



PK912 (v1.0) June 16, 2017

100% Material Declaration Data Sheet for UltraScale + FLGA/FLGB/FLGC2104

Average Weight : 35.4904 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	0.9923782	2.80%
					0.9923782	
Micro-bump	Copper	7440-50-8	54.80	metal	0.0354704	0.18%
	Nickel	7440-02-0	22.69	metal	0.0146834	
	Tin	7440-31-5	21.87	metal	0.0141569	
	Silver	7440-22-4	0.64	metal	0.0004163	
					0.0508140	
Micro-bump underfill	Amorphous silica	trade secret	46.87	Filler	0.0238156	0.14%
	Amine compound	trade secret	20.84	Glue	0.0105876	
	Epoxy resin compound-A	trade secret	15.63	Glue	0.0079407	
	Epoxy resin compound-B	trade secret	15.63	Glue	0.0079407	
	Epoxy resin compound-C	trade secret	1.04	Glue	0.0005294	
					0.1257340	
Mold compound	Silica filler	trade secret	86.02	Filler	0.1081583	0.35%
	Epoxy resin	trade secret	8.60	Glue	0.0108158	
	Hardener resin	trade secret	5.38	Glue	0.0067599	
Interposer die	Silicon	7440-21-3	100.00	basis	0.2333530	0.66%
					0.2333530	
C4 Bump	Copper	7440-50-8	5.41	metal	0.0003490	0.02%
	Nickel	7440-02-0	3.22	metal	0.0002080	
	Tin	7440-31-5	57.53	metal	0.0037131	
	Lead	7439-92-1	33.84	metal	0.0021839	
					0.0263000	
Solder Paste	Tin	7440-31-5	96.50	metal	0.0253795	0.07%
	Silver	7440-22-4	3.00	metal	0.0007890	
	Copper	7440-50-8	0.50	metal	0.0001315	
C4 Underfill	Bisphenol F/	9003-36-5	24.00	basis	0.0430080	0.50%
	Phenolic resin	trade secret	19.00	basis	0.0340480	
	Bisphenol A type liquid	25068-38-6	4.00	basis	0.0071680	
	Amine type accelerator	trade secret	5	basis	0.0089600	
	Silicon dioxide	60676-86-0	44.1	basis	0.0790272	
	Carbon black	1333-86-4	0.9	basis	0.0016128	
	Additives	trade secret	3	Additive	0.0053760	
					19.3112000	
Lid	Copper	7440-50-8	99.64	Main material	19.2416797	54.41%
	Nickel	7440-02-0	0.36	Main material	0.0695203	
Lid Adhesive	Silicone	Confidential	80	Main material	0.0880000	0.31%
	Others	Confidential	20	Main material	0.0220000	
Lid TIM	Aluminum oxide	1344-28-1	85	Main material	0.3226600	1.07%
	Zinc oxide	1314-13-2	5	Main material	0.0189800	
	Silicone	Confidential	9	Main material	0.0341640	
	Others	Confidential	1	Main material	0.0037960	
					1.9116310	
Solder Ball	Tin	7440-31-5	96.5	Main material	1.8447239	5.39%
	Silver	7440-22-4	3	Main material	0.0573489	
	Copper	7440-50-8	0.5	Main material	0.0095582	
Capacitor 1	Titanium Dioxide	13463-67-7	15.11		0.0082198	0.15%
	Misc		5.04		0.0027418	
	Nickel	7440-02-0	33.44	Inner electrode	0.0181914	
	Copper	7440-50-8	11.87	Out electrode	0.0064573	
	Silicon Dioxide	7631-86-9	1.06		0.0005766	
	Diboron trioxide; Boric	1303-86-2	0.26		0.0001414	
	Nickel	7440-02-0	0.81	Plating1	0.0004406	
	Tin	7440-31-5	2.19	Plating2	0.0011914	
	Other		30.22		0.0164397	
					0.0162530	
Capacitor 2	BaTiO3 type	12047-27-7	51.10	Ceramic	0.0083053	0.05%
	Copper	7440-50-8	27.00	Inner electrode	0.0043883	
	Nickel	7440-02-0	16.90	Out electrode	0.0027468	
	Nickel	7440-02-0	2.00	Plating1	0.0003251	
	Tin	7440-31-5	3.00	Plating2	0.0004876	
Substrate	Copper	7440-50-8	40.09		4.8221740	33.89%
	Tin	7440-31-5	0.32		0.0384910	
	Core	N/A	45.02		5.4151720	
	ABF	N/A	13.51		1.6250330	
	Solder Mask	N/A	1.06		0.1275010	

Revision History

Date	Version	Description of Revisions
6/16/2017	1.0	Initial Xilinx release.

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