PK868(v1.1) January 09, 2018

100% Material Declaration Data Sheet for UltraScale & UltraScale+ FFVD/FFVE/FFVJ1924

Average Weight : 25.2010 g

Component	Substance Description	CAS # or Description	% of component	Use in product	Component weight / substance weight (in grams)	Component % of total
Silicon die					**0.731163**	**2.901%**
	Silicon	7440-21-3	100.00	basis	0.731163	
Bump					**0.033493**	**0.133%**
	Tin	7440-31-5	98.20	basis	0.032890	
	Silver	7440-22-4	1.80	basis	0.000603	
Underfill					**0.105000**	**0.417%**
	Bisphenol F type liquid	9003-36-5	15.00	basis	0.015750	
	1,6-Bis(2,3-	27610-48-6	10.00	basis	0.010500	
	Bisphenol A type liquid	25068-38-6	5.00	basis	0.005250	
	Amine type hardener	trade secret	10.00	basis	0.010500	
	Silicon dioxide	60676-86-0	58.00	filler	0.060900	
	Carbon black	1333-86-4	1.00	color agent	0.001050	
	Additives	trade secret	1.00	additives	0.001050	
Solder paste					**0.017088**	**0.068%**
	Tin	7440-31-5	96.50	metal	0.016490	
	Silver	7440-22-4	3.00	metal	0.000513	
	Copper	7440-50-8	0.50	metal	0.000085	
Capacitor 1					**0.045600**	**0.181%**
	BaTiO3 type	1304-28-5	30.22	Ceramic	0.013780	
	Titanium dioxide	13463-67-7	15.11		0.006890	
	Misc	-	5.04		0.002298	
	Nickel	7440-02-0	33.44	Inner electrode	0.015249	
	Copper	7440-50-8	11.87	Out electrode	0.005413	
	Silicon dioxide	7631-86-9	1.06		0.000483	
	diboron trioxide; boric	1303-86-2	0.26		0.000119	
	Nickel	7440-02-0	0.81	Plating1	0.000369	
	Tin	7440-31-5	2.19	Plating2	0.000999	
Capacitor 2					**0.022320**	**0.089%**
	BaTiO3 type	1304-28-5	31.67	Ceramic	0.007069	
	Titanium dioxide	13463-67-7	15.83		0.003533	
	Misc	-	5.28		0.001178	
	Ni	7440-02-0	26.67	Inner Electrode	0.005953	
	Cu	7440-50-8	15.10	Outer Electrode	0.003370	
	Silicon dioxide	7631-86-9	1.34		0.000299	
	diboron trioxide; boric	1303-86-2	0.33		0.000074	
	Ni	7440-02-0	1.00	Plating1	0.000223	
	Sn	7440-31-5	2.78	Plating2	0.000620	
Heat sink					**14.190000**	**56.307%**
	Copper	7440-50-8	98.35	Main material	13.955865	
	Nickel	7440-02-0	1.65	Main material	0.234135	
Heat sink adhesive					**0.300000**	**1.190%**
	Aluminium Oxide Al2O3	1344-28-1	80.00	Main material	0.240000	
	Dimethyl siloxane,	68083-19-2	20.00	Main material	0.060000	
Solder ball					**1.607244**	**6.378%**
	Tin	7440-31-5	96.50	Main material	1.550990	
	Silver	7440-22-4	3.00	Main material	0.048217	
	Copper	7440-50-8	0.50	Main material	0.008036	
Substrate					**8.149092**	**32.336%**
	Copper	7440-50-8	38.78		3.160218	
	Tin	7440-31-5	0.67		0.054599	
	Silver	7440-22-4	0.02		0.001630	
	Core	N/A	42.47		3.460919	
	ABF	N/A	16.57		1.350305	
	Solder Mask	N/A	1.49		0.121421	

Revision History

Date	Version	Description of Revisions
2/14/2017	1.0	Initial Xilinx Release.
1/9/2018	1.1	Update Title.

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