Device Material Content

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Package: 388 fpBGA **with SnAgCu Solder Balls**
Total Device Weight 2.14 **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	1.82%	0.0389			Silicon chip	7440-21-3	Die size: 7.8 x 6.9 mm
Mold	28.01%	0.5995					Mold Compound composition:
			24.54%	0.5251	Silica Fused	60676-86-0	75 to 95% Silica (LSC uses 87.6% in our calculation)
			1.96%	0.0420	Epoxy Resin	Trade secret	5 to 10% Epoxy Resin (LSC uses 7% in our calculation)
			1.40%	0.0300	Phenol Resin	Trade secret	3 to 8% Phenol Resin (LSC uses 5% in our calculation)
			0.11%	0.0024	Carbon Black	1333-86-4	0.1 to 0.5% Carbon Black (LSC uses 0.4% in our calculation)
							Mold Compound Density between 1.8 and 2.1 grams/cc
D/A Epoxy	0.26%	0.0055					Die attach epoxy Density: 4 grams/cc
			0.20%	0.0044	Silver	7440-22-4	70 to 90% Silver (LSC uses 80% in our calculation)
			0.05%	0.0011	Organic esters and resins	-	7 to 30% Organic Esters and Resins (LSC uses 20% in our calculation)
Wire	0.16%	0.0034					0.8 mil diameter; 1 wire per solder ball
			0.155%	0.00332	Copper	7440-50-8	98.5%
			0.002%	0.00005	Palladium	7440-05-3	1.5%
Solder Balls	17.60%	0.3766					Qualified Solder ball compositions:
			16.98%	0.3634	Tin (Sn)	7440-31-5	Sn96.5/Ag3/Cu0.5
			0.53%	0.0113	Silver (Ag)	7440-22-4	
			0.09%	0.0019	Copper (Cu)	7440-50-8	
Substrate	22.52%	0.4820					
			15.32%	0.3278	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			7.21%	0.1542	BT Resins	-	
Foil	29.64%	0.6342			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