



PK458 (v1.1) September 28,
2012

100% Material Declaration Data Sheet FF1759 Virtex-6

Average Weight: 21.0121 g

| Component | Substance Description | CAS Number or Description | Percentage of Component | Use in Product | Component Weight/ Substance Weight (grams) | Component Percent of Total |
|---------------------------|-------------------------------------|---------------------------|-------------------------|----------------|--|----------------------------|
| Silicon Die (FPGA) | | | | Silicon IC | 0.935666 | 4.453 |
| | Doped silicon | 7440-21-3 | 100.00 | Basis | 0.935666 | |
| Solder Bump | | | | Die to package | 0.048899 | 0.233 |
| | Tin (Sn) | 7440-31-5 | 63.00 | Basis | 0.030806 | |
| | Lead (Pb) | 7439-92-1 | 37.00 | Basis | 0.018093 | |
| Die Underfill | | | | | 0.130000 | 0.619 |
| | Bisphenol F-type liquid epoxy resin | 9003-36-5 | 20.00 | Basis | 0.026000 | |
| | Phenolic resin | Trade secret | 15.00 | Basis | 0.019500 | |
| | Bisphenol A-type liquid epoxy resin | 25068-38-6 | 5.00 | Basis | 0.006500 | |
| | Amine type accelerator | Trade secret | 5.00 | Basis | 0.006500 | |
| | Silicon dioxide | 60676-86-0 | 51.50 | Basis | 0.066950 | |
| | Carbon black | 1333-86-4 | 1.00 | Basis | 0.001300 | |
| | Additives | Trade secret | 2.50 | Basis | 0.003250 | |
| Substrate | | | | | 5.886081 | 28.013 |
| | Cu | 7440-50-8 | 35.780 | Main Material | 2.106128 | |
| | Tin | 7440-31-5 | 0.89 | Main Material | 0.052415 | |
| | Lead | 7439-92-1 | 0.19 | Main Material | 0.011172 | |
| | Silver | 7440-22-4 | 0.02 | Main Material | 0.001084 | |
| | BT Core | N/A | 42.35 | Main Material | 2.492625 | |
| | ABF | N/A | 19.64 | Main Material | 1.156000 | |
| | Soldermask | N/A | 1.13 | Main Material | 0.066657 | |

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| Component | Substance Description | CAS Number or Description | Percentage of Component | Use in Product | Component Weight/ Substance Weight (grams) | Component Percent of Total |
|---------------------------|-----------------------|---------------------------|-------------------------|-----------------|--|----------------------------|
| Solder Paste | | | | | 0.083000 | 0.395 |
| | Tin | 7440-31-5 | 96.50 | Basis | 0.080095 | |
| | Silver | 7440-22-4 | 3.00 | Basis | 0.002490 | |
| | Copper | 7440-50-8 | 0.50 | Basis | 0.000415 | |
| Capacitor 1 | | | | | 0.056000 | 0.267 |
| | Ceramic (BaTiO3 type) | Trade secret | 61.80 | Ceramic | 0.034608 | |
| | Inner electrode (Ni) | 7440-02-0 | 27.00 | Inner electrode | 0.015120 | |
| | Outer electrode (Cu) | 7440-50-8 | 9.90 | Outer electrode | 0.005544 | |
| | Plating1 (Ni) | 7440-02-0 | 0.40 | Plating1 | 0.000224 | |
| | Plating2 (Sn) | 7440-31-5 | 0.90 | Plating2 | 0.000504 | |
| Capacitor 2 | | | | | 0.081900 | 0.390 |
| | Ceramic (BaTiO3 type) | Trade secret | 67.40 | Ceramic | 0.055201 | |
| | Inner electrode (Ni) | 7440-02-0 | 17.00 | Inner electrode | 0.013923 | |
| | Outer electrode (Cu) | 7440-50-8 | 13.80 | Outer electrode | 0.011302 | |
| | Plating1 (Ni) | 7440-02-0 | 0.50 | Plating1 | 0.000410 | |
| | Plating2 (Sn) | 7440-31-5 | 1.30 | Plating2 | 0.001065 | |
| Capacitor 3 | | | | | 0.005400 | 0.026 |
| | Ceramic (BaTiO3 type) | Trade secret | 66.00 | Ceramic | 0.003564 | |
| | Inner electrode (Ni) | 7440-02-0 | 2.67 | Inner electrode | 0.000144 | |
| | Outer electrode (Cu) | 7440-50-8 | 23.33 | Outer electrode | 0.001260 | |
| | Plating1 (Ni) | 7440-02-0 | 2.33 | Plating1 | 0.000126 | |
| | Plating2 (Sn) | 7440-31-5 | 5.67 | Plating2 | 0.000306 | |
| Heat Sink | | | | | 11.900000 | 56.634 |
| | Copper | 7440-50-8 | 97.94 | Main material | 11.654860 | |
| | Nickel | 7440-02-0 | 2.06 | Main material | 0.245140 | |
| Heat Sink Adhesive | | | | | 0.210000 | 0.999 |
| | Aluminium Oxide | 1344-28-1 | 70.00 | Main material | 0.147000 | |
| | Zinc Oxide | 1314-13-2 | 15.00 | Main material | 0.031500 | |
| | Silicone | Trade Secret | 15.00 | Main material | 0.031500 | |
| | Additive | Trade Secret | | Additive | | |
| Solder Balls | | | | | 1.675163 | 7.972 |
| | Tin (Sn) | 7440-31-5 | 63.00 | Base metal | 1.055353 | |
| | Lead (Pb) | 7439-92-1 | 37.00 | Base metal | 0.619810 | |

Revision History

The following table shows the revision history for this document.

| Date | Version | Description of Revisions |
|----------|---------|-----------------------------|
| 03/4/11 | 1.0 | Initial Xilinx release. |
| 09/28/12 | 1.1 | Updated Substrate Component |

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