



Device Material Content

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Package: 132 csBGA with SnPb Solder Balls
Total Device Weight 0.126 Grams

MSL: 3
Peak Reflow Temp: 240°C

November, 2009	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	Notes / Assumptions:
Die	6.82%	0.009			Silicon chip	7440-21-3	Die size: 4.71 x 2.90 mm
Mold	53.78%	0.068	45.71%	0.0576	Silica	60676-86-0	Mold Compound composition: 75 to 95% Fused silica filler (LSC uses 83% in our calculation) 2 to 10% Epoxy resin (LSC uses 7.5% in our calculation) 2 to 10% Phenol resin (LSC uses 7.5% in our calculation) 0.5 to 2.5% Metal hydroxide (LSC uses 1.5% in our calculation) 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
			3.23%	0.0041	Epoxy Resin	-	
			3.23%	0.0041	Phenol Resin	-	
			0.81%	0.0010	Metal Hydroxide	-	
			0.11%	0.00014	Carbon Black	1333-86-4	
D/A Epoxy	1.10%	0.0014	0.88%	0.0011	Silver filled epoxy	7440-22-4	Die attach epoxy Density: 4 grams/cc 60 to 100% Silver (LSC uses 80% in our calculation) 0 to 40% Organic Esters and Resins (LSC uses 20% in our calculation)
			0.22%	0.0003	Silver (Ag) Organic esters and resins	-	
Wire	3.07%	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	13.03%	0.016	8.21%	0.0103	Tin (Sn)	7440-31-5	Solder ball composition Sn63/Pb37
			4.82%	0.0061	Lead (Pb)	7439-92-1	
Substrate	13.49%	0.017	9.17%	0.0116	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			4.32%	0.0054	BT Resins	-	
Foil	8.70%	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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