Device Material Content

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Package: 1156 fpBGA with SnAgCu Solder Balls
Total Device Weight 5.40 Grams

Copper Bond Wire Version
MSL: 3
Peak Reflow Temp: 250°C

December, 2012	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	Notes / Assumptions:
Die	4.12%	0.2223			Silicon chip	7440-21-3	Die size: 17.5 x 17.72 mm
Mold	33.17%	1.7912					Mold Compound composition:
			29.06%	1.5691	Silica Fused	60676-86-0	75 to 95% Silica (LSC uses 87.6% in our calculation)
			2.32%	0.1254	Epoxy Resin	Trade secret	5 to 10% Epoxy Resin (LSC uses 7% in our calculation)
			1.66%	0.0896	Phenol Resin	Trade secret	3 to 8% Phenol Resin (LSC uses 5% in our calculation)
			0.13%	0.0072	Carbon Black	1333-86-4	0.1 to 0.5% Carbon Black (LSC uses 0.4% in our calculation)
							Mold Compound Density ranges between 1.95 and 2.05 grams/cc
D/A Epoxy	0.58%	0.0313					Die attach epoxy Density: 4 grams/cc
			0.46%	0.0250	Silver	7440-22-4	70 to 90% Silver (LSC uses 80% in our calculation)
			0.09%	0.0047	Organic esters and resins	-	10 to 30% Organic Esters and Resins (LSC uses 15% in our calculation)
			0.03%	0.0016	Functionalized Urethane	-	1 to 5% Functionalized Urethane (LSC uses 5% in our calculation)
Wire	0.19%	0.0100					0.8 mil diameter; 1 wire per solder ball
			0.183%	0.010	Copper	7440-50-8	98.5%
			0.003%	0.000	Palladium	7440-05-3	1.5%
Solder Balls	20.78%	1.1220					
			20.05%	1.0827	Tin (Sn)	7440-31-5	Qualified Solder ball compositions:
			0.62%	0.0337	Silver (Ag)	7440-22-4	Sn96.5/Ag3/Cu0.5
			0.10%	0.0056	Copper (Cu)	7440-50-8	
Substrate	19.68%	1.0628					
			13.38%	0.7227	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			6.30%	0.3401	BT Resins	-	
Foil	21.49%	1.1604			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. E