



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	
				0.2333530	0.66%	
Interposer die	Silicon	7440-21-3	100.00	basis	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	
				0.1792000	0.50%	
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	54.41%	
Lid	Copper	7440-50-8	99.64	Main material	19.2416797	0.31%
	Nickel	7440-02-0	0.36	Main material	0.0695203	
				0.1100000		
Lid Adhesive	Silicone	Confidential	80	Main material	0.0880000	1.07%
	Others	Confidential	20	Main material	0.0220000	
				0.3796000		
Lid TIM	Aluminum oxide	1344-28-1	85	Main material	0.3226600	5.39%
	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	0.15%
	Silver	7440-22-4	3	Main material	0.0573489	
	Copper	7440-50-8	0.5	Main material	0.0095582	
				0.0544000		
Capacitor 1	Titanium Dioxide	13463-67-7	15.11		0.0082198	0.05%
	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	33.89%
	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	
				12.0283710		
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.

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.