



Device Material Content

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Package: 328 csBGA with SnAgCu Solder Balls
Total Device Weight 0.31 Grams

Halogen Free
MSL: 3 Peak Reflow Temp: 260°C

August, 2012	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	Notes / Assumptions:
Die	4.49%	0.0139			Silicon chip	7440-21-3	Die size: 4.60 x 5.20 mm
Mold	49.30%	0.1528	44.37%	0.1375	Silica	60676-86-0	Mold Compound composition: 86 to 93% Silica Fused or Amorphous (LSC uses 90% in our calculation) 1.5 to 7% Epoxy resin (LSC uses 6% in our calculation) 1 to 6% Phenol resin (LSC uses 4% in our calculation) 0.2% Carbon Black Mold Compound Density ranges between 1.99 and 2.09 grams/cc
			2.96%	0.0092	Epoxy Resin	-	
			1.97%	0.0061	Phenol Resin	-	
			0.10%	0.0003	Carbon Black	1333-86-4	
D/A Epoxy	0.69%	0.0021	0.55%	0.0017	Silver (Ag)	7440-22-4	Die attach epoxy Density: 4 grams/cc 70 to 90% Silver (LSC uses 80% in our calculation) 10 to 30% Organic Esters and Resins (LSC uses 20% in our calculation)
			0.14%	0.0004	Organic esters & resins	-	
Wire	1.68%	0.0052			Gold (Au)	7440-57-5	1 wire per solder ball
Solder Balls	11.11%	0.0344	10.72%	0.0332	Tin (Sn)	7440-31-5	Solder ball composition Sn96.5/Ag3/Cu0.5 (SAC305)
			0.33%	0.0010	Silver (Ag)	7440-22-4	
			0.06%	0.00017	Copper (Cu)	7440-50-8	
Substrate	20.48%	0.0635	13.92%	0.0432	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			6.55%	0.0203	BT Resins	-	
Foil	12.26%	0.0380			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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