Device Material Content

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Package: 64 ucBGA with SnAgCu Solder Balls
Total Device Weight 0.03 Grams

Halogen Free
Copper Bond Wire Version
MSL: 3 - Peak Reflow Temp: 260°C

December, 2012	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	Notes / Assumptions:
Die	7.09%	0.0021			Silicon chip	7440-21-3	Die size: 1.7 x 1.91 mm
Mold	47.43%	0.0142					Mold Compound composition:
			40.32%	0.0121	Silica	60676-86-0	75 to 95% Fused silica filler (LSC uses 87% in our calculation)
			2.85%	0.0009	Epoxy Resin	-	2 to 10% Epoxy resin (LSC uses 5% in our calculation)
			2.85%	0.0009	Phenol Resin	-	2 to 10% Phenol resin (LSC uses 5% in our calculation)
			0.71%	0.0002	Metal Hydroxide	-	0.5 to 5% Metal hydroxide (LSC uses 2.75% in our calculation)
			0.09%	0.00003	Carbon Black	1333-86-4	0.1 to 0.5% Carbon Black (LSC uses 0.25% in our calculation)
							Mold Compound Density ranges between 1.9 and 2.1 grams/cc
D/A Epoxy	1.14%	0.00034					Die attach epoxy Density: 4 grams/cc
			0.92%	0.00027	Silver (Ag)	7440-22-4	60 to 100% Silver (LSC uses 80% in our calculation)
			0.23%	0.00007	Organic esters & resins	-	0 to 40% Organic Esters and Resins (LSC uses 20% in our calculation)
Wire	1.85%	0.0006					Pd coated Cu, 0.8 mil diameter
			1.82%	0.00055	Copper	7440-50-8	98.5% Cu
			0.03%	0.00001	Palladium	7440-05-3	1.5% Pd
Solder Balls	12.99%	0.0039					
			12.54%	0.00376	Tin (Sn)	7440-31-5	Solder ball composition Sn96.5/Ag3/Cu0.5 (SAC305)
			0.39%	0.00012	Silver (Ag)	7440-22-4	
			0.06%	0.00002	Copper (Cu)	7440-50-8	
Substrate	20.35%	0.0061					
			13.84%	0.0042	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			6.51%	0.0020	BT Resins	-	
Foil	9.13%	0.0027			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. K