

# Interposer Design Guide for EN-A1

Glass is Only the Beginning™

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## Wafer Sizes

Wafer Size (mm)	Thickness (mm)	Polish P	Polish 1P	Polish 2P
150	0.3	5nm	0.98nm	0.56nm
150	0.5	5nm	0.98nm	0.56nm
150	0.7	5nm	0.98nm	0.56nm
200	0.3	5nm	0.98nm	0.56nm
200	0.5	5nm	0.98nm	0.56nm
200	0.7	5nm	0.98nm	0.56nm

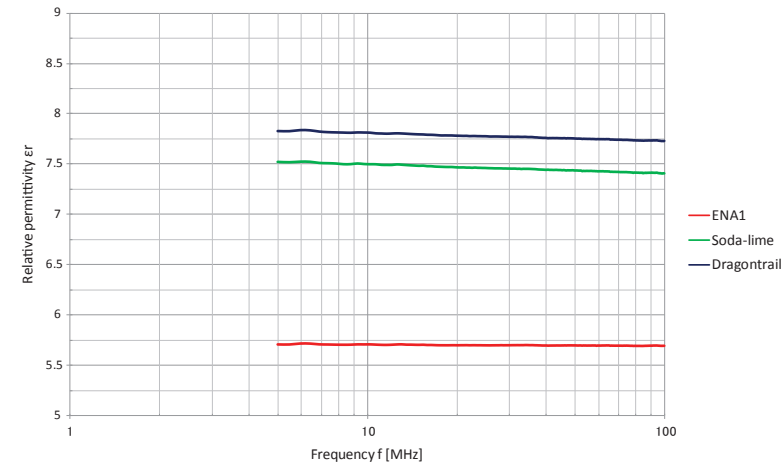
## Mechanical Properties

Property	Unit	Spec
Density	g/cc	2.51
CTE	ppm°C	3.3
Young's Modulus	GPa	77
Flexural Strength	GPa	
Tensile Strength	GPa	
Poisson Ratio		0.22
Water Absorption	%	0

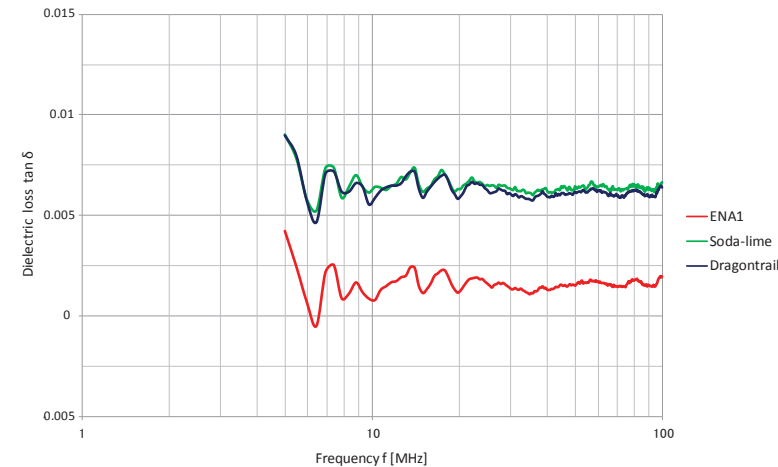
## Specific Heat

Temp (°C)	Specific Heat (J/g·K)
25	0.715
100	0.820
200	0.925
400	1.030
500	1.065

Frequency Response of Relative Permittivity at Room Temperature 10 - 100MHz



Frequency of Dielectric Loss at Room Temperature 10 - 100MHz



## Via Dimensions/Pitch: Laser

Thickness	Via Dia Min	Via Pitch	Taper
0.3 mm	50 μ	130	< 1%
0.5 mm	50 μ	130	< 1%
0.7 mm	---	---	---

## Via Dimensions/Pitch: Pico Drill

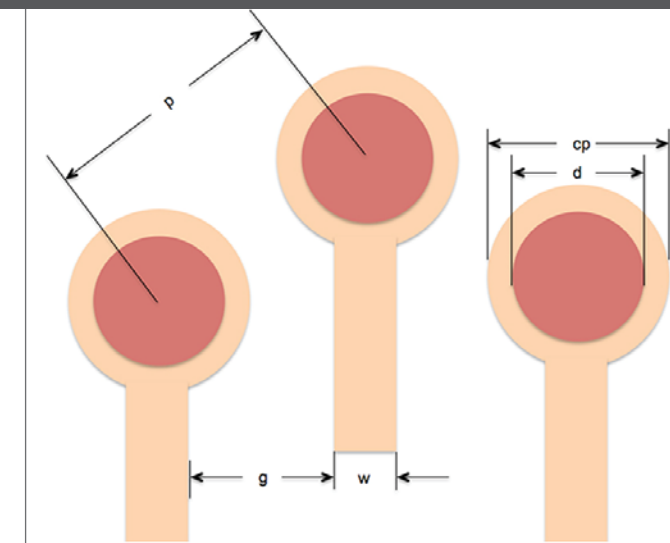
Thickness	Via Dia Min	Via Pitch	Taper
0.3 mm	25 μ	130	< 1%
0.5 mm	---	---	---
0.7 mm	---	---	---

## Via Fill Conductivity

	Metallurgy	Conductivity Siemens/Meter
DC	Copper Silver	4.5 x 10 <sup>7</sup>
AC	Copper Silver	

## Via Specifications

Parameter	0.3mm thick Glass
Via Diameter (d) (μm)	50
Via Pitch (p) (μm)	130
Via Conductors	Ag or Cu (not plated)
Via Capture Pad (cp) (μm)	d + 20
Trace Width (w) (μm)	10
Trace Gap (g) (μm)	20
Trace Conductors	Cu or Ni/Cr/Au
Positional Accuracy	1 micron/meter



## Frequency vs. Dielectric Constant and Tangent Loss

Freq. GHz	Dielectric Constant	Loss Tangent
2	5.49	0.004
4	5.48	0.0044
6	5.48	0.0048
8	5.47	0.0052
10	5.46	0.0056

## Young's Modulus Vs. Temperature

Temp (°C)	Modulus (GPa)
25	76.9
100	76.8
200	76.6
300	75.4
400	74.6
500	73.8
600	73.1

## Thermal Conductivity

Temp (°C)	Thermal Conductivity (w/m·K)
25	0.98
100	1.08
200	1.18
400	1.30
500	1.36

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**AGC** ELECTRONICS AMERICA

AGC Electronics America, Inc.  
4375 NW 235 Avenue, Hillsboro, OR 97124 USA  
503.844.3610 phone • 503.844.7207 fax  
[www.agcem.com](http://www.agcem.com)

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