Device Material Content

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Package: 388 fpBGA with SnAgCu Solder Balls
Total Device Weight 2.14 Grams

MSL: 3
Peak Reflow Temp: 250°C

November, 2009	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	Notes / Assumptions:
Die	1.82%	0.0389			Silicon chip	7440-21-3	Die size: 7.8 x 6.9 mm
Mold	27.64%	0.591					Mold Compound composition:
			24.32%	0.520	Silica (Fused or Amorphous)	60676-86-0	75 to 95% Silica Fused (LSC uses 88% in our calculation)
			1.66%	0.0355	Epoxy resin	-	1 to 10% Epoxy resin (LSC uses 6% in our calculation)
			1.66%	0.0355	Phenol resin	-	2 to 7% Phenol resin (LSC uses 6% in our calculation)
							Mold Compound Density between 1.8 and 2.1 grams/cc
D/A Epoxy	0.26%	0.0055					Die attach epoxy Density: 4 grams/cc
			0.20%	0.0044	Silver	7440-22-4	70 to 90% Silver (LSC uses 80% in our calculation)
			0.05%	0.0011	Organic esters and resins	-	7 to 30% Organic Esters and Resins (LSC uses 20% in our calculation)
Wire	0.53%	0.0114			Gold (Au)	7440-57-5	0.8 to 1.0 mil diameter; 1 wire per solder ball
Solder Balls	17.60%	0.377					Qualified Solder ball compositions:
			16.89%	0.362	Tin (Sn)	7440-31-5	Sn95.5/Ag4/Cu0.5
			0.62%	0.0132	Silver (Ag)	7440-22-4	Sn96.5/Ag3/Cu0.5
			0.09%	0.0019	Copper (Cu)	7440-50-8	LSC uses: Sn96/Ag3.5/Cu0.5 for calculations
Substrate	22.52%	0.482					
			15.32%	0.328	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			7.21%	0.154	BT Resins	-	
Foil	29.64%	0.634			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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