



## Device Material Content

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

**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:
<b>Die</b>	7.09%	0.0021			Silicon chip	7440-21-3	Die size: 1.7 x 1.91 mm
<b>Mold</b>	47.43%	0.0142	40.32%	0.0121	Silica	60676-86-0	Mold Compound composition: 75 to 95% Fused silica filler (LSC uses 87% in our calculation) 2 to 10% Epoxy resin (LSC uses 5% in our calculation) 2 to 10% Phenol resin (LSC uses 5% in our calculation) 0.5 to 5% Metal hydroxide (LSC uses 2.75% in our calculation) 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
			2.85%	0.0009	Epoxy Resin	-	
			2.85%	0.0009	Phenol Resin	-	
			0.71%	0.0002	Metal Hydroxide	-	
			0.09%	0.00003	Carbon Black	1333-86-4	
<b>D/A Epoxy</b>	1.14%	0.00034	0.92%	0.00027	Silver (Ag)	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)
			0.23%	0.00007	Organic esters & resins	-	
<b>Wire</b>	1.85%	0.0006	1.82%	0.00055	Copper	7440-50-8	Pd coated Cu, 0.8 mil diameter 98.5% Cu 1.5% Pd
			0.03%	0.00001	Palladium	7440-05-3	
<b>Solder Balls</b>	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	
<b>Substrate</b>	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	-	
<b>Foil</b>	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