BGA Material Properties
Molded BT Substrate - SnPb Non-RoHS

Rev May 5, 2017

BGA Series				
	Item	**Material**	**Property/Condition**	**Metric Value**
1	Substrate	BT Bismaleimide Triazine	Glass Transition Temperature Tg - DSC Tg - TMA	 205°C 175°C
			X/Y CTE [-40°C ~ 125°C] Z Axis Expansion [50°C ~ 260°C] Z Axis CTE [60°C ~ 120°C] Z Axis CTE [240°C ~ 260°C]	10~14 ppm/°C 3.6% 32 ppm/°C 170 ppm/°C
			Young's Modulus (X / Y)	23.1 / 22.4 GN/M^2
			Poisson Ratio (X / Y)	0.21 / 0.21
			Moisture Absorption	< 0.05 Wt. %
2	Die	Silicon	CTE [25°C]	2.6 ppm/°C
			Young's Modulus	110 GPa
			Poisson Ratio	0.24
3	Die Attach Adhesive	Non-Conductive	Glass Transition Temperature Tg - TMA	 85°C
			CTE [Below Tg] CTE [Above Tg]	40 ppm/°C 100 ppm/°C
			Lap Shear Strength	18 N/mm^2
			Appearance	Blue
4	Solder Ball Non-RoHS	Sn63Pb37 Eutectic Tin-Lead	Temperature Solidus Liquidus	 183°C 183°C
			CTE	24 ppm/°C
			Young's Modulus	30 GPa
			Tensile Strength	52 MPa
			Density	8.4 gm/cm^3
5	Encapsulation	EMC Molding Compound	Glass Transition Temperature Tg	143°C
			CTE Below Tg Above Tg	 8 ppm/°C 34 ppm/°C
			Specific Gravity	2.0
			Flexural Strength	17.3 kg/mm^2 170 MN/m^2
			Flexural Modulus	2650 kg/mm^2 26 GN/m^2

Source www.TopLine.tv/BGA.html