



Device Material Content

| 5555 NE Moore Ct. Hillsboro OR 97124 custreq@latticesemi.com | | Package: 256 caBGA Total Device Weight 0.497 Grams | | | Package Code: BG256 | Assembly: ATP Size (mm): 14 x 14 Lead pitch (mm): 0.8 MSL: 3 Reflow max (°C): 260 | | |
|---|---------------------|---|---------------------|------------|---|---|-------------|------------------------------------|
| June, 2020 | | | | | Products: LCMXO3-9400 | | | |
| | % of Total Pkg. Wt. | Weight (g) | % of Total Pkg. Wt. | Weight (g) | Substance | CAS # | % of Subst. | Notes / Assumptions: |
| Die | 2.75% | 0.0137 | | | Silicon chip | 7440-21-3 | 100.00% | Die size: 5.1 x 4.9 x 0.228 mm |
| Mold Compound | 51.66% | 0.2566 | 3.62% | 0.0180 | Solid Epoxy Resin | - | 7.00% | Mold Compound: Hitachi GE-110LS-V |
| | | | 2.58% | 0.0128 | Phenol Resin | - | 5.00% | |
| | | | 43.91% | 0.2181 | Silica | 60676-86-0 | 85.00% | |
| | | | 1.29% | 0.0064 | Metal Hydroxide | - | 2.50% | |
| | | | 0.26% | 0.0013 | Carbon Black | 1333-86-4 | 0.50% | |
| D/A Epoxy | 0.38% | 0.0019 | 0.33% | 0.00165 | Silver | 7440-22-4 | 87.00% | Die attach epoxy: Henkel QMI-529HT |
| | | | 0.03% | 0.00013 | Isobornyl Methacrylate | 7534-94-3 | 7.00% | |
| | | | 0.002% | 0.00001 | 2-(3,4-Epoxy)cyclohexyl)ethyltrimethoxysilane | 3388-04-3 | 0.50% | |
| | | | 0.02% | 0.00010 | Additive | - | 5.00% | |
| Wire | 0.60% | 0.0030 | 0.59% | 0.0029 | Copper (Cu) | 7440-50-8 | 97.90% | MKE Cu wire(Pd coated), 0.02mm dia |
| | | | 0.01% | 0.0001 | Palladium (Pd) | 7440-05-3 | 2.10% | |
| Solder Balls | 18.05% | 0.0897 | 17.42% | 0.0866 | Tin (Sn) | 7440-31-5 | 96.50% | SAC305 |
| | | | 0.54% | 0.0027 | Silver (Ag) | 7440-22-4 | 3.00% | |
| | | | 0.09% | 0.0004 | Copper (Cu) | 7440-50-8 | 0.50% | |
| Substrate | 16.70% | 0.0830 | 5.18% | 0.0257 | BT Resins | - | 31.00% | BT Resin CCL-HL832NX-A* |
| | | | 11.35% | 0.0564 | Glass fiber | 65997-17-3 | 68.00% | |
| | | | 0.17% | 0.0008 | Bisphenol A | 80-05-7 | 1.00% | |
| Foil | 5.87% | 0.0292 | 4.59% | 0.0228 | Copper | 7440-50-8 | 78.16% | |
| | | | 1.07% | 0.0053 | Nickel plating | 7440-02-0 | 18.31% | |
| | | | 0.21% | 0.0010 | Gold plating | 7440-57-5 | 3.53% | |
| Solder Mask | 3.98% | 0.0198 | 2.24% | 0.0111 | Quartz | 14808-60-7 | 56.20% | Solder mask PSR4000 AUS 308 |
| | | | 0.64% | 0.0032 | 3-methoxy-3-methylbutylacetate | 103429-90-9 | 16.00% | |
| | | | 0.88% | 0.0044 | Barium Sulfate | 7727-43-7 | 22.00% | |
| | | | 0.12% | 0.0006 | Talc | 14807-96-6 | 3.00% | |
| | | | 0.02% | 0.0001 | Naphthalene | 91-20-3 | 0.50% | |
| | | | 0.09% | 0.00045 | Trade secret ingredients | - | 2.30% | |
| | | | | | | | | |

Notes: SVHC: * 0.17% max. concentration of Bisphenol A (CAS# 80-05-7), contained in substrate laminate material as impurity - not intentionally added.

