Device Material Content

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Package: 900 fpBGA with SnPb Solder Balls
Total Device Weight 4.20 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	6.98%	0.3003			Silicon chip	7440-21-3	Die size: 19.8 x 21.0 mm
Mold	34.95%	1.503					Mold Compound composition:
			29.88%	1.285	Silica	60676-86-0	80 to 95% silica filler (LSC uses 85.5% in our calculation)
			3.84%	0.1653	Epoxy and Phenolic Resin	-	5 to 20% Epoxy and Phenolic resin (LSC uses 11% in our calculation)
			1.05%	0.0451	Antimony Oxide	1309-64-4	1 to 5% Antimony Oxide (LSC uses 3% in our calculation)
			0.17%	0.0075	Carbon Black	-	0 to 0.5% Carbon Black LSC uses 0.5% in our calculation)
							Mold Compound Density ranges between 1.95 and 2.2 grams/cc
D/A Epoxy	0.98%	0.0422					Die attach epoxy Density: 4 grams/cc
			0.79%	0.0338	Silver	7440-22-4	70 to 90% Silver (LSC uses 80% in our calculation)
			0.17%	0.0072	Organic esters and resins	-	10 to 30% Organic Esters and Resins (LSC uses 17% in our calculation)
			0.03%	0.0013	Functionalized Urethane	-	1 to 5% Functionalized Urethane (LSC uses 3% in our calculation)
Wire	0.61%	0.0264			Gold (Au)	7440-57-5	0.8 to 1.0 mil diameter; 1 wire per solder ball
Solder Balls	24.12%	1.037					
			15.19%	0.653	Tin (Sn)	7440-31-5	Solder ball composition Sn63/Pb37
			8.92%	0.384	Lead (Pb)	7439-92-1	
Substrate	21.76%	0.936					
			14.80%	0.636	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			6.96%	0.299	BT Resins	-	
Foil	10.59%	0.455			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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