



PK910 (v1.1) December 14, 2017

# 100% Material Declaration Data Sheet for UltraScale+ FSGD2104

Average Weight : 25.3260 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	<b>0.992378229</b>	<b>3.918%</b>
					0.9923782	
Micro-bump	Copper	7440-50-8	54.80	metal	<b>0.0647270</b>	<b>0.256%</b>
	Nickel	7440-02-0	22.69	metal	0.0354704	
	Tin	7440-31-5	21.87	metal	0.0146834	
	Silver	7440-22-4	0.64	metal	0.0141569	
					0.0004163	
Micro-bump underfill	Amorphous silica	trade secret	46.868	Filler	<b>0.0508140</b>	<b>0.201%</b>
	Amine compound	trade secret	20.836	Glue	0.0238156	
	Epoxy resin compound-A	trade secret	15.627	Glue	0.0105876	
	Epoxy resin compound-B	trade secret	15.627	Glue	0.0079407	
	Epoxy resin compound-C	trade secret	1.042	Glue	0.0079407	
Mold compound	Silica filler	trade secret	86.02	Filler	<b>0.1257340</b>	<b>0.496%</b>
	Epoxy resin	trade secret	8.60	Glue	0.1081583	
	Hardener resin	trade secret	5.38	Glue	0.0108158	
Interposer die					0.0067599	
	Silicon	7440-21-3	100.00	basis	<b>0.2333530</b>	<b>0.921%</b>
					0.2333530	
C4 Bump	Copper	7440-50-8	5.41	metal	<b>0.0064540</b>	<b>0.025%</b>
	Nickel	7440-02-0	3.22	metal	0.0003490	
	Tin	7440-31-5	57.53	metal	0.0002080	
	Lead	7439-92-1	33.84	metal	0.0037131	
					0.0021839	
Solder Paste					<b>0.0263000</b>	<b>0.104%</b>
	Tin	7440-31-5	96.50	metal	0.0253795	
	Silver	7440-22-4	3.00	metal	0.0007890	
C4 Underfill					0.0001315	
	Bisphenol F/	9003-36-5	24.00	basis	<b>0.1792000</b>	<b>0.708%</b>
	Phenolic resin	trade secret	19.00	basis	0.0430080	
	Bisphenol A type liquid	25068-38-6	4.00	basis	0.0340480	
	Amine type accelerator	trade secret	5.00	basis	0.0071680	
	Silicon dioxide	60676-86-0	44.1	basis	0.0089600	
	Carbon black	1333-86-4	0.9	basis	0.0790272	
	Additives	trade secret	3.00	Additive	0.0016128	
Stiffener Ring					<b>9.3690000</b>	<b>36.994%</b>
	Carbon	07440-44-0	0.08	Main material	0.0074952	
	Tin	07440-21-3	0.56	Main material	0.0524664	
	Manganese	07430-96-5	0.79	Main material	0.0740151	
	Phosphorus	07723-14-0	0.031	Main material	0.0029044	
	Sulfur	07704-34-9	0.004	Main material	0.0003748	
	Nickel	07440-02-0	10.5	Main material	0.9837450	
	Chromium	07440-47-3	20	Main material	1.8738000	
Iron	074439-86-6	68.035	Main material	6.3741992		
Ring Adhesive	Silicone	Confidential	80.00	Main material	<b>0.1700000</b>	<b>0.671%</b>
	Others	Confidential	20.00	Main material	0.1360000	
Solder Ball					0.0340000	
	Tin	7440-31-5	96.50	Main material	<b>1.9116310</b>	<b>7.548%</b>
	Silver	7440-22-4	3.00	Main material	1.8447239	
Capacitor 1					0.0573489	
	Copper	7440-50-8	0.50	Main material	0.0095582	
					<b>0.0544000</b>	<b>0.215%</b>
	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		
Capacitor 2					<b>0.0162530</b>	<b>0.064%</b>
	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		
Substrate					<b>12.1257922</b>	<b>47.879%</b>
	Copper	7440-50-8	40.09		4.8612300	
	Tin	7440-31-5	0.32		0.0388030	
	Core	N/A	45.02		5.4590312	
	ABF	N/A	13.51		1.6381950	
	Solder Mask	N/A	1.06		0.1285330	

## Revision History

Date	Version	Description of Revisions
5/25/2017	1.0	Initial Xilinx release.
12/14/2017	1.1	Update C4 Bump description.

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