



Device Material Content

| 5555 NE Moore Ct. Hillsboro OR 97124 custrea@latticesemi.com | | | | | Package Code: BG121 | | Assembly: ASEK Size (mm): 9 x 9 Lead pitch (mm): 0.8 MSL: 3 Reflow max (°C): 260 | |
|---|-------------------------------------|------------|--|------------|--|-------------|--|----------------------------------|
| May, 2020 | Package: 121 caBGA | | Total Device Weight 0.257 Grams | | Products: ICE40HX | | | |
| | % of Total Pkg. Wt. | Weight (g) | % of Total Pkg. Wt. | Weight (g) | Substance | CAS # | % of Subst. | Notes / Assumptions: |
| Die | 0.60% | 0.0015 | 0.60% | 0.0015 | Silicon chip | 7440-21-3 | 100.00% | Die size: 2.7 x 2.4 mm |
| Mold Compound | 71.51% | 0.1835 | 62.57% | 0.1606 | Silica | 60676-86-0 | 87.50% | Mold Compound: KE-G1250AAS (ULA) |
| | | | 4.65% | 0.0119 | Epoxy resin | - | 6.50% | |
| | | | 3.93% | 0.0101 | Phenol Resin | - | 5.50% | |
| | | | 0.36% | 0.0009 | Carbon Black | 1333-86-4 | 0.50% | |
| Die Attach | 0.44% | 0.0011 | 0.28% | 0.00073 | Butadiene, acrylonitrile polymer | 68610-41-3 | 65.00% | Die attach: ATB-125 |
| | | | 0.11% | 0.00028 | Formaldehyde, polymer | 37382-79-9 | 25.00% | |
| | | | 0.01% | 0.00002 | Dapsone | 80-08-0 | 2.00% | |
| | | | 0.01% | 0.00002 | Siloxanes and Silicones | 67762-90-7 | 2.00% | |
| | | | 0.01% | 0.00002 | [3-(2,3-Epoxypropoxy)propyl]trimethoxysilane | 2530-83-8 | 2.00% | |
| | | | 0.01% | 0.00002 | 1,3-Butadiene, acrylonitrile copolymer | 68891-46-3 | 2.00% | |
| | | | 0.01% | 0.00002 | Bisphenol-A-(epichlorhydrin) | 25068-38-6 | 2.00% | |
| Wire | 0.18% | 0.0005 | 0.17% | 0.000446 | Copper | 7440-50-8 | 96.55% | CuPdAu+ |
| | | | 0.01% | 0.000014 | Palladium | 7440-05-3 | 3.10% | |
| | | | 0.00% | 0.000002 | Gold | 7440-57-5 | 0.35% | |
| Solder Balls | 9.26% | 0.0238 | 9.09% | 0.0233 | Tin (Sn) | 7440-31-5 | 98.25% | 98.25Sn/1.2Ag/0.5Cu/0.05Ni |
| | | | 0.10% | 0.0003 | Silver (Ag) | 7440-22-4 | 1.10% | |
| | | | 0.03% | 0.0001 | Copper (Cu) | 7440-50-8 | 0.30% | |
| | | | 0.03% | 0.0001 | Nickel (Ni) | 7440-02-0 | 0.35% | |
| Substrate | 6.66% | 0.0171 | 2.07% | 0.0053 | BT Resins | - | 31.00% | BT Resin CCL-HL832NX* |
| | | | 4.53% | 0.0116 | Glass fiber | 65997-17-3 | 68.00% | |
| | | | 0.07% | 0.0002 | Bisphenol A | 80-05-7 | 1.00% | |
| Foil | 8.83% | 0.0227 | 6.53% | 0.0168 | Copper | 7440-50-8 | 74.00% | |
| | | | 1.94% | 0.0050 | Nickel plating | 7440-02-0 | 22.00% | |
| | | | 0.35% | 0.0009 | Gold plating | 7440-57-5 | 4.00% | |
| Solder Mask | 2.52% | 0.0065 | 1.41% | 0.0036 | Quartz | 14808-60-7 | 56.20% | Solder mask PSR4000 AUS 308 |
| | | | 0.40% | 0.0010 | 3-methoxy-3-methylbutylacetate | 103429-90-9 | 16.00% | |
| | | | 0.55% | 0.0014 | Barium Sulfate | 7727-43-7 | 22.00% | |
| | | | 0.08% | 0.0002 | Talc | 14807-96-6 | 3.00% | |
| | | | 0.01% | 0.0000 | Naphthalene | 91-20-3 | 0.50% | |
| | | | 0.06% | 0.0001 | Trade secret ingredients | - | 2.30% | |

Notes: SVHC: * 0.07% max. concentration of Bisphenol A (CAS# 80-05-7), contained in substrate laminate material as impurity - not intentionally added.

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