# Device Material Content

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

**June, 2022**

**Package:** **332 caBGA**
**Total Device Weight** **1.04** **Grams**

**Package Code:** **BG332**
**Products:** XO2

Assembly: ASEM
Size (mm): 17 x 17
Lead pitch (mm): 0.8
MSL: 3
Reflow max (ºC): 260

| | **% of Total Pkg. Wt.** | **Weight (g)** | **% of Total Pkg. Wt.** | **Weight (g)** | **Substance** | **CAS #** | **% of Subst.** | **Notes / Assumptions:** |
|---|---|---|---|---|---|---|---|---|
| **Die** | 0.72% | 0.0075 | 0.72% | 0.0075 | Silicon chip | 7440-21-3 | 100.00% | Die size: 4.41 x 4.36 mm |
| **Mold Compound** | 45.53% | 0.4735 | 2.28% | 0.0237 | Epoxy Resin A | - | 5.00% | Mold Compound: Sumitomo G750SE (ULA) |
| | | | 0.68% | 0.0071 | Epoxy Resin B | - | 1.50% | |
| | | | 2.28% | 0.0237 | Phenol Novolac | 9003-35-4 | 5.00% | |
| | | | 2.28% | 0.0237 | Metal Hydroxide | - | 5.00% | |
| | | | 0.14% | 0.0014 | Carbon Black | 1333-86-4 | 0.30% | |
| | | | 37.88% | 0.3939 | Silica Fused | 60676-86-0 | 83.20% | |
| **D/A Epoxy** | 0.10% | 0.0011 | 0.08% | 0.00085 | Silver | 7440-22-4 | 80.00% | Die attach epoxy: Henkel (Ablebond) 2100A |
| | | | 0.02% | 0.00021 | Esters & resins | - | 20.00% | |
| **Wire** | 0.42% | 0.0044 | 0.42% | 0.0043 | Copper | 7440-50-8 | 98.50% | 0.8 mil diameter; 1 wire per solder ball |
| | | | 0.01% | 0.0001 | Palladium | 7440-05-3 | 1.50% | |
| **Solder Balls** | 11.32% | 0.1177 | 10.92% | 0.1136 | Tin (Sn) | 7440-31-5 | 96.50% | SAC305 |
| | | | 0.34% | 0.0035 | Silver (Ag) | 7440-22-4 | 3.00% | |
| | | | 0.06% | 0.0006 | Copper (Cu) | 7440-50-8 | 0.50% | |
| **Substrate** | 19.16% | 0.1992 | 13.03% | 0.1355 | Glass fiber | 65997-17-3 | 68.00% | BT Resin CCL-HL832NX-A |
| | | | 6.13% | 0.0638 | BT Resins | - | 32.00% | |
| **Foil** | 13.97% | 0.1453 | 11.90% | 0.1237 | Copper | 7440-50-8 | 85.15% | |
| | | | 1.99% | 0.0207 | Nickel | 7440-02-0 | 14.28% | |
| | | | 0.08% | 0.0008 | Gold | 7440-57-5 | 0.57% | |
| **Solder Mask** | 8.78% | 0.0913 | 4.93% | 0.0513 | Quartz | 14808-60-7 | 56.20% | Solder mask PSR4000 AUS 308 |
| | | | 1.40% | 0.0146 | 3-methoxy-3-methylbutylacetate | 103429-90-9 | 16.00% | |
| | | | 1.93% | 0.0201 | Barium Sulfate | 7727-43-7 | 22.00% | |
| | | | 0.26% | 0.0027 | Talc (containing no asbestiform fibers) | 14807-96-6 | 3.00% | |
| | | | 0.25% | 0.0026 | Trade secret ingredients | - | 2.80% | |

www.latticesemi.com

Br/Cl/Sb

Pb lead-free

RoHS

Rev. G1

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| | % of Total Pkg. Wt. | Weight (g) | % of Total Pkg. Wt. | Weight (g) | Substance | CAS # | % of Subst. | Notes / Assumptions: |
|---|---|---|---|---|---|---|---|---|
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| | | | 0.72% | 0.0075 | Silicon chip | 7440-21-3 | 100.00% | |
| **Mold Compound** | 45.53% | 0.4735 | | | | | | Mold Compound: Kyocera KE-G2250 series (ULA) |
| | | | 39.84% | 0.4143 | Silica | 60676-86-0 | 87.50% | |
| | | | 2.96% | 0.0308 | Epoxy resin | - | 6.50% | |
| | | | 2.50% | 0.0260 | Phenol Resin | - | 5.50% | |
| | | | 0.23% | 0.0024 | Carbon Black | 1333-86-4 | 0.50% | |
| **D/A Epoxy** | 0.10% | 0.0011 | | | | | | Die attach epoxy: Henkel (Ablebond) 2100A |
| | | | 0.08% | 0.00085 | Silver | 7440-22-4 | 80.00% | |
| | | | 0.02% | 0.00021 | Esters & resins | - | 20.00% | |
| **Wire** | 0.42% | 0.0044 | | | | | | 0.8 mil diameter; 1 wire per solder ball |
| | | | 0.42% | 0.0043 | Copper | 7440-50-8 | 98.50% | |
| | | | 0.01% | 0.0001 | Palladium | 7440-05-3 | 1.50% | |
| **Solder Balls** | 11.32% | 0.1177 | | | | | | SAC105 |
| | | | 11.15% | 0.1159 | Tin (Sn) | 7440-31-5 | 98.50% | |
| | | | 0.11% | 0.0012 | Silver (Ag) | 7440-22-4 | 1.00% | |
| | | | 0.06% | 0.0006 | Copper (Cu) | 7440-50-8 | 0.50% | |
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