

Langsite($\text{La}_3\text{Ga}_5\text{SiO}_{14}$)

Description

Langsite has the feature of high electromechanical coupling factor, cutting orientation and growing orientation of zero temperature coefficient. Comparing with quartz crystal, it has a wider passband, harder. Langsite is indiscerptible in acid and alkali and has no phase change below the melting point. It can be used in manufacture electro-optic modulator and Q switch, and also be used as ideal piezoelectric material in wide wideband, low insertion loss and small size SAW and BAW device.



Specifications

Crystal class	Trigonal
Point group	32
Lattice parameter	a=8.1783 c= 5.1014
Hardness	6.6
Density (g/cm^3)	5.754
Melting point($^{\circ}\text{C}$)	1470
SAW acoustic speed(m/sec)	2400
BAW frequency constant(KHz/mm)	1380
Electromechanical coupling factor	0.42%
Dielectric constant	$\epsilon_{11}/\epsilon_0 = 18.5 \sim 19.1$ $\epsilon_{33}/\epsilon_0 = 50.8 \sim 51.5$
Piezoelectric strain constant ($\times 10^{-11}\text{C/n}$)	e11 -0.38 ~ -0.42 e14 0.08 ~ 0.12