# Device Material Content

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**Package:** **256 fpBGA** **with SnAgCu Solder Balls**
**Total Device Weight** **1.05** **Grams**

Copper Bond Wire version
MSL: 3
Peak Reflow Temp: 250°C

| December, 2012 | % of Total Pkg. Wt. | Weight (g) | % of Total Pkg. Wt. | Weight (g) | Substance | CAS # | Notes / Assumptions: |
|---|---|---|---|---|---|---|---|
| **Die** | 1.82% | 0.0191 | | | Silicon chip | 7440-21-3 | Die size: 5.30 x 5.00 |
| **Mold** | 28.64% | 0.3008 | | | | | Mold Compound Density ranges between 1.8 and 2.1 grams/cc |
| | | | 25.26% | 0.2653 | Silica (Fused or Amorphous) | 60676-86-0 | 75 to 95% Silica Fused or Amorphous (LSC uses 88.2% in our calculation) |
| | | | 1.43% | 0.0150 | Epoxy resin | - | 2 to 10% Epoxy resin (LSC uses 5% in our calculation) |
| | | | 1.43% | 0.0150 | Phenol resin | - | 2 to 10% Phenol resin (LSC uses 5% in our calculation) |
| | | | 0.43% | 0.0045 | Metal Hydroxide | - | 0 to 2.5% Metal Hydroxide (LSC uses 1.5% in our calculation) |
| | | | 0.09% | 0.0009 | Carbon Black | 1333-86-4 | 0 to 0.5% Carbon black (LSC uses 0.3% in our calculation) |
| **D/A Epoxy** | 0.22% | 0.0024 | | | | | Die attach epoxy Density: 4 grams/cc |
| | | | 0.18% | 0.0019 | Silver | 7440-22-4 | 60 to 100% Silver (LSC uses 80% in our calculation) |
| | | | 0.05% | 0.0005 | Organic esters and resins | - | 0 to 40% Organic Esters and Resins (LSC uses 20% in our calculation) |
| **Wire** | 0.21% | 0.0022 | | | | | Pd coated Copper, 0.8 mil diameter |
| | | | 0.208% | 0.00219 | Copper | 7440-50-8 | 98.5% |
| | | | 0.003% | 0.00003 | Palladium | 7440-05-3 | 1.5% |
| **Solder Balls** | 23.71% | 0.2490 | | | | | Qualified Solder ball compositions: |
| | | | 22.88% | 0.2403 | Tin (Sn) | 7440-31-5 | Sn96.5/Ag3/Cu0.5 |
| | | | 0.71% | 0.0075 | Silver (Ag) | 7440-22-4 | |
| | | | 0.12% | 0.0012 | Copper (Cu) | 7440-50-8 | |
| **Substrate** | 25.20% | 0.2646 | | | | | |
| | | | 17.14% | 0.1799 | Glass fiber | 65997-17-3 | 60 to 75% glass fiber (LSC uses 68% in our calculation) |
| | | | 8.06% | 0.0847 | BT Resins | - | |
| **Foil** | 20.18% | 0.2119 | | | 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.
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Rev. E