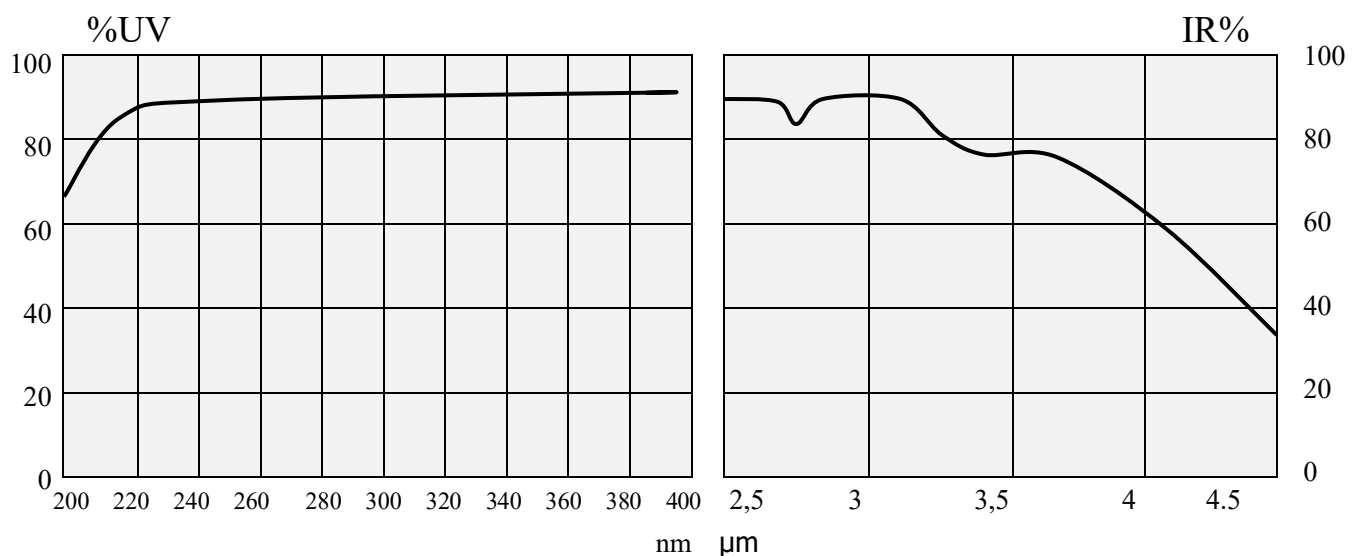


General Product Description

- High Purity Quartz Glass Material, > 99.95%
- Natural Quartz Crystals Fused in Electrically Heated Furnace
- Excellent UV, Visible, and IR Transmission
- Low Water Content
- Superb IR Range Transmission, up to 3500nm
- Minimum Contamination in Process Applications
- Low Coefficient of Thermal Expansion
- Rapid heating/cooling results in virtually no breakage.
- Low Bubble and Inclusion Content
- Thin and small sheet pieces are visually bubble-free.
- Larger pieces, over 10" diameter or diagonal, contain limited bubbles and inclusions.
- Superb Physical, Thermal, Optical Characteristics
- Competitive Pricing

Optical Properties

QL410 Typical Transmission Curve (based on 1mm thickness)



Wave length λ [nm]	200	254	360	400
Transmission T[%]	> 65	> 87	> 90	> 90

Typical Trace Impurities

Al	15ppm
Ca	0.5ppm
Cr	<0.05ppm
Cu	<0.05ppm
Fe	0.4ppm
K	0.8ppm
Li	0.5ppm
Mg	0.8ppm
Na	1.4ppm
Ni	0.01ppm
Ti	2.4ppm
Zr	0.1ppm
OH	≤30ppm

Mechanical Properties

Density	$2.2 \times 10^3 \text{ kg/m}^3$
Young's Modulus	$7.2 \times 10^5 \text{ Pa}$
Poisson's Ratio	0.16
Knoop Hardness	580 kg/mm ²
Index of Refraction	1.4585

Electrical Properties

Dielectric Constant	3.75 at 20°C and 1 MHz
Specific Resistivity	$10^{18} \Omega/\text{cm}^3$ at 20°C

Thermal Properties

Thermal Expansion Coefficient (20-320°C)	$5.4 \times 10^{-7} \text{ cm/cm} \cdot ^\circ\text{C}$
Softening Point	1650°C
Annealing Point	1150°C
Strain Point	1020°C

Maximum Dimensions

Thickness	10mm
Diameter	1000mm
Diagonal	1000mm

Standard Tolerances

*Custom Tolerances Available

Length/Diameter	±.010"
Width	±.010"
Thickness	±.005"
Bevel	.020"-.040"
Maximum Chip	<.020"
Flatness	within .00012 per "
Parallelism	within .005"
Scratch/Dig	80/50