Device Material Content

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Package: 484 fpBGA with SnPb Solder Balls
Total Device Weight 2.30 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	3.44%	0.0790			Silicon chip	7440-21-3	Die size: 9.63 x 11.36 mm
Mold	24.22%	0.557					Mold Compound composition:
			19.01%	0.437	Silica (Fused or Amorphous)	60676-86-0	65 to 95% Silica (LSC uses 78.5% in our calculation)
			3.39%	0.0780	Epoxy/Phenol Resin	-	3 to 22% Epoxy/Phenol Resin (LSC uses 14% in our calculation)
			0.24%	0.0056	Brominated Epoxy Resin	68928-70-1	0 to 2% Brominated Epoxy Resin (LSC uses 1% in our calculation)
			0.61%	0.0139	Antimony Trioxide	1309-64-4	0 to 5% Antimony Trioxide (LSC uses 2.5% in our calculation)
			0.24%	0.0056	Antimony Pentoxide	1314-60-9	0 to 1.5% Antimony Pentoxide (LSC uses 1% in our calculation)
			0.61%	0.0139	Siloxanes	-	0 to 5% Siloxanes (LSC uses 2.5% in our calculation)
			0.12%	0.0028	Carbon Black	1333-86-4	0 to 1% Carbon Black (LSC uses 0.5% in our calculation)
							Mold Compound Density between 1.8 and 2.1 grams/cc
D/A Epoxy	0.48%	0.0111					Die attach epoxy Density: 4 grams/cc
			0.39%	0.0089	Silver (Ag)	7440-22-4	60 to 100% Silver (LSC uses 80% in our calculation)
			0.10%	0.0022	Organic esters and resins	-	0 to 30% Organic Esters and Resins (LSC uses 20% in our calculation)
Wire	0.62%	0.0142			Gold (Au)	7440-57-5	0.8 to 1.0 mil diameter; 1 wire per solder ball
Solder Balls	24.25%	0.558					
			15.28%	0.351	Tin (Sn)	7440-31-5	Solder ball composition Sn63/Pb37
			8.97%	0.206	Lead (Pb)	7439-92-1	
Substrate	18.44%	0.424					
			12.54%	0.288	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			5.90%	0.136	BT Resins	-	
Foil	28.56%	0.657			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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