Device Material Content

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Package: **484 fpBGA** **with SnAgCu Solder Balls** **(90nm and 65nm products)**
Total Device Weight **2.21** **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	3.58%	0.0790			Silicon chip	7440-21-3	Die size: 9.63 x 11.36 mm
Mold	25.52%	0.5640					Mold Compound composition:
			22.36%	0.4941	Silica Fused	60676-86-0	75 to 95% Silica (LSC uses 87.6% in our calculation)
			1.79%	0.0395	Epoxy Resin	Trade secret	5 to 10% Epoxy Resin (LSC uses 7% in our calculation)
			1.28%	0.0282	Phenol Resin	Trade secret	3 to 8% Phenol Resin (LSC uses 5% in our calculation)
			0.10%	0.0023	Carbon Black	1333-86-4	0.1 to 0.5% Carbon Black (LSC uses 0.4% in our calculation)
							Mold Compound Density ranges between 1.85 and 2.15 grams/cc
D/A Epoxy	0.50%	0.0111					Die attach epoxy Density: 4 grams/cc
			0.40%	0.0089	Silver (Ag)	7440-22-4	70 to 90% Silver (LSC uses 80% in our calculation)
			0.10%	0.0022	Organic esters and resins	Trade secret	10 to 30% Organic Esters and Resins (LSC uses 20% in our calculation)
Wire	0.19%	0.0042					0.8 mil diameter; 1 wire per solder ball
			0.414%	0.00187	Copper	7440-50-8	98.5%
			0.006%	0.00003	Palladium	7440-05-3	1.5%
Solder Balls	21.30%	0.471					SAC305
			20.45%	0.454	Tin (Sn)	7440-31-5	96.5% Sn
			0.75%	0.0141	Silver (Ag)	7440-22-4	3% Ag
			0.11%	0.0024	Copper (Cu)	7440-50-8	0.5% Cu
Substrate	19.19%	0.424					
			13.05%	0.288	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			6.14%	0.136	BT Resins	Trade secret	
Foil	29.72%	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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Rev. E1