Device Material Content

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Package: 49 caBGA with SnAgCu Solder Balls

Total Device Weight 0.125 Grams

November, 2009	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	Notes / Assumptions:
Die	2.48%	0.0031			Silicon chip	7440-21-3	Die size: 1.7 x 2.9 mm
Mold	51.11%	0.064					Mold Compound composition:
			43.44%	0.054	Silica	60676-86-0	75 to 95% Fused silica filler (LSC uses 83% in our calculation)
			3.07%	0.004	Epoxy Resin	-	2 to 10% Epoxy resin (LSC uses 7.5% in our calculation)
			3.07%	0.0038	Phenol Resin	-	2 to 10% Phenol resin (LSC uses 7.5% in our calculation)
			0.77%	0.0010	Metal Hydroxide	-	0.5 to 2.5% Metal hydroxide (LSC uses 1.5% in our calculation)
			0.10%	0.00013	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	0.40%	0.0005			Silver filled epoxy		Die attach epoxy Density: 4 grams/cc
			0.32%	0.0004	Silver (Ag)	7440-22-4	60 to 100% Silver (LSC uses 80% in our calculation)
			0.08%	0.00010	Organic esters and resins		0 to 40% Organic Resins (LSC uses 20% in our calculation)
Wire	1.15%	0.0014			Gold (Au)	7440-57-5	1.00 mil diameter; 1 wire per solder ball; wire length 3 mm
Solder Balls	14.87%	0.0186					
			14.20%	0.0178	Tin (Sn)	7440-31-5	Solder ball composition Sn95.5/Ag4.0/Cu0.5%
			0.59%	0.0007	Silver (Ag)	7440-22-4	
			0.07%	0.00009	Copper (Cu)	7440-50-8	
Substrate	23.27%	0.0291					
			15.82%	0.0198	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			7.45%	0.0093	BT Resins	-	
Foil	6.71%	0.0084			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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