



## Device Material Content

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**Package: 484 fpBGA with SnPb Solder Balls**  
**Total Device Weight 2.30 Grams**

**(90nm and 65nm products)**  
MSL: 3  
Peak Reflow Temp: 225°C

November, 2009

	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	Notes / Assumptions:
<b>Die</b>	3.44%	0.0790			Silicon chip	7440-21-3	Die size: 9.63 x 11.36 mm
<b>Mold</b>	24.22%	0.557	21.80%	0.501	Silica (Fused or Amorphous)	60676-86-0	Mold Compound composition: 85 to 95% Silica Fused or Amorphous (LSC uses 90% in our calculation) 0.5 to 5% Epoxy resin (LSC uses 3% in our calculation) 3 to 6% Phenol resin (LSC uses 4.8% in our calculation) approx. 0.2% approx. 2% Mold compound: Hitachi CEL9750HF10ALKU
			0.73%	0.0167	Epoxy resin	-	
			1.16%	0.0267	Phenol resin	-	
			0.05%	0.0011	Carbon black	1333-86-4	
			0.48%	0.0111	Other	-	
<b>D/A Epoxy</b>	0.48%	0.0111	0.39%	0.0089	Silver (Ag)	7440-22-4	Die attach epoxy Density: 4 grams/cc 70 to 90% Silver (LSC uses 80% in our calculation) 10 to 30% Organic Esters and Resins (LSC uses 20% in our calculation) Die Attach: Ablestik 2100A
			0.10%	0.0022	Organic esters and resins	-	
<b>Wire</b>	0.62%	0.0142			Gold (Au)	7440-57-5	0.8 to 1.0 mil diameter; 1 wire per solder ball
<b>Solder Balls</b>	24.25%	0.558	15.28%	0.351	Tin (Sn)	7440-31-5	Solder ball composition Sn63/Pb37
			8.97%	0.206	Lead (Pb)	7439-92-1	
<b>Substrate</b>	18.44%	0.424	12.54%	0.288	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			5.90%	0.136	BT Resins	-	
<b>Foil</b>	28.56%	0.657			Copper (Cu)	7440-50-8	

**Notes:**

The values listed above are nominal values based on studies of representatives of this particular package type, and are believed to be as accurate as possible.

Constituent substances and proportions in epoxy materials are before curing.

The information provided above is representative of the package as of the date listed, and is subject to change at any time.

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