Device Material Content

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Package: 1152 fpBGA with SnAgCu Solder Balls
Total Device Weight 5.50 Grams

November, 2009	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	Notes / Assumptions:
Die	4.04%	0.222			Silicon chip	7440-21-3	Die size: 17.25 x 17.72 mm
Mold	34.02%	1.871					Mold Compound composition:
			29.94%	1.647	Silica	60676-86-0	75 to 95% Silica filler (LSC uses 88% in our calculation)
			2.04%	0.1123	Epoxy resin	-	1 to 10% Epoxy resin (LSC uses 6% in our calculation)
			2.04%	0.1123	Phenol resin	-	2 to 8% Phenolic resin (LSC uses 6% in our calculation)
							Mold Compound Density ranges between 1.95 and 2.05 grams/cc
D/A Epoxy	0.57%	0.0313					Die attach epoxy Density: 4 grams/cc
			0.45%	0.0250	Silver (Ag)	7440-22-4	70 to 90% Silver (LSC uses 80% in our calculation)
			0.09%	0.0047	Organic esters and resins	-	10 to 30% Organic Esters and Resins (LSC uses 15% in our calculation)
			0.28%	0.0156	Functionalized Urethane	-	1 to 5% Functionalized Urethane (LSC uses 5% in our calculation)
Wire	0.61%	0.0339			Gold (Au)	7440-57-5	Wire: 0.0127 mm (radius)
							Assume 1 wire per solder ball
Solder Balls	20.33%	1.118					
			19.62%	1.079	Tin (Sn)	7440-31-5	Qualified Solder ball compositions:
			0.61%	0.0335	Silver (Ag)	7440-22-4	Sn96.5/Ag3/Cu0.5
			0.10%	0.0056	Copper (Cu)	7440-50-8	
Substrate	19.32%	1.063					
			13.14%	0.723	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			6.18%	0.340	BT Resins	-	
Foil	21.10%	1.160			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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