Device Material Content

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Package: 672 fpBGA **with SnAgCu Solder Balls** **(90nm and 65nm products)**

Total Device Weight 3.30 **Grams**

Copper Bond Wire version

MSL: 3 Peak Reflow Temp: 250°C

December, 2012	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	Notes / Assumptions:
Die	1.48%	0.0489			Silicon chip	7440-21-3	Die size: 8.11 x 8.34 mm
Mold	37.15%	1.226					Mold Compound Density between 1.8 and 2.1 grams/cc
			32.54%	1.0738	Silica Fused	60676-86-0	75 to 95% Silica (LSC uses 87.6% in our calculation)
			2.60%	0.0858	Epoxy Resin	Trade secret	5 to 10% Epoxy Resin (LSC uses 7% in our calculation)
			1.86%	0.0613	Phenol Resin	Trade secret	3 to 8% Phenol Resin (LSC uses 5% in our calculation)
			0.15%	0.0049	Carbon Black	1333-86-4	0.1 to 0.5% Carbon Black (LSC uses 0.4% in our calculation)
D/A Epoxy	0.21%	0.0069					Die attach epoxy Density: 4 grams/cc
			0.17%	0.0055	Silver	7440-22-4	70 to 90% Silver (LSC uses 80% in our calculation)
			0.04%	0.0014	Esters & resins	-	1 to 10% Esters & resins (LSC uses 20% in our calculation)
Wire	0.18%	0.0058					0.8 mil diameter; 1 wire per solder ball
			0.17%	0.0057	Copper	7440-50-8	98.5%
			0.00%	0.0001	Palladium	7440-05-3	1.5%
Solder Balls	19.89%	0.656					Qualified Solder ball compositions:
			19.19%	0.6333	Tin (Sn)	7440-31-5	Sn96.5/Ag3/Cu0.5
			0.60%	0.0197	Silver (Ag)	7440-22-4	
			0.10%	0.0033	Copper (Cu)	7440-50-8	
Substrate	18.87%	0.623					
			12.83%	0.424	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			6.04%	0.199	BT Resins	-	
Foil	22.23%	0.734			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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Rev. E