Device Material Content

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Package: **56 csBGA** **with SnAgCu Solder Balls**

Total Device Weight **0.083** **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	2.56%	0.0021			Silicon chip	7440-21-3	Die size: 1.77 x 1.91 mm
Mold	55.11%	0.0457					Mold Compound composition:
			46.85%	0.0389	Silica	60676-86-0	75 to 95% Fused silica filler (LSC uses 83% in our calculation)
			3.31%	0.0027	Epoxy resin	-	2 to 10% Epoxy resin (LSC uses 7.5% in our calculation)
			3.31%	0.0027	Phenol resin	-	2 to 10% Phenol resin (LSC uses 7.5% in our calculation)
			0.83%	0.0007	Metal Hydroxide	-	0.5 to 2.5% Metal hydroxide (LSC uses 1.5% in our calculation)
			0.11%	0.00009	Carbon Black	1333-86-4	0.1 to 0.5% Carbon Black (LSC uses 0.5% in our calculation)
							Mold Compound Density between 1.9 and 2.1 grams/cc
D/A Epoxy	0.41%	0.0003			Silver filled epoxy		Die attach epoxy Density: 4 grams/cc
			0.33%	0.0003	Silver (Ag)	7440-22-4	60 to 90% Silver (LSC uses 80% in our calculation)
			0.08%	0.00007	Organic esters and resins	-	0 to 40% Organic Esters and Resins (LSC uses 20% in our calculation)
Wire	1.98%	0.0016			Gold (Au)	7440-57-5	0.8 to 1.0 mil diameter; 1 wire per solder ball
Solder Balls	7.10%	0.0059					
			6.78%	0.0056	Tin (Sn)	7440-31-5	Solder ball composition Sn95.5/Ag4/Cu0.5
			0.28%	0.0002	Silver (Ag)	7440-22-4	
			0.04%	0.00003	Copper (Cu)	7440-50-8	
Substrate	25.40%	0.0211					
			17.27%	0.0143	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			8.13%	0.0067	BT Resins	-	
Foil	7.43%	0.0062			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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