



Device Material Content

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Package: 256 fpBGA with SnAgCu Solder Balls
Total Device Weight 1.05 Grams

(90nm and 65nm products)
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	2.12%	0.0222			Silicon chip	7440-21-3	Die size: 5.30 x 5.00
Mold	27.85%	0.2924	25.06%	0.2631	Silica (Fused or Amorphous)	60676-86-0	Mold Compound Density ranges between 1.85 and 2.15 grams/cc 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 9750HF10ALKU
			0.84%	0.0088	Epoxy resin	-	
			1.34%	0.0140	Phenol resin	-	
			0.06%	0.0006	Carbon black	1333-86-4	
			0.56%	0.0058	Other	-	
D/A Epoxy	0.22%	0.0024	0.18%	0.0019	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
			0.05%	0.0005	Organic esters and resins	-	
Wire	0.72%	0.0075			Gold (Au)	7440-57-5	0.0127 mm (radius); 1 wire per package lead
Solder Balls	23.71%	0.249	22.77%	0.239	Tin (Sn)	7440-31-5	Solder ball composition: Sn96.5/Ag3/Cu0.5
			0.83%	0.0087	Silver (Ag)	7440-22-4	
			0.12%	0.0012	Copper (Cu)	7440-50-8	
Substrate	25.20%	0.265	17.14%	0.1799	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			8.06%	0.0847	Resins	-	
Foil	20.18%	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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