Device Material Content

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Package: 132 csBGA with SnAgCu Solder Balls

Total Device Weight 0.124 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	6.93%	0.009			Silicon chip	7440-21-3	Die size: 4.71 x 2.90 mm
Mold	55.08%	0.068					Mold Compound composition:
			46.81%	0.058	Silica	60676-86-0	75 to 95% Fused silica filler (LSC uses 83% in our calculation)
			3.30%	0.004	Epoxy Resin	-	2 to 10% Epoxy resin (LSC uses 7.5% in our calculation)
			3.30%	0.004	Phenol Resin	-	2 to 10% Phenol resin (LSC uses 7.5% in our calculation)
			0.83%	0.001	Metal Hydroxide	-	0.5 to 2.5% Metal hydroxide (LSC uses 1.5% in our calculation)
			0.11%	0.0001	Carbon Black	1333-86-4	0.1 to 0.5% Carbon Black (LSC uses 0.5% in our calculation)
							Mold Compound Density ranges between 1.8 and 2.1 grams/cc
D/A Epoxy	1.12%	0.0014			Silver filled epoxy		Die attach epoxy Density: 4 grams/cc
			0.90%	0.0011	Silver (Ag)	7440-22-4	60 to 100% Silver (LSC uses 80% in our calculation)
			0.22%	0.0003	Organic esters and resins	-	0 to 40% Organic Esters and Resins (LSC uses 20% in our calculation)
Wire	3.12%	0.004			Gold (Au)	7440-57-5	0.8 to 1.0 mil diameter; 1 wire per solder ball; wire length 3 mm
Solder Balls	11.20%	0.014					
			10.70%	0.0133	Tin (Sn)	7440-31-5	Solder ball composition Sn95.5/Ag4/Cu0.5
			0.45%	0.0006	Silver (Ag)	7440-22-4	
			0.06%	0.0001	Copper (Cu)	7440-50-8	
Substrate	13.71%	0.017					
			9.32%	0.0116	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			4.39%	0.0054	BT Resins	-	
Foil	8.84%	0.011			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. A3