LATTICE SEMICONDUCTOR

Device Material Content

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Package: **36 ucBGA** **with SnAgCu Solder Balls**
Total Device Weight **0.011** **Grams**

Halogen Free
MSL: 3
Peak Reflow Temp: 260°C

August, 2012	**% of Total Pkg. Wt.**	**Weight (g)**	**% of Total Pkg. Wt.**	**Weight (g)**	**Substance**	**CAS #**	**Notes / Assumptions:**
Die	12.35%	0.0013			Silicon chip	7440-21-3	Die size: 59 x 59 mil
Mold	49.96%	0.0053					Mold Compound: KEG1250 LKDS
			44.96%	0.0047	Silica	60676-86-0	75 to 95% Fused silica filler (LSC uses 90% in our calculation)
			2.75%	0.0003	Epoxy Resin	Trade secret	1 to 10% Epoxy resin (LSC uses 5.5% in our calculation)
			2.25%	0.0002	Phenol Resin	Trade secret	2 to 7% Phenol resin (LSC uses 4.5% in our calculation)
D/A Tape	0.60%	0.00006					TAPE FH-900T-25_HR9004
			0.07%	0.000008	Epoxy Resin	Trade secret	10 to 20% (LSC uses 12% in our calculation)
			0.07%	0.000008	Phenol Resin	Trade secret	10 to 20% (LSC uses 12% in our calculation)
			0.04%	0.000004	SiO2 Filler	Trade secret	1 to 10% (LSC uses 6% in our calculation)
			0.42%	0.000044	(Meta)Acrylic Copolymer	Trade secret	65 to 75% (LSC uses 70% in our calculation)
Wire	0.59%	0.00006					0.7 MIL Pd COATED Cu
			0.574%	0.00006	Copper (Cu)	7440-50-8	97.30%
			0.016%	0.000002	Palladium (Pd)	7440-05-3	2.70%
Solder Balls	2.95%	0.00031					
			2.91%	0.00031	Tin (Sn)	7440-31-5	10 mils Sn98.5 / Ag1.0 / Cu0.5 (SAC105)
			0.03%	0.000003	Silver (Ag)	7440-22-4	
			0.01%	0.000002	Copper (Cu)	7440-50-8	
Substrate	33.55%	0.00352					CCL-HL832NX(A-HS) / AUS 308
			15.98%	0.00168	BT Resin CCL-HL832NX	Trade secret	47.62%
			10.15%	0.00107	Copper (Cu)	7440-50-8	30.24%
			4.79%	0.00050	Soldermask AUS 308	Trade secret	14.29%
			2.40%	0.00025	Nickel Plating	7440-02-0	7.14%
			0.24%	0.00003	Gold Plating	7440-57-5	0.71%

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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Br/Cl/Sb

Pb lead-free

RoHS 2002/95/EC

Rev. A