



PK870(v1.0) February 22, 2017

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

Average Weight : 33.4618 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	0.7610992	2.275%
					0.7610992	
Micro-bump	Copper	7440-50-8	54.80	metal	0.0231760	0.126%
	Nickel	7440-02-0	22.69	metal	0.0095940	
	Tin	7440-31-5	21.87	metal	0.0092500	
	Silver	7440-22-4	0.64	metal	0.0002720	
					0.0388750	0.116%
Micro-bump underfill	Amorphous silica	trade secret	46.87	Filler	0.0182200	
	Amine compound	trade secret	20.84	Glue	0.0081000	
	Epoxy resin compound-A	trade secret	15.63	Glue	0.0060750	
	Epoxy resin compound-B	trade secret	15.63	Glue	0.0060750	
	Epoxy resin compound-C	trade secret	1.04	Glue	0.0004050	
				0.0961930	0.287%	
Mold compound	Silica filler	trade secret	86.02	Filler	0.0827467	
	Epoxy resin	trade secret	8.60	Glue	0.0082747	
	Hardener resin	trade secret	5.38	Glue	0.0051717	
				0.1785262	0.534%	
Interposer die	Silicon	7440-21-3	100.00	basis	0.1785262	
					0.0053460	0.016%
C4 Bump	Copper	7440-50-8	5.41	metal	0.0002890	
	Nickel	7440-02-0	3.22	metal	0.0001723	
	Tin	7440-31-5	57.53	metal	0.0030756	
	Silver	7439-92-1	33.84	metal	0.0018090	
				0.0263000	0.079%	
Solder Paste	Tin	7440-31-5	96.50	metal	0.0253795	
	Silver	7440-22-4	3.00	metal	0.0007890	
	Copper	7440-50-8	0.50	metal	0.0001315	
				0.1480000	0.442%	
C4 Underfill	Bisphenol F/ epichlorohydrin	9003-36-5	24.00	basis	0.0355200	
	Phenolic resin	trade secret	19.00	basis	0.0281200	
	Bisphenol A type liquid epoxy	25068-38-6	4.00	basis	0.0059200	
	Amine type accelerator	trade secret	5.00	basis	0.0074000	
	Silicon dioxide	60676-86-0	44.1	basis	0.0652680	
	Carbon black	1333-86-4	0.9	basis	0.0013320	
	Additives	trade secret	3.00	Additive	0.0044400	
				17.4896530	52.267%	
Lid	Copper	7440-50-8	99.64	Main material	17.4266903	
	Nickel	7440-02-0	0.36	Main material	0.0629628	
				0.1100000	0.329%	
Lid Adhesive	Silicone	Confidential	80.00	Main material	0.0880000	
	Others	Confidential	20.00	Main material	0.0220000	
				0.3800000	1.136%	
Lid TIM	Aluminum oxide	1344-28-1	85.00	Main material	0.3230000	
	Zinc oxide	1314-13-2	5.00	Main material	0.0190000	
	Silicone	Confidential	9.00	Main material	0.0342000	
	Others	Confidential	1.00	Main material	0.0038000	
				1.5607573	4.664%	
Solder Ball	Tin	7440-31-5	96.50	Main material	1.5061308	
	Silver	7440-22-4	3.00	Main material	0.0468227	
	Copper	7440-50-8	0.50	Main material	0.0078038	
				0.0544000	0.163%	
Capacitor 1	Titanium Dioxide	13463-67-7	15.11		0.0082198	
	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	0.049%	
Capacitor 2	BaTiO3 type	12047-27-7	51.10	Ceramic	0.0083053	
	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	
				12.554123	37.518%	
Substrate	Copper	7440-50-8	37.76		4.755045	
	Tin	7440-31-5	0.29		0.0364320	
	Lead	7439-92-1	0.11		0.013819	
	Silver	7440-22-4	0.09		0.001307	
	Core	N/A	43.41		5.446003	
	ABF	N/A	17.36		2.178401	
	Solder Mask	N/A	0.98		0.123116	

## Revision History

Date	Version	Description of Revisions
2/22/2017	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.