



Device Material Content

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Package: 256 fpBGA with SnPb Solder Balls
Total Device Weight 1.06 Grams

MSL: 3
Peak Reflow Temp: 225°C

November, 2009	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	Notes / Assumptions:
Die	1.81%	0.0191			Silicon chip	7440-21-3	Die size: 5.30 x 5.00 mm
Mold	24.45%	0.259	19.19%	0.203	Silica (Fused or Amorphous)	60676-86-0	Mold Compound composition: 65 to 95% Silica (LSC uses 78.5% in our calculation) 5 to 22% Epoxy/Phenol Resin (LSC uses 14% in our calculation) 0 to 2% Brominated Epoxy Resin (LSC uses 1% in our calculation) 0 to 5% Antimony Trioxide (LSC uses 2.5% in our calculation) 0 to 1.5% Antimony Pentoxide (LSC uses 1% in our calculation) 0 to 5% Siloxanes (LSC uses 2.5% in our calculation) 0 to 1% Carbon Black (LSC uses 0.5% in our calculation) Mold Compound Density ranges between 1.8 and 2.1 grams/cc
			3.42%	0.0363	Epoxy/Phenol Resin	-	
			0.24%	0.0026	Brominated Epoxy Resin	68928-70-1	
			0.61%	0.0065	Antimony Trioxide	1309-64-4	
			0.24%	0.0026	Antimony Pentoxide	1314-60-9	
			0.61%	0.0065	Siloxanes	-	
			0.12%	0.0013	Carbon Black	1333-86-4	
D/A Epoxy	0.25%	0.0027	0.20%	0.0022	Silver	7440-22-4	Die attach epoxy Density: 4 grams/cc 60 to 100% Silver (LSC uses 80% in our calculation) 0 to 30% Organic Esters and Resins (LSC uses 20% in our calculation)
			0.05%	0.0005	Organic esters and resins	-	
Wire	0.71%	0.0075			Gold (Au)	7440-57-5	0.8 to 1.0 mil diameter; 1 wire per package lead; wire length 3 mm
Solder Balls	27.83%	0.295	17.53%	0.1858	Tin (Sn)	7440-31-5	Solder ball composition Sn63/Pb37
			10.30%	0.1091	Lead (Pb)	7439-92-1	
Substrate	24.96%	0.265	16.97%	0.1799	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			7.99%	0.0847	BT Resins	-	
Foil	19.99%	0.212			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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