Device Material Content

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Package: 144 fpBGA with SnAgCu Solder Balls
Total Device Weight 0.475 Grams

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	3.39%	0.0161			Silicon chip	7440-21-3	Die size: 5.53 x 3.29 mm
Mold	37.51%	0.178					Mold Compound composition:
			33.08%	0.157	Silica (Fused or Amorphous)	60676-86-0	75 to 95% Silica Fused or Amorphous (LSC uses 88.2% in our calculation)
			1.88%	0.0089	Epoxy resin	-	2 to 10% Epoxy resin (LSC uses 5% in our calculation)
			1.88%	0.0089	Phenol resin	-	2 to 10% Phenol resin (LSC uses 5% in our calculation)
			0.56%	0.0027	Metal Hydroxide	-	0.5 to 2.5% Metal Hydroxide (LSC uses 1.5% in our calculation)
			0.11%	0.0005	Carbon Black	1333-86-4	0.1 to 0.5% Carbon black (LSC uses 0.3% in our calculation)
							Mold Compound Density between 1.8 and 2.1 grams/cc
D/A Epoxy	0.34%	0.0016					Die attach epoxy Density: 4 grams/cc
			0.27%	0.0013	Silver (Ag)	7440-22-4	60 to 100% Silver (LSC uses 80% in our calculation)
			0.07%	0.0003	Organic Esters and Resins	-	0 to 40% Organic Esters and Resins (LSC uses 20% in our calculation)
Wire	0.89%	0.0042			Gold (Au)	7440-57-5	0.8 to 1.0 mil diameter; 1 wire per solder ball; wire length 3 mm
Solder Balls	29.49%	0.1401					Qualified Solder ball compositions:
			28.31%	0.1345	Tin (Sn)	7440-31-5	Sn95.5/Ag4/Cu0.5
			1.03%	0.0049	Silver (Ag)	7440-22-4	Sn96.5/Ag3/Cu0.5
			0.15%	0.0007	Copper (Cu)	7440-50-8	LSC uses: Sn96/Ag3.5/Cu0.5 for calculations
Substrate	22.18%	0.1054					
			15.09%	0.0717	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			7.10%	0.0337	BT Resins	-	
Foil	5.79%	0.0275			Copper (Cu)	7440-50-8	
Underplating	0.41%	0.0019					Solder pad opening and Bond Fingers
			0.28%	0.0014	Nickel (Ni)	7440-02-0	Underplating thickness: Ni 5.0um / Au 1.0um (nominal)
			0.12%	0.0006	Gold (Au)	7440-57-5	

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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