Device Material Content

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Package: **144 csBGA** **with SnAgCu Solder Balls**
Total Device Weight **0.093** **Grams**

MSL: 3
Peak Reflow Temp: 260°C

November, 2009	**% of Total Pkg. Wt.**	**Weight (g)**	**% of Total Pkg. Wt.**	**Weight (g)**	**Substance**	**CAS #**	**Notes / Assumptions:**
Die	5.73%	0.005			Silicon chip	7440-21-3	Die size: 3.07 x 2.76 mm
Mold	46.37%	0.043					Mold Compound composition:
			40.35%	0.0375	Silica	60676-86-0	75 to 95% Fused silica filler (LSC uses 87% in our calculation)
			2.32%	0.0022	Epoxy Resin	-	2 to 10% Epoxy resin (LSC uses 5% in our calculation)
			2.32%	0.0022	Phenol Resin	-	2 to 10% Phenol resin (LSC uses 5% in our calculation)
			1.28%	0.0012	Metal Hydroxide	-	0.5 to 5% Metal hydroxide (LSC uses 2.75% in our calculation)
			0.12%	0.0001	Carbon Black	1333-86-4	0.1 to 0.5% Carbon Black (LSC uses 0.25% in our calculation)
							Mold Compound Density ranges between 1.9 and 2.1 grams/cc
D/A Epoxy	0.93%	0.0009			Silver filled epoxy		Die attach epoxy Density: 4 grams/cc
			0.74%	0.0007	Silver (Ag)	7440-22-4	60 to 100% Silver (LSC uses 80% in our calculation)
			0.19%	0.0002	Organic esters & resins	-	0 to 40% Organic Esters and Resins (LSC uses 20% in our calculation)
Wire	2.67%	0.0025			Gold (Au)	7440-57-5	0.80 mil diameter; 1 wire per solder ball
Solder Balls	16.23%	0.015					
			15.66%	0.0146	Tin (Sn)	7440-31-5	Solder ball composition Sn96.5/Ag3/Cu0.5 (SAC305)
			0.49%	0.0005	Silver (Ag)	7440-22-4	
			0.08%	0.00008	Copper (Cu)	7440-50-8	
Substrate	19.05%	0.018					
			12.96%	0.0120	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			6.10%	0.0057	BT Resins	-	
Foil	9.02%	0.008			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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