



# 100% Material Declaration Data Sheet FF1155

PK488 (v1.0) August 10, 2011

**Average Weight: 13.8061 g**

Component	Substance Description	CAS Number or Description	Percentage of Component	Use in Product	Component Weight/ Substance Weight (grams)	Component Percent of Total
<b>Silicon Die (FPGA)</b>				Silicon IC	<b>0.821184</b>	<b>5.948</b>
	Doped silicon (Si)	7440-21-3	100.00	Basis	0.821184	
<b>Solder Bump</b>				Die to package	<b>0.427509</b>	<b>3.097</b>
	Tin (Sn)	7440-31-5	63.00	Basis	0.269331	
	Lead (Pb)	7439-92-1	37.00	Basis	0.158178	
<b>Die Underfill</b>					<b>0.090000</b>	<b>0.652</b>
	Bisphenol F/ epichlorohydrin copolymer	9003-36-5	20.00	Basis	0.018000	
	Phenolic resin	Trade secret	15.00	Basis	0.013500	
	Bisphenol A-type liquid epoxy resin	25068-38-6	5.00	Basis	0.004500	
	Amine type accelerator	Trade secret	5.00	Basis	0.004500	
	Silicon dioxide	60676-86-0	51.50	Basis	0.046350	
	Carbon black	1333-86-4	1.00	Basis	0.000900	
	Additives	Trade secret	2.50	Basis	0.002250	
<b>Solder Balls</b>					<b>1.100277</b>	<b>7.970</b>
	Tin (Sn)	7440-31-5	63.00	Main material	0.693175	
	Lead (Pb)	7440-92-1	37.00	Main material	0.407102	

Component	Substance Description	CAS Number or Description	Percentage of Component	Use in Product	Component Weight/ Substance Weight (grams)	Component Percent of Total
<b>Substrate</b>					<b>4.004000</b>	<b>29.002</b>
<b>Plating</b>	Copper (Cu)	7440-50-8	34.71	Main material	1.389794	
	Nickel (Ni)	7440-02-0	0.36	Main material	0.014332	
	Gold (Au)	7440-57-5	0.08	Main material	0.003105	
<b>Bump</b>	Lead (Pb)	7439-92-1	0.22	Main material	0.008797	
	Tin (Sn)	7440-31-5	0.37	Main material	0.014979	
<b>Copper Foil</b>	Copper (Cu)	7440-50-8	6.16	Main material	0.246565	
<b>Core</b>	Copper Foil	7440-50-8	15.49	Main material	0.620299	
	Glass Cloth	65997-17-3	7.57	Main material	0.303257	
	Silica	7631-86-9	1.03	Main material	0.041353	
	Thermosetting	Trade secret	10.33	Main material	0.413533	
<b>PP</b>	Fiber Glass	Trade secret	1.81	Main material	0.072312	
	Epoxy Resin	Trade secret	2.71	Main material	0.108468	
<b>ABF</b>	Bisphenol A-type epoxy resin	25068-38-6	1.57	Main material	0.007231	
	Cyclohexane	108-94-1	0.90	Main material	0.036156	
	N, N-dimethylformamide	68-12-2	0.18	Main material	0.062911	
	Silica	7631-86-9	5.42	Main material	0.216935	
	Coal tar naphtha	64742-94-5	0.90	Main material	0.036156	
	Toluene	108-88-3	0.05	Main material	0.002169	
	Other	N/A	9.03	Main material	0.361559	
<b>Solder Mask</b>	Solvent naphtha	64742-94-5	0.12	Main material	0.004850	
	Naphthalene	91-20-3	0.02	Main material	0.000882	
	Talc	14807-96-6	0.04	Main material	0.001764	
	Morpholine derivative	Trade secret	0.04	Main material	0.001764	
	Silica, amorphous	7631-86-9	0.01	Main material	0.000441	
	Barium Sulfate	7727-43-7	0.39	Main material	0.015431	
	Dipropylane glycol monomethyl ether	34590-94-8	0.21	Main material	0.008377	
	Epoxy resin	Trade secret	0.17	Main material	0.006613	
	Epoxy resin	85954-11-6	0.10	Main material	0.003968	

Component	Substance Description	CAS Number or Description	Percentage of Component	Use in Product	Component Weight/ Substance Weight (grams)	Component Percent of Total
<b>Solder Paste</b>					<b>0.015000</b>	<b>0.109</b>
	Tin (Sn)	7440-31-5	96.50	Basis	0.014475	
	Silver (Ag)	7440-22-4	3.00	Basis	0.000450	
	Copper (Cu)	7440-50-8	0.50	Basis	0.000075	
<b>Capacitor</b>					<b>0.042000</b>	<b>0.304</b>
	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	
<b>Capacitor</b>					<b>0.007000</b>	<b>0.051</b>
	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	
<b>Capacitor</b>					<b>0.004200</b>	<b>0.030</b>
	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	Outer electrode	0.000980	
	Plating1 (Ni)	7440-02-0	2.33	Plating1	0.000098	
	Plating2 (Sn)	7440-31-5	5.67	Plating2	0.000238	
<b>Capacitor</b>					<b>0.042900</b>	<b>0.311</b>
	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	
<b>Heat Sink</b>					<b>7.100000</b>	<b>51.427</b>
	Copper (Cu)	7440-50-8	97.25	Main material	6.904750	
	Nickel (Ni)	7440-02-0	2.75	Main material	0.195250	
<b>Heat Sink Adhesive</b>					<b>0.152000</b>	<b>1.101</b>
	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	Trade Secret	15.00	Main material	0.022800	
	Additives	Trade Secret		Additive		

## Revision History

The following table shows the revision history for this document.

Date	Version	Description of Revisions
08/10/2011	1.0	Initial Xilinx release.

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