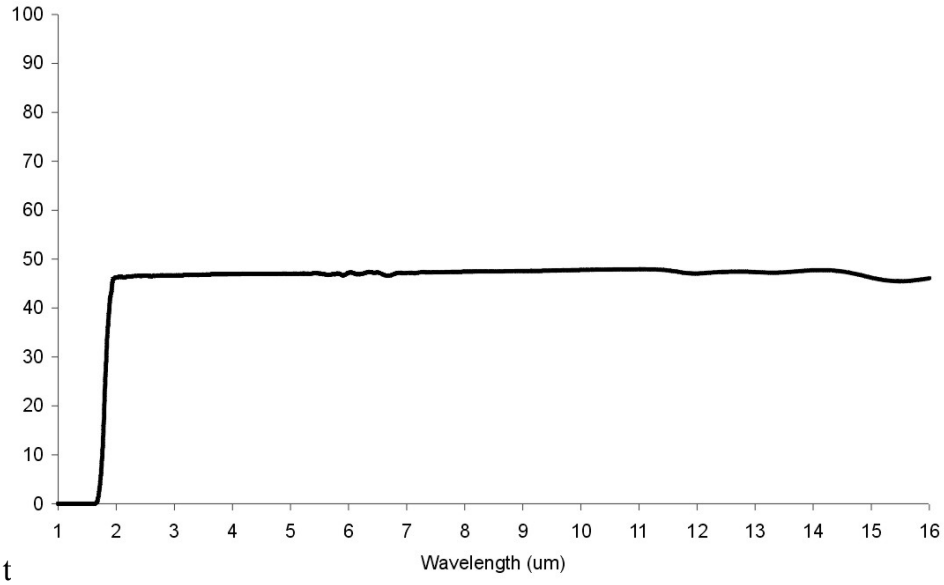
DATA SHEET GERMANIUM (GE)

MATERIAL: Germanium – Optical Grade - Monocrystalline
SPECTRAL DATA: Transmission ≥ 46% @ 3-10 microns
Polished 10mm thick sample

Typical transmission curve of 1mm thick Germanium (mono-crystalline)



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Physical electronic properties:	
Atom Number	32
Atom Weight	72.6
Crystal Structure	diamond cubic
Grating Parameter, A	5.657
Density (298°K), g/cm^3	5.323
Atomic Density, atoms/cm^3	$4.42*10^{22}$
Melting Temperature, °C	937
Boiling Temperature, °C	2830
Specific Thermal Capacity (0-100°C), kal/g*degree	0.074
Latent Heat of Fusion, kal/mol	8100
Coefficient of Linear Thermal Expansion (293°K), cm/degree	$6.1*10^{-6}$
Mohs Hardness	6
Band Gap, direct (300°K), e. V.	0.67
Intrinsic Carriers Concentration (300 °K), cm^{-6}	$p,n=5.5*10^{26*}$
Intrinsic Drift Mobility (300°K), cm^2/v.s.: electrones holes	 3800* 1820*
Diffusion Coefficient (300°K), cm^2/sec: electrones holes	 101** 49**
Intrinsic Resistivity (300°K),Ohm*cm	47
Optical Properties	
Refraction coefficient at 20 °C and λ=10 μm, "n".	n=4.0032 +/- 0.0002
Homogeneity of refractive coefficient, Δn	<= 2 * 10^{-4}
Temperature coefficient at 20-25 °C, dn/dT, C^{-1}	<= 4 * 10^{-4}
Absorption coefficient (extinction indicator) at λ=10.6 μm, αλ.	αλ not more than 0.03 cm

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