



PK1108(v1.2) June 16, 2025

100% Material Declaration Data Sheet for UltraScale/Ultrascale + FLGF-FLVD-FLVF1924

Average Weight : 41.1413 g

| Component | Substance Description | CAS # or Description | % of component | Use in product | Component weight / substance weight (in grams) | Component % of total |
|----------------------|---|----------------------|----------------|--------------------|---|----------------------|
| Silicon die | Silicon | 7440-21-3 | 100.00 | basis | 0.877878 | 2.13% |
| | | | | | 0.877878 | |
| Micro-bump | Copper | 7440-50-8 | 54.80 | metal | 0.116620 | 0.52% |
| | Nickel | 7440-02-0 | 22.69 | metal | 0.048279 | |
| | Tin | 7440-31-5 | 21.87 | metal | 0.046544 | |
| | Silver | 7440-22-4 | 0.64 | metal | 0.001367 | |
| | | | | | 0.001367 | |
| Micro-bump underfill | Amorphous silica | trade secret | 46.87 | Filler | 0.021827 | 0.11% |
| | Amine compound | trade secret | 20.84 | Glue | 0.009704 | |
| | Epoxy resin compound-A | trade secret | 15.63 | Glue | 0.007278 | |
| | Epoxy resin compound-B | trade secret | 15.63 | Glue | 0.007278 | |
| | Epoxy resin compound-C | trade secret | 1.04 | Glue | 0.000485 | |
| | | | | | 0.000485 | |
| Molding compound | Silica filler (SiO2) | trade secret | 86.02 | Filler | 0.100419 | 0.28% |
| | Epoxy resin | trade secret | 8.60 | Glue | 0.010042 | |
| | Hardener resin | trade secret | 5.38 | Glue | 0.006276 | |
| Interposer die | | | | | 0.205293 | 0.50% |
| | Tin | 7440-31-5 | 100.00 | basis | 0.205293 | |
| C4 Bump | | | | | 0.148286 | 0.36% |
| | Copper | 7440-50-8 | 70.73 | metal | 0.104886 | |
| | Tin | 7440-31-5 | 28.53 | metal | 0.042303 | |
| | Silver | 7440-22-4 | 0.74 | metal | 0.001097 | |
| Solder Paste | | | | | 0.020768 | 0.05% |
| | Tin | 7440-31-5 | 85.40 | metal | 0.017736 | |
| | Silver | 7440-22-4 | 2.66 | metal | 0.000552 | |
| | Copper | 7440-50-8 | 0.44 | metal | 0.000091 | |
| | Additives | trade secret | 11.50 | flux | 0.002388 | |
| Capacitor 1 | | | | | 0.078400 | 0.19% |
| | Barium oxide, obtained by | 1304-28-5 | 7.54 | Ceramic | 0.005911 | |
| | Titanium dioxide | 13463-67-7 | 3.78 | Ceramic | 0.002964 | |
| | Misc | | 1.27 | | 0.000996 | |
| | Nickel | 7440-02-0 | 83.38 | Internal Electrode | 0.065370 | |
| | Copper | 7440-50-8 | 2.99 | Termination | 0.002344 | |
| | Silicon dioxide | 7631-86-9 | 0.27 | Termination | 0.000212 | |
| | Nickel | 7440-02-0 | 0.20 | Plating | 0.000157 | |
| | Tin | 7440-31-5 | 0.57 | Plating | 0.000447 | |
| | | | | | 0.000447 | |
| Capacitor 2 | | | | | 0.026000 | 0.06% |
| | BaTiO3 type | 12047-27-7 | 34.00 | Ceramic | 0.008840 | |
| | Copper | 7440-50-8 | 18.10 | Internal Electrode | 0.004706 | |
| | Nickel | 7440-02-0 | 41.10 | Termination | 0.010686 | |
| | Nickel | 7440-02-0 | 3.40 | Plating | 0.000884 | |
| | Tin | 7440-31-5 | 3.40 | Plating | 0.000884 | |
| Heat sink | | | | | 26.700240 | 64.90% |
| | Copper | 7440-50-8 | 98.35 | Main material | 26.259686 | |
| Heat sink Adhesive | | | | | 0.440554 | 0.18% |
| | Nickel | 7440-02-0 | 1.65 | Main material | 0.440554 | |
| | Aluminum Oxide Al2O3 | 1344-28-1 | 70.00 | Main material | 0.075000 | |
| TIM | Dimethyl siloxane, dimethylvinyl-terminated | 68083-19-2 | 30.00 | Main material | 0.022500 | 0.85% |
| | | | | | 0.350000 | |
| | Aluminum oxide | Trade secret | 86.50 | Main material | 0.302750 | |
| | Silicone resin | Trade secret | 7.50 | Main material | 0.026250 | |
| | Zinc Oxide | 1314-13-2 | 4.00 | Main material | 0.014000 | |
| Solder Ball | Alkoxysilane | Trade secret | 2.00 | Main material | 0.007000 | 4.63% |
| | | | | | 1.905237 | |
| | Tin | 7440-31-5 | 95.50 | Main material | 1.819501 | |
| | Silver | 7440-22-4 | 4.00 | Main material | 0.076209 | |
| Substrate | Copper | 7440-50-8 | 0.50 | Main material | 0.009526 | 25.23% |
| | | | | | 10.378079 | |
| | Copper | 7440-50-8 | 37.62 | | 3.904572 | |
| | Tin | 7440-31-5 | 0.31 | | 0.031275 | |
| | Lead | 7439-92-1 | 0.09 | | 0.009341 | |
| | Core | N/A | 46.83 | | 4.860476 | |
| | ABF | N/A | 14.05 | | 1.458247 | |
| Solder Mask | N/A | 1.10 | | 0.114169 | | |

Revision History

| Date | Version | Description of Revisions |
|-----------|---------|---|
| 11/2/2020 | 1.0 | Initial Xilinx release. |
| 9/26/2024 | 1.1 | Minor fix only. |
| 6/16/2025 | 1.2 | Updated capacitor component description |

Notice of Disclaimer

Xilinx regards this materials data to be correct but makes no guarantee as to its accuracy or completeness, including, but not limited to, with respect to its compliance with applicable environmental laws and regulations. Xilinx subcontracts the production, test and assembly of hardware devices to independent third-party vendors and materials suppliers ("Contractors"). All data provided hereunder is based on information received from Contractors. Xilinx has not independently verified the accuracy or completeness of this information which is provided solely for your reference in connection with the use of Xilinx products.