



## Device Material Content

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**Package: 484 fpBGA with SnAgCu Solder Balls**  
**Total Device Weight 2.21 Grams**

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