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Device Material Content

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

Assembly: ASEK
Size (mm): 14 x 14

Package Code:
BG256

Lead pitch (mm): 0.8

Package: 256 caBGA
Total Device Weight: 0.634 Grams

Products:
XO3-9400

MSL: 3
Reflow max (°C): 260

April, 2020

| | % of Total Pkg. Wt. | Weight (g) | % of Total Pkg. Wt. | Weight (g) | Substance | CAS # | % of Subst. | Notes / Assumptions: |
|----------------------|---------------------|------------|---------------------|------------|-------------------------------------|------------|-------------|---|
| Die | 1.89% | 0.0120 | 1.89% | 0.0120 | Silicon chip | 7440-21-3 | 100.00% | Die size: 3.53 x 4.17 mm |
| Mold Compound | 52.42% | 0.3323 | 45.87% | 0.2908 | Silica | 60676-86-0 | 87.50% | Kyocera KE-G1250AHT (ULA) |
| | | | 3.41% | 0.0216 | Epoxy resin | - | 6.50% | |
| | | | 2.88% | 0.0183 | Phenol Resin | - | 5.50% | |
| | | | 0.26% | 0.0017 | Carbon Black | 1333-86-4 | 0.50% | |
| D/A Epoxy | 0.68% | 0.0043 | 0.54% | 0.00345 | Silver | 7440-22-4 | 80.00% | Die attach epoxy: Henkel (Ablebond) 2100A |
| | | | 0.14% | 0.00086 | Epoxy Resin | - | 20.00% | |
| Wire | 0.28% | 0.0018 | 0.27% | 0.00169 | Copper | 7440-50-8 | 96.55% | CuPdAu+ |
| | | | 0.01% | 0.00005 | Palladium | 7440-05-3 | 3.10% | |
| | | | 0.00% | 0.00001 | Gold | 7440-57-5 | 0.35% | |
| Solder Balls | 22.12% | 0.1402 | 21.35% | 0.1353 | Tin (Sn) | 7440-31-5 | 96.50% | SAC305 |
| | | | 0.66% | 0.0042 | Silver (Ag) | 7440-22-4 | 3.00% | |
| | | | 0.11% | 0.0007 | Copper (Cu) | 7440-50-8 | 0.50% | |
| Substrate | 16.39% | 0.1039 | 5.08% | 0.0322 | BT Resins | - | 31.00% | BT Resin CCL-HL832NX-A* |
| | | | 11.15% | 0.0707 | Glass fiber | 65997-17-3 | 68.00% | |
| | | | 0.16% | 0.0010 | Bisphenol A | 80-05-7 | 1.00% | |
| Foil | 2.03% | 0.0129 | 1.59% | 0.0101 | Copper | 7440-50-8 | 78.16% | |
| | | | 0.37% | 0.0024 | Nickel plating | 7440-02-0 | 18.31% | |
| | | | 0.07% | 0.0005 | Gold plating | 7440-57-5 | 3.53% | |
| Solder Mask | 4.18% | 0.0265 | 0.98% | 0.00623 | Solvent naphtha (petroleum) | 64742-94-5 | 23.52% | Solder mask PSR4000 AUS 320 |
| | | | 0.25% | 0.00156 | Naphthalene | 91-20-3 | 5.87% | |
| | | | 0.61% | 0.00390 | Phosphin oxide derivative | - | 14.70% | |
| | | | 0.61% | 0.00390 | Talc | 14807-96-6 | 14.70% | |
| | | | 0.74% | 0.00467 | Dipropylene glycol monomethyl Ether | 34590-94-8 | 17.63% | |
| | | | 0.61% | 0.00390 | Epoxy Resin | 85954-11-6 | 14.70% | |
| | | | 0.37% | 0.00235 | Barium Sulfate | 7727-43-7 | 8.88% | |
| | | | | | | | | |

Notes: SVHC: * 0.16% max. concentration of Bisphenol A (CAS# 80-05-7), contained in substrate laminate material as impurity - not intentionally added.

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