LATTICE SEMICONDUCTOR

Device Material Content

5555 NE Moore Ct.
Hillsboro OR 97124
custreq@lscc.com

Package: 256 ftBGA **with SnAgCu Solder Balls**
Total Device Weight 0.705 **Grams**

Halogen Free
Copper Bond Wire version
MSL: 3 Peak Reflow Temp: 260°C

December, 2012	**% of Total Pkg. Wt.**	**Weight (g)**	**% of Total Pkg. Wt.**	**Weight (g)**	**Substance**	**CAS #**	**Notes / Assumptions:**
Die	1.00%	0.0071			Silicon chip	7440-21-3	Die size: 3.35 x 3.35 mm
Mold	55.89%	0.3940					Mold Compound composition:
			48.06%	0.3388	Silica Fused	60676-86-0	75 to 95% Silica Fused (LSC uses 86% in our calculation)
			2.51%	0.0177	Epoxy Resin	-	2 to 8% Epoxy resin (LSC uses 4.5% in our calculation)
			1.68%	0.0118	Phenol Resin	-	1 - 5% Phenol resin (LSC uses 3% in our calculation)
			1.68%	0.0118	Phenol Novolac	9003-35-4	1 - 5% Phenol Novolac (LSC uses 3% in our calculation)
			1.68%	0.0118	Metal Hydroxide	-	1 - 5% Metal Hydroxide (LSC uses 3% in our calculation)
			0.28%	0.0020	Carbon Black	1333-86-4	0.1 - 0.5% Carbon Black (LSC uses 0.5% in our calculation)
							Mold Compound Density ranges between 1.8 and 2.1 grams/cc
D/A Epoxy	0.16%	0.0011					Die attach epoxy Density: 4 grams/cc
			0.13%	0.0009	Silver (Ag)	7440-22-4	60 to 100% Silver (LSC uses 80% in our calculation)
			0.03%	0.0002	Organic esters and resins	-	0 to 40% Organic Esters and Resins (LSC uses 20% in our calculation)
Wire	0.49%	0.0035					Pd coated Copper, 0.8 mil diameter
			0.48%	0.0034	Copper	7440-50-8	98.5%
			0.01%	0.0001	Palladium	7440-05-3	1.5%
Solder Balls	13.78%	0.0971					SAC305
			13.30%	0.0937	Tin (Sn)	7440-31-5	96.5% Sn
			0.41%	0.0029	Silver (Ag)	7440-22-4	3% Ag
			0.07%	0.0005	Copper (Cu)	7440-50-8	0.5% Cu
Substrate	23.42%	0.1651					
			15.92%	0.1123	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			7.49%	0.0528	BT Resins	-	
Foil	5.27%	0.0371			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.
www.latticesemi.com

Br/Cl/Sb

Pb lead-free

RoHS 2002/95/EC

Rev. K