



PK451 (v1.1) September 28,
2012

100% Material Declaration Data Sheet Virtex-6 FFG1154

Average Weight: 13.4822 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	0.821184	6.091
	Doped silicon	7440-21-3	100.00	Basis	0.821184	
Solder Bump				Die to package	0.042757	0.317
	Tin (Sn)	7440-31-5	63.00	Basis	0.026937	
	Lead (Pb)	7439-92-1	37.00	Basis	0.015820	
Die Underfill					0.100000	0.742
	Bisphenol F-type liquid epoxy resin	9003-36-5	20.00	Basis	0.020000	
	Phenolic resin	Trade secret	15.00	Basis	0.015000	
	Bisphenol A-type liquid epoxy resin	25068-38-6	5.00	Basis	0.005000	
	Amine type accelerator	Trade secret	5.00	Basis	0.005000	
	Silicon dioxide	60676-86-0	51.50	Basis	0.051500	
	Carbon black	1333-86-4	1.00	Basis	0.001000	
	Additives	Trade secret	2.50	Basis	0.002500	
Solder Paste					0.052140	0.387
	Tin (Sn)	7440-31-5	96.50	Basis	0.050315	
	Silver (Ag)	7440-22-4	3.00	Basis	0.001564	
	Copper (Cu)	7440-50-8	0.50	Basis	0.000261	
Substrate					4.153195	30.805
	Cu	7440-50-8	37.27	Main Material	1.547927	
	Tin	7440-31-5	1.69	Main Material	0.069984	
	Lead	7439-92-1	0.29	Main Material	0.012001	
	Silver	7440-22-4	0.04	Main Material	0.001595	
	BT Core	N/A	40.7	Main Material	1.690500	
	ABF	N/A	18.88	Main Material	0.784000	
	Soldermask	N/A	1.14	Main Material	0.047189	

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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
Capacitor					0.042000	0.312
	Ceramic (BaTiO3 type)	Trade secret	61.80	Ceramic	0.025956	
	Inner electrode (Ni)	7440-02-0	27.00	Inner electrode	0.011340	
	Outer electrode (Cu)	7440-50-8	9.90	Outer electrode	0.004158	
	Plating1 (Ni)	7440-02-0	0.40	Plating1	0.000168	
	Plating2 (Sn)	7440-31-5	0.90	Plating2	0.000378	
Capacitor					0.007000	0.052
	Ceramic (BaTiO3 type)	Trade secret	64.94	Ceramic	0.004546	
	Inner electrode (Ni)	7440-02-0	19.20	Inner electrode	0.001344	
	Outer electrode (Cu)	7440-50-8	14.07	Outer electrode	0.000985	
	Plating1 (Ni)	7440-02-0	0.51	Plating1	0.000036	
	Plating2 (Sn)	7440-31-5	1.28	Plating2	0.000090	
Capacitor					0.042900	0.318
	Ceramic (BaTiO3 type)	Trade secret	67.40	Ceramic	0.028915	
	Inner electrode (Ni)	7440-02-0	17.00	Inner electrode	0.007293	
	Outer electrode (Cu)	7440-50-8	13.80	Outer electrode	0.005920	
	Plating1 (Ni)	7440-02-0	0.50	Plating1	0.000215	
	Plating2 (Sn)	7440-31-5	1.30	Plating2	0.000558	
Capacitor					0.004200	0.031
	Ceramic (BaTiO3 type)	Trade secret	66.00	Ceramic	0.002772	
	Inner electrode (Ni)	7440-02-0	2.67	Inner electrode	0.000112	
	Outer electrode (Cu)	7440-50-8	23.33	Out electrode	0.000980	
	Plating1 (Ni)	7440-02-0	2.33	Plating1	0.000098	
	Plating2 (Sn)	7440-31-5	5.67	Plating2	0.000238	
Heat Sink					7.100000	52.662
	Copper (Cu)	7440-50-8	97.25	Main material	6.904750	
	Nickel (Ni)	7440-02-0	2.75	Main material	0.195250	
Heat Sink Adhesive					0.152000	1.127
	Aluminum oxide(Al2O3)	1344-28-1	70.00	Main material	0.106400	
	Zinc oxide (ZnO)	1314-13-2	15.00	Main material	0.022800	
	Silicone Additives	Trade Secret	15.00	Additive	0.022800	
		Trade Secret				
Solder Balls					0.964846	7.156
	Tin (Sn)	7440-31-5	96.50	Base metal	0.931076	
	Silver (Ag)	7440-22-4	3.00	Base metal	0.028945	
	Copper (Cu)	7440-50-8	0.50	Base metal	0.004824	

Revision History

The following table shows the revision history for this document.

Date	Version	Description of Revisions
03/04/11	1.0	Initial Xilinx release.
09/28/12	1.1	Updated Substrate Component

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