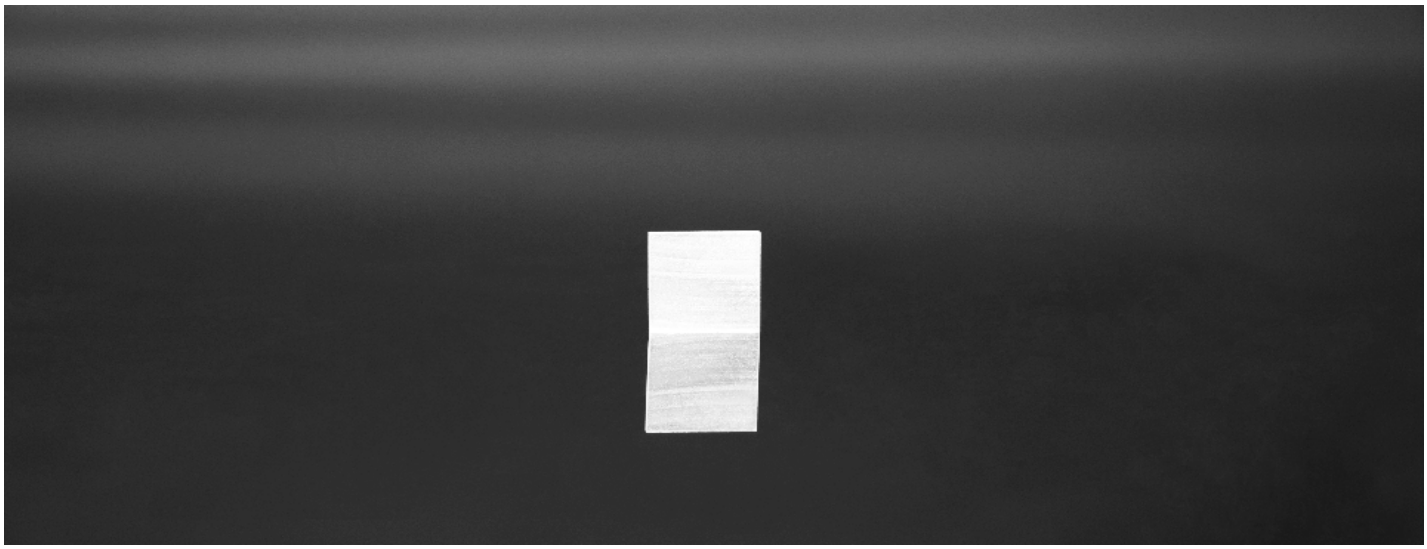
GGG

Gallium Gadolinium Garnet ($Gd_3Ga_5O_{12}$ or GGG) Crystal Substrate



DESCRIPTION

Gallium Gadolinium Garnet ($Gd_3Ga_5O_{12}$ or GGG) single crystal is material with good optical, mechanical and thermal properties which make it promising for use in fabrication of various optical components as well as substrate material for magneto-optical films and high–temperature superconductors. It is the best substrate material for infrared optical isolator (1.3 and 1.5μm), which is a very important device in optical communication. It is made of YIG or BIG film on the GGG substrate plus birefringence parts. Also GGG is an important substrate for microwave isolator and other devices. Its physical, mechanical and chemical properties are all good for the above applications.

FEATURE

- Small dielectric constant
- Small microwave band loss
- Stable physical and chemical performance

APPLICATION

- Magneto-optical films
- High–temperature superconductors substrate
- Infrared optical isolator

www.wafer-crylink.com
sales@crylink.com
+86-21-69910952 / 69913696
No.200, Zhaoxian Road, Jiading District, Shanghai, China

GGG

PARAMETER

Material characteristics

Chemical formula	$Gd_3Ga_5O_{12}$
Crystal structure	cubic
Lattice parameters	a=12.383 Å
Molecular Weight	1012.5
Density, g/cm3	7.08 g/cm^3
Transmission Range	0.40 ～ 7.0 μm
Refractive index	1.97 @480nm
Melting Point	1730°C
Thermal conductivity at 25°C,Wxcm^{-1}x˚K^{-1}	7.05
Thermal expansion coefficient	8.2×10^{-6}/K
Dielectric Constant	30
Dielectric loss tangent, at 10 GHz	0.15
Colour	Colorless

Main Specifications

Materials	GGG
Orientation	[001] or [110] or [111] < ±0.5°
Parallel	10″
Perpendicular	5′
surface Quality	10/5
Wavefront Distortion	λ/4@632nm
Surface Flatness	λ/8@632nm
Clear Aperture	>95%
Chamfer	<0.1×45°
Thickness/Diameter	±0.05 mm
Maximum dimensions	dia 50×100mm
Coatings	AR/AR@940+1030; HR@1030+HT@940+AR1030