Lattice
Semiconductor
Corporation

Device Material Content

5555 NE Moore Ct.
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Package: 1036 EBGA (fpSBGA) with SnPb Solder Balls
Total Device Weight 20.71 Grams

June, 2004	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	Notes / Assumptions:
Die	1.07%	0.222			Silicon	7440-21-3	Die size: 19.6 x 15.7 mm
Encapsulation	5.85%	1.211					Encapsulation composition:
			3.86%	0.799	Silica	60676-86-0	66% Silica (based on the following assumptions):
			0.44%	0.091	Epoxy resin	-	5 to 10% Epoxy resin (LSC uses 7.5% in our calculation)
			0.18%	0.036	Bispenol A/ECH based Epoxy resin	25068-38-6	1 to 5% Bispenol A/ECH based epoxy resin (LSC uses 3% in our calculation)
			0.18%	0.036	Crosslinked Acrylate Polymer	-	1 to 5% Crosslinked Acrylate polymer (LSC uses 3% in our calculation)
			1.17%	0.242	Substituted Phthalic Anhydride	25550-51-0	10 to 30% Substituted Phthalic Anhydride (LSC uses 20% in our calcuation)
			0.01%	0.002	Carbon black	1333-86-4	0.2% Carbon black
			0.02%	0.004	Quartz	14464-46-1	0.3% Quartz
							Encapsulation Density ranges between 1.7 and 1.9 grams/cc
D/A Epoxy	0.15%	0.031					Die attach epoxy composition:
			0.11%	0.023	Silver (Ag)	7440-22-4	75% Silver
			0.01%	0.002	Acrylic resin	-	5 to 10% Acrylic resin (LSC uses 6% in our calculation)
			0.01%	0.003	Polybutadiene derivative	-	5 to 15% Polybutadiene derivative (LSC uses 8.5% in our calculation)
			0.00%	0.001	Butadiene coploymer	-	1 to 5% Butadiene coploymer (LSC uses 3% in our calculation)
			0.01%	0.002	Acrylate	-	5 to 10% Acrylate (LSC uses 6% in our calculation)
			0.00%	0.000	Peroxide	-	0 to 1% Peroxide (LSC uses 0.5% in our calculation)
			0.00%	0.000	Additive (trade secret)	-	0.5 to 2% Additive-trade secret (LSC uses 1% in our calculation)
							Die attach epoxy Density: 4 grams/cc
Wire	0.15%	0.030			Gold (Au)	7440-57-5	1.00 mil diameter; 1 wire per package lead; wire length 3 mm
Solder Balls	5.23%	1.084					
			2.74%	0.567	Tin (Sn)	7440-31-5	Solder ball composition Sn63/Pb37
			2.49%	0.517	Lead (Pb)	7439-92-1	
Substrate	15.25%	3.160			BT Resin	-	
Copper	71.87%	14.880			Copper (Cu)	7440-50-8	Foil and Lid
Lid plating	0.44%	0.090			Nickel (Ni)	7440-02-0	

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.

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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