



## Device Material Content

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**Package: 256 LBGA with SnAgCu Solder Balls**  
**Total Device Weight 0.425 Grams**

**ICE40**

MSL: 3  
Peak Reflow Temp: 260°C

April, 2012	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	Notes / Assumptions:
<b>Die</b>	0.88%	0.00375			Silicon chip	7440-21-3	Die size: 106 X 95 MIL
<b>Mold</b>	61.36%	0.2609	55.22% 3.37% 2.76%	0.2348 0.0144 0.0117	Silica Epoxy Resin(1) Phenol Resin-1	60676-86-0 Trade secret Trade secret	KE-G1250LKDS 75 to 95% Fused silica filler (LSC uses 90% in our calculation) 1 to 10% Epoxy resin (LSC uses 5.5% in our calculation) 2 to 7% Phenol resin (LSC uses 4.5% in our calculation)
<b>Tape</b>	0.04%	0.00018	0.005% 0.005% 0.003% 0.030%	0.00002 0.00002 0.00001 0.00013	Epoxy Resin Phenol Resin SiO2 Filler (Meta)Acrylic Copolymer	25038-59-9 Trade secret Trade secret Trade secret	TAPE FH-900T-25_HR9004 10 to 20% (LSC uses 12% in our calculation) 10 to 20% (LSC uses 12% in our calculation) 1 to 10% (LSC uses 6% in our calculation) 65 to 75% (LSC uses 70% in our calculation)
<b>Wire</b>	0.37%	0.0016	0.363% 0.010%	0.0015 0.00004	Copper (Cu) Palladium (Pd) Total of impurities	7440-57-5 7440-05-3 NA	EX1 0.7 MIL Pd Coated >97.8% Cu <2.7% Pd <0.02%
<b>Solder Balls</b>	16.50%	0.0701	15.92% 0.495% 0.083%	0.06769 0.00210 0.00035	Tin (Sn) Silver (Ag) Copper (Cu)	7440-31-5 7440-22-4 7440-50-8	SAC305 Solder ball composition Sn96.5/Ag3.0/Cu0.5%
<b>Substrate</b>	20.84%	0.0886	9.53% 2.38% 5.95% 0.99% 0.04% 1.98%	0.0405 0.0101 0.0253 0.0042 0.0002 0.0084	BT Resin CCL-HL832NX (A-HS) Copper Solder mask PSR4000 AUS 308 Nickel plating Gold plating Copper thickness in hole	Trade secret 7440-50-8 Trade secret 7440-02-0 7440-57-5 7440-50-8	CCL-HL832NX(A-HS), AUS 308 45.7% 11.4% 28.6% 4.8% 0.2% 9.5%

**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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