

BGA Solder Spheres – Lead Free & Lead

Diameter Details

Alloy	Diameter (mm)	Tolerances + / - mm	CPK	Spheres / Bottle
63Sn – 37Pb Series Eutectic Composition (183°C)	0.760	0.020	>_ 1.33	50,000
	0.650			
	0.600			
	0.550	0.015		
	0.500			
	0.450			
	0.400	0.010		
	0.350			
	0.300			
0.250				
96.5Sn – 3.5Ag Series (221°C)	0.650	0.020	>_ 1.33	50,000
	0.600	0.015		
	0.500			
	0.450			
	0.400			
	0.300	0.010		
0.250				

Physical Properties of BGA Solder Spheres

96.5Sn – 3.5Ag 63Sn – 36Pb

Thermal Properties:

Solidus (*C)	221	183
Liquids (*C)	221	183
Thermal Conductivity (W/cm *C)	0.33	0.50
Thermal Expansion Coefficient (PPM /*C)	30	25

Mechanical Properties:

Specific Gravity (g/cm3)	7.36	8.40
Tensile Strength (psi)	5620-8900	7500-7700
Elongation (%)	45-73	28-53
Shear Strength (psi)	4600-6200	5400
Brinell Hardness	40	17

Electrical Properties:

Electrical Conductivity (%IACS)	14.0-16.0	11.5
Electrical Resistivity (Micro Ohms-cm)	12.31	14.99