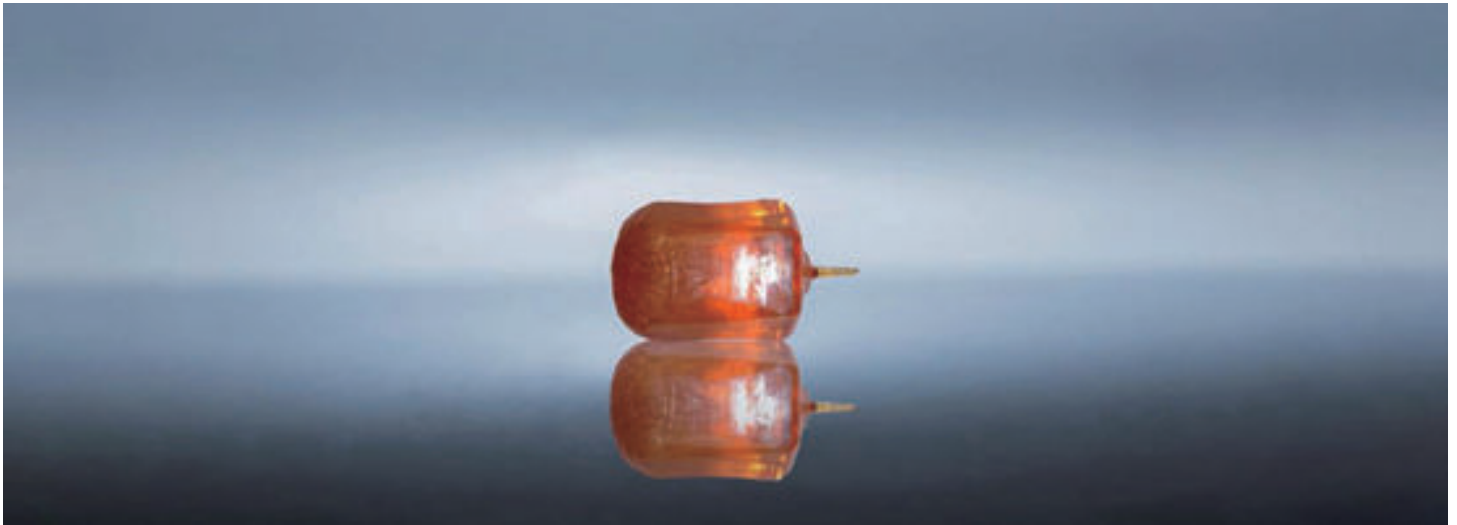


LGS



DESCRIPTION

LGS crystal, also known as lanthanum gallium silicate crystal with the chemical formula $\text{La}_3\text{Ga}_5\text{SiO}_{14}$, is a nonlinear optical crystal with excellent electro-optical properties. LGS crystal belongs to the triangular crystal system structure with a small thermal expansion coefficient, weak thermal expansion anisotropy of the crystal, two independent electro-optical coefficients, and the electro-optical coefficient is stable in a wide temperature range. The crystal has good mechanical properties, no deliquescence, good physical and chemical stability, high damage threshold, high electro-optical coefficient, excellent electro-optical properties, low thermal expansion coefficient, good high-temperature stability, etc. It has wide applications in electro-optical Q-switches, SAW devices, BAW devices, and high power high repetition rate all-solid-state lasers.

FEATURES

- High damage threshold
- Good Spinability
- Low Equivalent Series Resistance
- Stable physical and chemical properties
- High electromechanical coupling coefficient
- Can withstand high and low temperature variations

APPLICATIONS

- Electro-optical Q-switch
- SAW equipment
- RAW equipment
- Sensors
- High Power High Repetition Rate All Solid State Lasers

CRYSTAL SPECIFICATIONS

Direction	±15'
Wavefront distortion	<λ/8 @633nm
Extinction ratio	>500:1
Diameter Tolerance	+0.00mm/-0.05mm
Length Tolerance	±0.2mm
Chamfering	<0.1mm @45°
Flatness	<λ/10 @633nm
Parallelism	<3 arc min
Perpendicularity	<5 arc min
Surface quality	10/5
Permeability enhancement film	<0.3% @1064nm



LGS

CRYSTAL CHARACTERISTICS

Point group	32
Space group	p321
Electrical resistivity	$4.0 \times 10^{12} \Omega/\text{cm}^{-1}$
Thickness	0.13-0.5mm
Diameter	50mm
Length	90-100mm
Melting point	1470°C
Density	$5.67 \text{g}/\text{cm}^3$
Mohs Hardness	5.5
Optical damage threshold	$670 \text{MV}/\text{cm}^2$
Cell parameters	$a=b=0.8162 \text{nm}, c=0.5087 \text{nm}$
Dielectric constant	$\epsilon_{11}=18.27$
	$\epsilon_{33}=55.26$
Electro-optical coefficient	$\gamma_{11}=2.3 \times 10^{-12} \text{m}/\text{V}$
	$\gamma_{33}=1.8 \times 10^{-12} \text{m}/\text{V}$
Piezoelectric strain constant (10^{-12}) C/N	$d_{11}=6.3$
	$d_{14}=-5.4$
Phase speed m/s	2750 ~ 2850
Electromechanical coupling coefficient K (%)	0.28 ~ 0.46
Solubility	None
Coefficient of thermal expansion	$\alpha_{11}=5.15 \times 10^{-6} \text{K}^{-1}$
	$\alpha_{33}=3.65 \times 10^{-6} \text{K}^{-1}$

SPECTRA

