Device Material Content

5555 NE Moore Ct.
Hillsboro OR 97124
(503) 268-8000
custreq@lscc.com

Package: **1020 fcBGA** **with SnPb Solder Balls** **Version 2**
Total Device Weight **9.50** **Grams**
MSL: 4
Peak Reflow Temp: 225°C

August, 2010	**% of Total Pkg. Wt.**	**Weight (g)**	**% of Total Pkg. Wt.**	**Weight (g)**	**Substance**	**CAS #**	**Notes / Assumptions:**
Die	2.26%	0.215			Silicon (Si)	7440-21-3	Die Size: 13.60 x 13.07mm
Bumps	0.105%	0.010					
			0.105%	0.0099	Tin (Sn)	7440-31-5	97.4%
			0.003%	0.0003	Silver (Ag)	7440-22-4	2.6%
Lid	49.93%	4.742					
			49.63%	4.714	Copper (Cu)	7440-50-8	99.4%
			0.300%	0.0285	Nickel (Ni)	7440-02-0	0.6%
Thermal Paste Adhesive	0.76%	0.072					
			0.68%	0.065	Alumina	1344-28-1	90.0%
			0.08%	0.007	Others	Trade Secret	10.0%
Underfill	0.42%	0.040					
			0.013%	0.0012	Bisphenol A type liquid epoxy resin	25068-38-6	3.0%
			0.042%	0.004	Bisphenol F type liquid epoxy resin	9003-36-5	10.0%
			0.063%	0.006	Naphthalene	27610-48-6	15.0%
			0.042%	0.004	Amine type accelerator	Trade Secret	10.0%
			0.236%	0.0224	Silicon dioxide	60676-86-0	56.0%
			0.004%	0.0004	Carbon black	1333-86-4	1.0%
			0.021%	0.002	Additives	Trade Secret	5.0%
Thermal Conductive Paste	0.87%	0.083					
			0.66%	0.0623	Aluminum	7429-90-5	75.0%
			0.22%	0.0208	Resin and additive mixture	Trade Secret	25.0%
Solder Balls	10.27%	0.975					
			8.73%	0.829	Tin (Sn)	7440-31-5	85.0%
			1.540%	0.1463	Lead (Pb)	7439-92-1	15.0%

Substrate	21.53%	2.045					
			2.33%	0.221	Bisphenol A: Epoxy Resin	80-05-7	10.8%
			0.26%	0.0247	Cyclohexane	110-82-7	1.2%
			0.26%	0.0247	N-dimethylformamide	68-12-2	1.2%
			3.33%	0.317	Silica Powder	60676-86-0	15.5%
			7.68%	0.729	Epoxy Resin	Trade Secret	35.6%
			7.68%	0.729	Glass Cloth	65997-17-3	35.6%
Foil	13.85%	1.315			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.

- The above material declaration can be used only as reference in identifying the Hazardous material content of the product.
- There is no guarantee on the Material composition accuracy as it is based on data provided by outside sources and has not been validated.
- This material declaration does not include data from any active and passive component assembled in the package.

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