AMD

PK1174(v1.0) November 13, 2023

100% Material Declaration Data Sheet for Versal XQ NSRE/NSRG 1369

Average Weight : **12.2265 g**

Component	Substance Description	CAS # or Description	% of component	Use in product	Component weight / substance weight (in grams)	Component % of total
Silicon die					**0.602170**	**4.925%**
	Silicon	7440-21-3	100.00	basis	0.602170	
Bump					**0.032860**	**0.269%**
	PI1	N/A	20.77	basis	0.006826	
	Ti (UBM)	7440-32-6	0.08	metal	0.000026	
	Cu (UBM)	7440-50-8	0.46	metal	0.000152	
	Cu (bump)	7440-50-8	61.66	metal	0.020262	
	Plating Ni	7440-02-0	0.00	metal	0.000000	
	Silver	7440-22-4	0.31	metal	0.000101	
	Tin	7440-31-5	16.72	metal	0.005493	
Underfill					**0.060000**	**0.491%**
	Bisphenol F type liquid epoxy resin	9003-36-5	20.00	basis	0.012000	
	1,6-Bis(2,3-epoxypropoxy)naphthalene	27610-48-6	5.00	basis	0.003000	
	Amine type hardener	trade secret	7.50	basis	0.004500	
	Silicon dioxide	60676-86-0	61.50	filler	0.036900	
	Carbon black	1333-86-4	1.00	color agent	0.000600	
	Additives	trade secret	5.00	additives	0.003000	
Solder paste					**0.017472**	**0.143%**
	Tin	7440-31-5	86.35	metal	0.015087	
	Silver	7440-22-4	2.70	metal	0.000472	
	Copper	7440-50-8	0.45	metal	0.000079	
	Polymer	trade secret	1.40	flux	0.000245	
	Organic amine	trade secret	3.00	flux	0.000524	
	Solvent	trade secret	4.90	flux	0.000856	
	Diglycolic acid	trade secret	1.20	flux	0.000210	
Capacitor 1					**0.051200**	**0.419%**
	Barium oxide, obtained by calcining witherite	1304-28-5	40.42	Ceramic	0.020695	
	Titanium dioxide	13463-67-7	20.21	-	0.010348	
	Misc	-	6.74	-	0.003449	
	Nickel	7440-02-0	18.95	Internal Electrode	0.009701	
	Copper (Cu)	7440-50-8	5.21	Outer electrode	0.002668	
	Silicon dioxide	7631-86-9	0.46	-	0.000237	
	Diboron trioxide; Boric oxide	1303-86-2	0.12	-	0.000059	
	Nickel	7440-02-0	4.21	Plating	0.002156	
	Tin	7440-31-5	3.68	Plating	0.001886	
Capacitor 2					**0.023000**	**0.188%**
	BaTiO3	12047-27-7	34.00	Ceramic	0.007820	
	Nickel	7440-02-0	18.10	Internal Electrode	0.004163	
	Copper	7440-50-8	41.10	Termination	0.009453	
	Nickel	7440-02-0	3.40	Plating	0.000782	
	Tin	7440-31-5	3.40	Plating	0.000782	
Heat sink					**4.780000**	**39.095%**
	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	
	Sulfu	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	
Heat sink adhesive					**0.020000**	**0.164%**
	Treated Aluminium Oxide	None	80.00	Main material	0.016000	
	Dimethyl siloxane, dimethylvinyl-terminated	68083-19-2	20.00	Main material	0.004000	
Undercoating material					**0.110000**	**0.900%**
	Bisphenol F type liquid epoxy resin	9003-36-5	25.00	basis	0.027500	
	Phenolic resin	trade secret	15.00	basis	0.016500	
	Bisphenol A type liquid epoxy resin	25068-38-6	2.50	basis	0.002750	
	Amine type accelerator	trade secret	2.50	basis	0.002750	
	Carbon black	1333-86-4	0.50	color agent	0.000550	
	Silicon dioxide	60676-86-0	52.00	filler	0.057200	
	Additives	trade secret	2.50	additives	0.002750	
Overcoating material					**0.148000**	**1.210%**
	Dimethyl siloxane, dimethylvinyl-terminated	68083-19-2	35.75	Main material	0.052910	
	Quartz	14808-60-7	35.75	Main material	0.052910	
	Dimethylvinylated and trimethylated silica	68988-89-6	20.00	Main material	0.029600	
	Silicon dioxide	7631-86-9	5.00	Main material	0.007400	
	Dimethyl, methylhydrogen siloxane	68037-59-2	3.00	Main material	0.004440	
	Carbon black	1333-86-4	0.50	Main material	0.000740	
Solder ball					**1.387925**	**11.352%**
	Tin	7440-31-5	63.00	Main material	0.874393	
	Lead	7439-92-1	37.00	Main material	0.513532	
Substrate					**5.251854**	**42.955%**
	Copper	7440-50-8	43.69	Plating	2.294276	
	Tin	7440-31-5	0.28	Plating	0.014929	
	Silver	7440-22-4	0.01	Plating	0.000362	
	Lead	7439-92-1	0.00	Plating	0.000000	
	Core	N/A	37.79	Core	1.984500	
	Plugging	N/A	0.66	Via Plugging	0.035114	
	ABF	N/A	16.33	Build Up	0.857500	
	Solder Mask	N/A	1.24	Solder Mask	0.065172	

Revision History

Date	Version	Description of Revisions
11/13/2023	1.0	Initial AMD Release.

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