Device Material Content

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Package: 256 fpBGA with SnPb Solder Balls (90nm and 65nm products)
Total Device Weight 1.06 Grams
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:
Die	2.10%	0.0222			Silicon chip	7440-21-3	Die size: 5.30 x 5.00 mm
Mold	24.16%	0.256					Mold Compound composition:
			21.74%	0.230	Silica (Fused or Amorphous)	60676-86-0	85 to 95% Silica Fused or Amorphous (LSC uses 90% in our calculation)
			0.72%	0.0077	Epoxy resin	-	0.5 to 5% Epoxy resin (LSC uses 3% in our calculation)
			1.16%	0.0123	Phenol resin	-	3 to 6% Phenol resin (LSC uses 4.8% in our calculation)
			0.05%	0.0005	Carbon black	1333-86-4	approx. 0.2%
			0.48%	0.0051	Other	-	approx. 2%
							Mold compound: Hitachi 9750HF10ALKU
D/A Epoxy	0.25%	0.0027					Die attach epoxy Density: 4 grams/cc
			0.20%	0.0022	Silver (Ag)	7440-22-4	70 to 90% Silver (LSC uses 80% in our calculation)
			0.05%	0.0005	Organic esters and resins	-	10 to 30% Organic Esters and Resins (LSC uses 20% in our calculation)
							Die attach: Ablestik 2100A
Wire	0.71%	0.0075			Gold (Au)	7440-57-5	Wire: 0.0127 mm (radius)
							Assume 1 wire per solder ball
Solder Balls	27.83%	0.295					
			17.53%	0.1858	Tin (Sn)	7440-31-5	Solder ball composition Sn63/Pb37
			10.30%	0.1091	Lead (Pb)	7439-92-1	
Substrate	24.96%	0.265					
			16.97%	0.1799	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			7.99%	0.0847	BT Resins	-	
Foil	19.99%	0.212			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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Rev. B4