

GSGG

Sc-doped Gadolinium Gallium Garnet (GSGG) Crystal Substrate



DESCRIPTION

The Sc-doped gadolinium gallium garnet (GSGG, $Gd_3Sc_2Ga_3O_{12}$) crystal is a good magneto-optical crystal and the excellent substrate. GSGG is usually grown by the CZ method. GSGG crystal have a higher lattice constant than GGG crystal. GSGG substrate is used as substrates for liquid epitaxy and is dedicated substrates for magneto-optical film, especially bismuth-substituted iron garnet epitaxial films, such as YIG, BiYIG, GdBIG. It's good physical and mechanical properties and chemical stability.

FEATURE

- Large Verdet Constant
- A larger lattice constant

APPLICATION

- Faraday Rotator, Optical Isolator
- Magnetic and ferroelectric substrates



PARAMETER

Physical and chemical characteristics

Composition	Gd ₃ Sc ₂ Ga ₃ O ₁₂
Crystal Structure	Cubic:
Purity	>99.99%
Growth method	Czochralski method
Lattice constant	a=12.554Å
Melting Point	~1730°C
Density	~7.09g/cm ³
Mohs Hardness	~7.5
Refractive index	1.95
Dielectric constant	30
Dielectric loss tangent (10GHz)	3.0 x 10 ⁻⁴

Main Specification

Product Name	GSGG substrate
Orientation	<111>±0.5° Or other off-angle
Standard Size	10x10mm 10x5mm 5x5mm Or others
Thickness	0.1mm 0.2mm 0.5mm 1.0mm Or others
Polishing	Fine ground Single side polished Double side polished Roughness: Ra <5A(0.5nm)

