Device Material Content

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Package: **284 LBGA** **with SnAgCu Solder Balls** **iCE40**

Total Device Weight **0.256** **Grams**

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:
Die	1.45%	0.0037			Silicon chip	7440-21-3	Die size: 106 X 94 MIL
Mold	48.55%	0.1244					KE-G1250LKDS
			43.70%	0.1120	Silica	60676-86-0	75 to 95% Fused silica filler (LSC uses 90% in our calculation)
			2.67%	0.0068	Epoxy Resin(1)	Trade secret	1 to 10% Epoxy resin (LSC uses 5.5% in our calculation)
			2.18%	0.0056	Phenol Resin-1	Trade secret	2 to 7% Phenol resin (LSC uses 4.5% in our calculation)
Tape	0.07%	0.0002					FH-900T-25
			0.018%	0.00002	Epoxy Resin	25038-59-9	10 to 20% (LSC uses 12% in our calculation)
			0.018%	0.00002	Phenol Resin	Trade secret	10 to 20% (LSC uses 12% in our calculation)
			0.004%	0.00001	SiO2 Filler	Trade secret	1 to 10% (LSC uses 6% in our calculation)
			0.049%	0.00013	(Meta)Acrylic Copolymer	Trade secret	65 to 75% (LSC uses 70% in our calculation)
Wire	1.15%	0.0030					0.7 MIL GPG-3 (2N)
			1.138%	0.0029	Gold (Au)	7440-57-5	99% Au
			0.011%	0.00003	Palladium (Pd)	7440-05-3	1% Pd
Solder Balls	9.97%	0.0256					SAC105
			9.82%	0.0252	Tin (Sn)	7440-31-5	Solder ball composition Sn98.5/Ag1.0/Cu0.5%
			0.10%	0.0003	Silver (Ag)	7440-22-4	
			0.05%	0.0001	Copper (Cu)	7440-50-8	
Substrate	38.80%	0.0995					GHPL-830NX(A), CCL-HL832NX(A-HS), AUS308
			10.92%	0.0280	BT Resin (1)(3) GHPL-830NX(A)	Trade secret	28.1%
			8.19%	0.0210	BT Resin (2) CCL-HL832NX(A-HS)	Trade secret	21.1%
			3.28%	0.0084	Copper (1)(4)	7440-50-8	8.4%
			4.09%	0.0105	Copper (2)(3)	7440-50-8	10.5%
			2.73%	0.0070	Copper thickness in hole	7440-50-8	7.0%
			0.05%	0.0001	Nickel plating	7440-02-0	0.1%
			8.19%	0.0210	Gold plating	7440-57-5	21.1%
			1.37%	0.0035	Solder mask PSR4000 AUS 308	Trade secret	3.5%

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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Rev. A