



PK1156(v1.0) January 17, 2023

100% Material Declaration Data Sheet for XQ Kintex® UltraScale™ FPGA XQKU115-RFL1924

Average Weight : 25.2866 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	0.608879	2.408%
					0.608879	2.396%
Micro-bump	Copper	7440-50-8	54.80	basis	0.332035	
	Nickel	7440-02-0	22.69	basis	0.137452	
	Tin	7440-31-5	21.87	basis	0.132518	
	Silver	7440-22-4	0.64	basis	0.003891	
					0.003719	0.015%
Micro-bump underfill	Amorphous silica	trade secret	50.00	Filler	0.001860	
	Amine compound	trade secret	19.61	Glue	0.000729	
	Epoxy resin compound-A	trade secret	14.70	Glue	0.000547	
	Epoxy resin compound-B	trade secret	14.71	Glue	0.000547	
	Epoxy resin compound-C	trade secret	0.98	Glue	0.000036	
					0.108653	0.430%
Molding compound	Silica filler (SiO2)	trade secret	86.52	Filler	0.094006	
	Epoxy resin	trade secret	8.05	Glue	0.008745	
	Hardener resin	trade secret	5.43	Glue	0.005903	
					0.356746	1.411%
Interposer die	Silicon	7440-21-3	100.00	basis	0.356746	
					0.027437	0.109%
C4 Bump	Copper	7440-50-8	5.41		0.001483	
	Nickel	7440-02-0	3.22		0.000884	
	Tin	7440-31-5	57.53		0.015785	
	Lead	7439-92-1	33.84	basis	0.009284	
					0.121000	0.479%
Underfill	Bisphenol F type liquid epoxy resin	9003-36-5	20.00	basis	0.024200	
	1,6-Bis(2,3-epoxypropoxy)naphthalene	27610-48-6	15.00	basis	0.018150	
	Bisphenol A type liquid epoxy resin	25068-38-6	5.00	basis	0.006050	
	Amine type hardener	trade secret	5.00	basis	0.006050	
	Silicon dioxide	60676-86-0	51.50	filler	0.062315	
	Carbon black	1333-86-4	1.00	color agent	0.001210	
	Additives	trade secret	2.50	additives	0.003025	
					0.022536	0.089%
Solder paste	Tin	7440-31-5	54.50	metal	0.012282	
	Lead	7439-92-1	33.00	metal	0.007437	
	Organic amine	trade secret	4.90	metal	0.001104	
	Solvent	trade secret	4.90	flux	0.001104	
	Copolymer	trade secret	2.70	basis	0.000608	
					0.197000	0.779%
Capacitor1	BaTiO3	12047-27-7	75.40	Ceramic	0.148538	
	MnO2	1313-13-9	11.00	basis	0.021670	
	Nickel	7440-02-0	4.00	basis	0.007880	
	Copper	7440-50-8	6.80	Inner Electrode	0.013396	
	Glass	65997-17-3	0.20	Outer Electrode	0.000394	
	Nickel	7440-02-0	0.99	basis	0.001946	
	Tin	7440-31-5	1.48	basis	0.002920	
	Lead	7439-92-1	0.13	Plating1	0.000256	
					0.210000	0.830%
Capacitor2	BaTiO3	12047-27-7	75.40	basis	0.158340	
	MnO2	1313-13-9	11.00	basis	0.023100	
	Nickel	7440-02-0	4.00	Outer Electrode	0.008400	
	Copper	7440-50-8	6.80	basis	0.014280	
	Glass	65997-17-3	0.20	basis	0.000420	
	Nickel	7440-02-0	0.99	basis	0.002075	
	Tin	7440-31-5	1.48	Plating1	0.003112	
	Lead	7439-92-1	0.13	Plating2	0.000273	
					10.620000	41.999%
Heat sink	Copper	7440-50-8	98.35	Main material	10.444770	
	Nickel	7440-02-0	1.65	Main material	0.175230	
					0.030000	0.119%
Heat sink adhesive	Silica, vitreous	60676-86-0	59.80	Main material	0.017940	
	Cyclosiloxanes,3a,4,5,6,7,7a-hexahydro-4,7-methano-1H-inden-5-yl Me, Me hydrogen	-	25.00	basis	0.007500	
	Styrene Polymer with 1,3-Butadiene	9003-55-8	10.00	basis	0.003000	
	Boron Nitride	10043-11-5	4.00	basis	0.001200	
	Carbon black	1333-86-4	0.60	basis	0.000180	
	Toluene	108-88-3	0.60	Main material	0.000180	
					0.350000	1.384%
Heat sink TIM	Aluminum oxide	trade secret	86.50	Main material	0.302750	
	Silicone resin	trade secret	7.50	basis	0.026250	
	Zinc Oxide	1314-13-2	4.00	basis	0.014000	
	Alkoxysilane	trade secret	2.00	Main material	0.007000	
					2.165628	8.564%
Solder ball	Tin	7440-31-5	63.00	Main material	1.364346	
	Lead	7439-92-1	37.00	Main material	0.801282	
					9.859070	38.989%
Substrate	Copper	7440-50-8	33.52		3.304708	
	Tin	7440-31-5	0.38		0.037417	
	Lead	7439-92-1	0.22		0.021975	
	Core (E700G)	N/A	49.29		4.860000	
	Plugging (PHP900 IR10F)	N/A	0.69		0.068175	
	ABF (GX-92)	N/A	14.79		1.458000	
	Solder Mask (SR7300G)	N/A	1.10		0.108794	

Revision History

Date	Version	Description of Revisions
1/17/2023	1.0	Initial Xilinx Release.

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