100% Material Declaration Data Sheet for UltraScale+ FFVC/FFVD/FFVE900

PK874(v1.1) July 3, 2019

Average Weight : 9.1767 g

Component	Substance Description	CAS # or Description	% of component	Use in product	Component weight / substance weight (in grams)	Component % of total
Silicon die					**0.459033**	**5.002%**
	Silicon	7440-21-3	100.00	basis	0.459033	
Bump					**0.020488**	**0.223%**
	Tin	7440-31-5	98.20	basis	0.020119	
	Silver	7440-22-4	1.80	basis	0.000369	
Underfill					**0.060800**	**0.663%**
	Bisphenol F type liquid epoxy	9003-36-5	15.00	basis	0.009120	
	1,6-Bis(2,3-epoxypropoxy)naphthalene	27610-48-6	10.00		0.006080	
	Bisphenol A type liquid epoxy	25068-38-6	5.00	basis	0.003040	
	Amine type hardener	trade secret	10.00		0.006080	
	Silicon dioxide	60676-86-0	58.00		0.035264	
	Carbon black	1333-86-4	1.00		0.000608	
	Additives	trade secret	1.00	basis	0.000608	
Solder paste					**0.010048**	**0.109%**
	Tin	7440-31-5	82.70	metal	0.008310	
	Silver	7440-22-4	2.70	metal	0.000271	
	Copper	7440-50-8	1.55	metal	0.000156	
	Additives	trade secret	13.05		0.001311	
Capacitor 1					**0.001200**	**0.013%**
	BaTiO3 type	1304-28-5	30.22	Ceramic	0.000363	
	Titanium dioxide	13463-67-7	15.11		0.000181	
	Misc	-	5.04		0.000060	
	Nickel	7440-02-0	33.44	Inner electrode	0.000401	
	Copper	7440-50-8	11.87	Out electrode	0.000142	
	Silicon dioxide	7631-86-9	1.06		0.000013	
	diboron trioxide; boric oxide	1303-86-2	0.26		0.000003	
	Nickel	7440-02-0	0.81	Plating1	0.000010	
	Tin	7440-31-5	2.19	Plating2	0.000026	
Capacitor2					**0.000920**	**0.010%**
	BaTiO3 type	1304-28-5	31.67	Ceramic	0.000291	
	Titanium dioxide	13463-67-7	15.83		0.000146	
	Misc	-	5.28		0.000049	
	Nickel	7440-02-0	26.67	Inner Electrode	0.000245	
	Copper	7440-50-8	15.10	Outer Electrode	0.000139	
	Silicon dioxide	7631-86-9	1.34		0.000012	
	diboron trioxide; boric oxide	1303-86-2	0.33		0.000003	
	Nickel	7440-02-0	1.00	Plating1	0.000009	
	Tin	7440-31-5	2.78	Plating2	0.000026	
Heat sink					**3.946700**	**43.008%**
	Copper	7440-50-8	98.35	Main material	3.881579	
	Nickel	7440-02-0	1.65	Main material	0.065121	
Heat sink adhesive					**0.141000**	**1.537%**
	Aluminium Oxide Al2O3	-	80.00	Main material	0.112800	
	Dimethyl siloxane, dimethylvinyl-terminated	68083-19-2	20.00	Main material	0.028200	
Solder ball					**0.751829**	**8.193%**
	Tin	7440-31-5	96.50	Main material	0.725515	
	Silver	7440-22-4	3.00	Main material	0.022555	
	Copper	7440-50-8	0.50	Main material	0.003759	
Substrate					**3.784682**	**41.242%**
	Copper	7440-50-8	39.74		1.504033	
	Tin	7440-31-5	0.47		0.017788	
	Silver	7440-22-4	0.01		0.000378	
	Core	N/A	42.38		1.603948	
	ABF	N/A	15.89		0.601386	
	Solder Mask	N/A	1.51		0.057149	

Revision History

Date	Version	Description of Revisions
3/1/2017	1.0	Initial Xilinx release.
7/3/2019	1.1	Updated title.