Device Material Content

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Package: **64 csBGA** **with SnAgCu Solder Balls**
Total Device Weight **0.047** **Grams**

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

November, 2010	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	Notes / Assumptions:
Die	6.49%	0.0031			Silicon chip	7440-21-3	Die size: 2.31 x 2.10 mm
Mold	47.00%	0.022					Mold Compound composition:
			40.89%	0.0192	Silica	60676-86-0	75 to 95% Fused silica filler (LSC uses 87% in our calculation)
			2.35%	0.0011	Epoxy Resin	-	2 to 10% Epoxy resin (LSC uses 5% in our calculation)
			2.35%	0.0011	Phenol Resin	-	2 to 10% Phenol resin (LSC uses 5% in our calculation)
			1.29%	0.0006	Metal Hydroxide	-	0.5 to 5% Metal hydroxide (LSC uses 2.75% in our calculation)
			0.12%	0.00006	Carbon Black	1333-86-4	0.1 to 0.5% Carbon Black (LSC uses 0.25% in our calculation)
							Mold Compound Density between 1.9 and 2.1 grams/cc
D/A Epoxy	1.05%	0.0005			Silver filled epoxy		Die attach epoxy Density: 4 grams/cc
			0.84%	0.0004	Silver (Ag)	7440-22-4	60 to 90% Silver (LSC uses 80% in our calculation)
			0.21%	0.0001	Organic esters & resins	-	0 to 40% Organic Esters and Resins (LSC uses 20% in our calculation)
Wire	1.96%	0.0009			Gold (Au)	7440-57-5	0.80 mil diameter; 1 wire per solder ball
Solder Balls	14.27%	0.0067					
			13.77%	0.0065	Tin (Sn)	7440-31-5	Solder ball composition Sn96.5/Ag3/Cu0.5 (SAC305)
			0.43%	0.0002	Silver (Ag)	7440-22-4	
			0.07%	0.00003	Copper (Cu)	7440-50-8	
Substrate	18.98%	0.0089					
			12.91%	0.0061	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			6.07%	0.0029	BT Resins	-	
Foil	10.25%	0.0048			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. A