

# 100% Material Declaration Data Sheet for Virtex UltraScale+ VSVA1365

Average Weight : 14.2810 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	0.871648	6.104%
					0.871648	0.263%
Bump	Tin	7440-31-5	98.20			
	Silver	7440-22-4	1.80			
Underfill	Bisphenol F type liquid epoxy resin	9003-36-5	15.00	basis	0.012075	0.088%
	1,6-Bis(2,3-epoxypropoxy)naphthalene	27610-48-6	10.00	basis	0.008050	
	Bisphenol A type liquid epoxy resin	25068-38-6	5.00			
	Amine type hardener	trade secret	10.00	basis	0.008050	
	Silicon dioxide	60678-86-0	58.00	filler	0.046690	
	Carbon black	1333-86-4	1.00	color agent	0.000805	
	Additives	trade secret	1.00	additives	0.000805	
Solder paste	Tin	7440-31-5	85.40	metal	0.010754	
	Silver	7440-22-4	2.66	metal	0.000335	
	Copper	7440-50-8	0.44	metal	0.000055	
	Additives	trade secret	11.50	flux	0.001448	
Solder paste	Tin	7440-31-5	85.40	metal	0.000854	
	Silver	7440-22-4	2.70	metal	0.000027	
	Copper	7440-50-8	0.40	metal	0.000004	
	Additives	trade secret	11.50	flux	0.000115	
Capacitor 1	Barium oxide, obtained by calcining witherite	1304-28-5	7.53	Ceramic	0.000843	0.078%
	Titanium dioxide	13463-67-7	3.77	Ceramic	0.000422	
	Misc	trade secret	1.26		0.000141	
	Nickel	7440-02-0	83.38	Internal Electrode	0.009339	
	Copper	7440-50-8	2.98	Termination	0.000334	
	Silicon dioxide	7631-86-9	0.26	Termination	0.000029	
	diboron trioxide boric oxide	1303-86-2	0.07		0.000008	
	Nickel	7440-02-0	0.19	Plating	0.000021	
	Tin	7440-31-5	0.56	Plating	0.000063	
					0.110400	0.773%
Capacitor 2	Ceramic	66402-68-4	22.75	Dielectric	0.025116	
	Nickel	7440-02-0	30.75	Inner Electrode	0.033948	
	Copper	7440-50-8	41.13	Terminal Electrode	0.045402	
	Nickel	7440-02-0	2.00	Electroplating	0.002208	
	Tin	7440-31-5	3.38	Electroplating	0.003726	
Capacitor 3	BaTiO3	12047-27-7	34.00	Ceramic	0.010200	0.210%
	Nickel	7440-02-0	18.10	Internal Electrode	0.005430	
	Copper	7440-50-8	41.10	Termination	0.012330	
	Nickel	7440-02-0	3.40	Plating	0.001020	
	Tin	7440-31-5	3.40	Plating	0.001020	
Heat sink					4.780000	33.471%
	Carbon	7440-44-0	0.08	Main material	0.003824	
	Silicon	7440-21-3	1.00	Main material	0.047800	
	Manganese	7439-96-5	2.00	Main material	0.095600	
	Phosphorus	7723-14-0	0.05	Main material	0.002151	
	Sulfur	7704-34-9	0.03	Main material	0.001434	
	Chromium	7440-47-3	20.00	Main material	0.956000	
	Nickel	7440-02-0	10.50	Main material	0.501900	
	Iron	7439-89-6	66.345	Main material	3.171291	
					0.032000	0.224%
Heat sink Adhesive	Treated aluminum oxide	trade secret	80.00	Main material	0.025600	
	Dimethyl siloxane, dimethylvinyl-terminated	68083-19-2	20.00	Main material	0.006400	
Solder ball	Tin	7440-31-5	96.50	Main material	1.383870	9.690%
	Silver	7440-22-4	3.00		1.335435	
	Copper	7440-50-8	0.50	Main material	0.041516	
Substrate					0.006919	48.530%
	Copper	7440-50-8	36.74		6.930508	
	Tin	7440-31-5	0.48		2.546542	
	Silver	7440-22-4	0.01		0.033385	
	Core	N/A	43.85		0.001038	
	ABF	N/A	18.10		3.039124	
	Solder Mask	N/A	0.81		1.254559	
				0.055859		

## Revision History

Date	Version	Description of Revisions
1/12/2021	1.0	Initial Xilinx Release.
7/23/2021	1.1	Added Heat sink and Capacitor 2 materials

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