## Device Material Content

**Package:**
- **100 eSOGA**
- **MN100**

**Total Device Weight:**
- 0.147 Grams

**Assembly:**
- ASEM
- Size (mm): 8 x 8
- Lead pitch (mm): 0.5
- MSL: 3
- Reflow max (ºC): 260

### Notes / Assumptions:
- Die size: 4.71 x 2.90 mm
- Mold Compound: Sumitomo G750SE
- Die attach epoxy: Henkel (Ablebond) 2100A
- PI coated Copper, 0.8 mil diameter
- SAC305
- HT Resin CCL-832NX-A* (Trade secret ingredients - 2.30%)

### Notes:
- SVHC: * 0.12% max. concentration of Bisphenol A (CAS# 80-05-7), contained in substrate laminate material as impurity - not intentionally added.

### Die
- **5.85%**
- **0.0086**
- **5.85%**
- **0.0086**
- Silicon chip
- **7440-21-3**
- **100.00%**

- **Die size:** 4.71 x 2.90 mm

### Mold Compound
- **66.11%**
- **0.0972**
- **4.63%**
- **0.0068**
- Epoxy Resin
- **9003-35-4**
- **7.00%**

- **3.31%**
- **0.0049**
- Phenol Novolac
- **4333-79-2**
- **5.00%**

- **3.31%**
- **0.0049**
- Metal Hydroxide
- **-**
- **5.00%**

- **0.33%**
- **0.0005**
- Carbon Black
- **1333-86-4**
- **0.50%**

- **54.54%**
- **0.0802**
- Silica Fused
- **68676-86-0**
- **82.50%**

### D/A Epoxy
- **0.94%**
- **0.0014**
- **0.76%**
- **0.0011**
- Silver
- **7440-22-4**
- **80.00%**

### Wire
- **0.92%**
- **0.0014**
- **0.91%**
- **0.0013**
- Copper
- **7440-50-8**
- **98.50%**

### Solder Balls
- **7.16%**
- **0.0105**
- **6.91%**
- **0.0102**
- Tin (Sn)
- **7440-31-5**
- **96.50%**

### Substrate
- **12.36%**
- **0.0182**
- **3.83%**
- **0.0056**
- IFR Resins
- **-**
- **31.00%**

### Foil
- **4.62%**
- **0.0068**
- **3.91%**
- **0.0074**
- Copper
- **7440-50-8**
- **84.56%**

### solder Mask
- **2.04%**
- **0.0030**
- **1.14%**
- **0.00168**
- Quartz
- **14880-60-7**
- **56.20%**

**Notes:**
- SVHC: * 0.12% max. concentration of Bisphenol A (CAS# 80-05-7), contained in substrate laminate material as impurity - not intentionally added.

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**www.latticesemi.com**
## Device Material Content

**Package:** 100 cSBGA  
**Package Code:** MN100  
**Assembly:** ASEK  
**Size (mm):** 8 x 8  
**Lead pitch (mm):** 0.5  
**MSL:** 3  
**Reflow max (ºC):** 260  

