Device Material Content

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Package: **100 csBGA** **with SnPb Solder Balls**

Total Device Weight **0.147** **Grams**

MSL: 3
Peak Reflow Temp: 240°C

November, 2009	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	Notes / Assumptions:
Die	5.85%	0.0086			Silicon chip	7440-21-3	Die size: 4.71 x 2.90 mm
Mold	63.73%	0.0937					Mold Compound composition:
			54.17%	0.0796	Silica	60676-86-0	75 to 95% Fused silica filler (LSC uses 83% in our calculation)
			3.82%	0.0056	Epoxy Resin	-	2 to 10% Epoxy resin (LSC uses 7.5% in our calculation)
			3.82%	0.0056	Phenol Resin	-	2 to 10% Phenol resin (LSC uses 7.5% in our calculation)
			0.96%	0.0014	Metal Hydroxide	-	0.5 to 2.5% Metal hydroxide (LSC uses 1.5% in our calculation)
			0.13%	0.0002	Carbon Black	1333-86-4	0.1 to 0.5% Carbon Black (LSC uses 0.5% in our calculation)
							Mold Compound Density ranges between 1.8 and 2.1 grams/cc
D/A Epoxy	0.94%	0.0014			Silver filled epoxy		Die attach epoxy Density: 4 grams/cc
			0.76%	0.0011	Silver (Ag)	7440-22-4	60 to 100% Silver (LSC uses 80% in our calculation)
			0.19%	0.0003	Organic esters and resins	-	0 to 40% Organic Esters and Resins (LSC uses 20% in our calculation)
Wire	2.00%	0.0029			Gold (Au)	7440-57-5	0.8 to 1.0 mil diameter; 1 wire per solder ball; wire length 3 mm
Solder Balls	8.46%	0.0124					
			5.33%	0.0078	Tin (Sn)	7440-31-5	Solder ball composition Sn63/Pb37
			3.13%	0.0046	Lead (Pb)	7439-92-1	
Substrate	11.56%	0.0170					
			7.86%	0.0116	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			3.70%	0.0054	BT Resins	-	
Foil	7.46%	0.0110			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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