



PK914 (v1.0) June 16, 2017

# 100% Material Declaration Data Sheet for UltraScale + FHGB2104

Average Weight : 41.1181 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	1.2108540	2.94%
					<b>1.2108540</b>	
Micro-bump	Copper	7440-50-8	54.80	metal	0.0523055	0.23%
	Nickel	7440-02-0	22.69	metal	0.0216525	
	Tin	7440-31-5	21.87	metal	0.0208761	
	Silver	7440-22-4	0.64	metal	0.0006139	
					<b>0.0581180</b>	
Micro-bump underfill	Amorphous silica	trade secret	46.87	Filler	0.0272388	0.14%
	Amine compound	trade secret	20.84	Glue	0.0121095	
	Epoxy resin compound-A	trade secret	15.63	Glue	0.0090821	
	Epoxy resin compound-B	trade secret	15.63	Glue	0.0090821	
	Epoxy resin compound-C	trade secret	1.04	Glue	0.0006055	
				<b>0.1303150</b>		
Mold compound	Silica filler	trade secret	86.02	Filler	0.1120989	0.32%
	Epoxy resin	trade secret	8.60	Glue	0.0112099	
	Hardener resin	trade secret	5.38	Glue	0.0070062	
				<b>0.2736000</b>		
Interposer die	Silicon	7440-21-3	100.00	basis	0.2736000	0.67%
					<b>0.1508090</b>	
C4 Bump	Copper	7440-50-8	5.41	metal	0.0081540	0.37%
	Nickel	7440-02-0	3.22	metal	0.0048607	
	Tin	7440-31-5	57.53	metal	0.0867629	
	Silver	7439-92-1	33.84	metal	0.0510314	
					<b>0.0435470</b>	
Solder Paste	Tin	7440-31-5	96.50	metal	0.0420229	0.46%
	Silver	7440-22-4	3.00	metal	0.0013064	
	Copper	7440-50-8	0.50	metal	0.0002177	
				<b>0.1906240</b>		
C4 Underfill	Bisphenol F/	9003-36-5	24.00	basis	0.0457498	0.46%
	Phenolic resin	trade secret	19.00	basis	0.0362186	
	Bisphenol A type liquid	25068-38-6	4.00	basis	0.0076250	
	Amine type accelerator	trade secret	5	basis	0.0095312	
	Silicon dioxide	60676-86-0	44.1	basis	0.0840652	
	Carbon black	1333-86-4	0.9	basis	0.0017156	
	Additives	trade secret	3	Additive	0.0057187	
				<b>21.3654760</b>		
Lid	Copper	7440-50-8	99.64	Main material	21.2885603	51.96%
	Nickel	7440-02-0	0.36	Main material	0.0769157	
				<b>0.1215790</b>		
Lid Adhesive	Silicone	Confidential	80	Main material	0.0972632	0.30%
	Others	Confidential	20	Main material	0.0243158	
				<b>0.5873280</b>		
Lid TIM	Aluminum oxide	1344-28-1	85	Main material	0.4992288	1.43%
	Zinc oxide	1314-13-2	5	Main material	0.0293664	
	Silicone	Confidential	9	Main material	0.0528595	
	Others	Confidential	1	Main material	0.0058733	
				<b>1.5607570</b>		
Solder Ball	Tin	7440-31-5	96.5	Main material	1.5061305	3.80%
	Silver	7440-22-4	3	Main material	0.0468227	
	Copper	7440-50-8	0.5	Main material	0.0078038	
				<b>0.0526450</b>		
Capacitor 1	Titanium Dioxide	13463-67-7	15.11		0.0079547	0.13%
	Misc		5.04		0.0026533	
	Nickel	7440-02-0	33.44	Inner electrode	0.0176045	
	Copper	7440-50-8	11.87	Out electrode	0.0062490	
	Silicon Dioxide	7631-86-9	1.06		0.0005580	
	Diboron trioxide; Boric	1303-86-2	0.26		0.0001369	
	Nickel	7440-02-0	0.81	Plating1	0.0004264	
	Tin	7440-31-5	2.19	Plating2	0.0011529	
	Other		30.22		0.0159093	
				<b>0.0198290</b>		
Capacitor 2	BaTiO3 type	12047-27-7	51.10	Ceramic	0.0101326	0.05%
	Copper	7440-50-8	27.00	Inner electrode	0.0053538	
	Nickel	7440-02-0	16.90	Out electrode	0.0033511	
	Nickel	7440-02-0	2.00	Plating1	0.0003966	
	Tin	7440-31-5	3.00	Plating2	0.0005949	
				<b>15.2579620</b>		
Substrate	Copper	7440-50-8	40.22		6.1352270	37.11%
	Tin	7440-31-5	0.19		0.0289900	
	Lead	7439-92-1	0.09		0.0137320	
	Resin	7440-22-4	0.02		0.0030520	
	Core	N/A	41.53		6.3366320	
	ABF	N/A	17.60		2.6854010	
	Solder Mask	N/A	0.35		0.0534030	

## Revision History

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

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