

## Properties of germanium crystal:

Physical and optical properties	
Transmission Range	1.8 to 23um
Refractive Index	4.0026 @ 11um
Reflection Loss	53% @ 11um
Absorption Coefficient	<0.027 cm <sup>-1</sup> @ 10.6um
Reststrahlen Peak	N/A
dn/dT	396 x 10 <sup>-6</sup> /°C
dn/du = 0	almost constant
Density	5.33 g/cc
Melting Point	936°C
Thermal Conductivity	58.61 W m <sup>-1</sup> K <sup>-1</sup> @ 293K
Thermal Expansion	6.1 x 10 <sup>-6</sup> /°C @ 298K
Hardness	Knoop 780
Specific Heat Capacity	310 J Kg <sup>-1</sup> K <sup>-1</sup>
Dielectric Constant	16.6 @ 9.37GHz @300K
Youngs Modulus (E)	102.7 GPa
Shear Modulus (G)	67 GPa
Bulk Modulus (K)	77.2 GPa
Elastic Coefficients	C11=129 C12=48.3 C44=67.5
Apparent Elastic Limit	89.6MPa (13,000 psi)
Poisson Ratio	0.28
Solubility	insoluble in water
Molecular Weight	72.59
Class/Structure	Cubic Diamond, Fd3m