<table>
<thead>
<tr>
<th>Substrate</th>
<th>% of Total Pkg. Wt.</th>
<th>Weight (g)</th>
<th>% of Total Pkg. Wt.</th>
<th>Substance</th>
<th>CAS #</th>
<th>% of Subst.</th>
<th>Notes / Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Die</strong></td>
<td>5.85%</td>
<td>0.0086</td>
<td>5.85%</td>
<td>Silicon chip</td>
<td>7440-21-3</td>
<td>100.00%</td>
<td>Die size: 4.71 x 2.90 mm</td>
</tr>
<tr>
<td><strong>Mold Compound</strong></td>
<td>66.11%</td>
<td>0.0972</td>
<td>57.84%</td>
<td>Silica</td>
<td>60676-86-0</td>
<td>87.50%</td>
<td>Mold Compound: Kyocera KJ-G2250 series (ULA)</td>
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<tr>
<td></td>
<td></td>
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<td>4.30%</td>
<td>Epoxy resin</td>
<td>-</td>
<td>6.50%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3.64%</td>
<td>Phenol Resin</td>
<td>-</td>
<td>5.50%</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>0.33%</td>
<td>Carbon Black</td>
<td>1333-86-4</td>
<td>0.50%</td>
<td></td>
</tr>
<tr>
<td><strong>D/A Epoxy</strong></td>
<td>0.94%</td>
<td>0.0014</td>
<td>0.76%</td>
<td>Silver</td>
<td>7440-22-4</td>
<td>80.00%</td>
<td>Die attach epoxy: Henkel (Ablebond) 2100A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.19%</td>
<td>Esters &amp; resins</td>
<td>-</td>
<td>20.00%</td>
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</tr>
<tr>
<td><strong>Wire</strong></td>
<td>0.92%</td>
<td>0.0014</td>
<td>0.91%</td>
<td>Copper</td>
<td>7440-50-8</td>
<td>98.50%</td>
<td>Pd coated Copper, 0.8 mil diameter</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.01%</td>
<td>Palladium</td>
<td>7440-05-3</td>
<td>1.50%</td>
<td></td>
</tr>
<tr>
<td><strong>Solder Balls</strong></td>
<td>7.16%</td>
<td>0.0105</td>
<td>7.05%</td>
<td>Tin (Sn)</td>
<td>7440-31-5</td>
<td>98.50%</td>
<td>SAC105</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>0.07%</td>
<td>Silver (Ag)</td>
<td>7440-22-4</td>
<td>1.00%</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.04%</td>
<td>Copper (Cu)</td>
<td>7440-50-8</td>
<td>0.50%</td>
<td></td>
</tr>
<tr>
<td><strong>Substrate</strong></td>
<td>12.36%</td>
<td>0.0182</td>
<td>3.83%</td>
<td>BT Resins</td>
<td>-</td>
<td>31.00%</td>
<td>BT Resin CCL-HL832NX-A*</td>
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<tr>
<td></td>
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<td></td>
<td>8.41%</td>
<td>Glass fiber</td>
<td>65997-17-3</td>
<td>68.00%</td>
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<tr>
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<td>0.12%</td>
<td>Bisphenol A</td>
<td>80-05-7</td>
<td>1.00%</td>
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</tr>
<tr>
<td><strong>Foil</strong></td>
<td>4.62%</td>
<td>0.0068</td>
<td>3.91%</td>
<td>Copper</td>
<td>7440-50-8</td>
<td>84.56%</td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td>0.68%</td>
<td>Nickel plating</td>
<td>7440-02-0</td>
<td>14.70%</td>
<td></td>
</tr>
<tr>
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<td></td>
<td>0.03%</td>
<td>Gold plating</td>
<td>7440-57-5</td>
<td>0.74%</td>
<td></td>
</tr>
<tr>
<td><strong>Solder Mask</strong></td>
<td>2.04%</td>
<td>0.0030</td>
<td>1.14%</td>
<td>Quartz</td>
<td>14808-60-7</td>
<td>56.20%</td>
<td>Solder mask PSR4000 AUS 308</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>0.33%</td>
<td>3-methoxy-3-methylbutylacetate</td>
<td>103429-90-9</td>
<td>16.00%</td>
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<td></td>
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<td>Barium Sulfate</td>
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<td>0.66%</td>
<td>Talc</td>
<td>14807-96-6</td>
<td>3.00%</td>
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</tr>
<tr>
<td></td>
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<td>0.01%</td>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>0.50%</td>
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<td>0.05%</td>
<td>Trade secret ingredients</td>
<td>-</td>
<td>2.30%</td>
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</tr>
</tbody>
</table>

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## Device Material Content

**Package:** 100 csBGAs  
**Total Device Weight:** 0.147 Grams  
**Package Code:** MN100  
**Assembly:** ATP  
**Size (mm):** 8 x 8  
**Lead pitch (mm):** 0.5

### Products:

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<td>0.0972</td>
<td>4.63%</td>
<td>Solid Epoxy Resin</td>
<td>-</td>
<td>7.00%</td>
<td>Mold Compound: Hitachi GE-110LS-V (ULA)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>3.31%</td>
<td>Phenol Resin</td>
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<td>Trade secret ingredients</td>
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</tbody>
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