



PK1149(v1.1) April 16, 2025

# 100% Material Declaration Data Sheet for XQ Grade Virtex-4 FF1148

Average Weight : 10.8239 g

Component	Substance Description	CAS # or Description	% of component	Use in product	Component weight / substance weight ( in grams)	Component % of total
Silicon die					<b>0.608121</b>	<b>5.618%</b>
	Silicon	7440-21-3	100.00	basis	0.608121	
Bump					<b>0.025414</b>	<b>0.235%</b>
	Tin	7440-31-5	98.20	Main material	0.024957	
	Silver	7440-22-4	1.80	Main material	0.000457	
Underfill					<b>0.075100</b>	<b>0.694%</b>
	Bisphenol F type liquid epoxy resin	9003-36-5	20.00	basis	0.015020	
	Phenolic resin	trade secret	15.00	basis	0.011265	
	Bisphenol A type liquid epoxy resin	25068-38-6	5.00	basis	0.003755	
	Amine type accelerator	trade secret	5.00	basis	0.003755	
	Silicon dioxide	60676-86-0	51.50	filler	0.038677	
	Carbon black	1333-86-4	1.00	color agent	0.000751	
	Additives	trade secret	2.50	additives	0.001878	
Solder paste					<b>0.006656</b>	<b>0.061%</b>
	Tin	7440-31-5	54.50	metal	0.003628	
	Lead	7439-92-1	33.00	metal	0.002196	
	Organic amine	trade secret	4.90	flux	0.000326	
	Solvent	trade secret	4.90		0.000326	
	Copolymer	trade secret	2.70		0.000180	
Capacitor1					<b>0.055040</b>	<b>0.509%</b>
	Barium	12047-27-7	88.86	Ceramic	0.048907	
	Manganese	1313-13-9	1.43	Ceramic	0.000786	
	Nickel	7440-02-0	4.29	Internal Electrode	0.002359	
	Copper	7440-50-8	0.70	Termination	0.000385	
	Boron	1303-86-2	0.01	Termination	0.000008	
	Nickel	7440-02-0	3.57	Plating	0.001966	
	Tin	7440-31-5	0.90	Plating	0.000495	
	Lead	7439-92-1	0.24	Plating	0.000134	
					<b>0.114840</b>	<b>1.061%</b>
Capacitor2					<b>9.266705</b>	
	BaTiO3	12047-27-7	80.69	Ceramic	1.50175	
	MnO2	1313-13-9	1.31		1.042393	
	Nickel	7440-02-0	9.08	Inner Electrode	0.077737	
	Copper	7440-50-8	0.68		0.001767	
	glass oxide (lead free)	65997-17-3	0.02		0.359538	
	Nickel	7440-02-0	3.13	Plating1	0.538865	
	Tin	7440-31-5	4.69	Plating2	0.046819	
				<b>4.965400</b>	<b>45.875%</b>	
Heat sink					<b>4.883471</b>	
	Copper	7440-50-8	98.35	Main material	0.081929	
	Nickel	7440-02-0	1.65	Main material		
				<b>0.218000</b>	<b>2.014%</b>	
Heat sink adhesive					<b>1.092663</b>	<b>10.095%</b>
	Aluminium Oxide Al2O3	1344-28-1	70.00	Main material	0.065400	
					<b>1.092663</b>	<b>10.095%</b>
Solder ball					<b>0.688378</b>	
	Dimethyl siloxane, dimethylvinyl-terminated	68083-19-2	30.00	Main material	0.404285	
					<b>3.662634</b>	<b>33.838%</b>
Substrate					<b>1.379301</b>	
	Copper	7440-50-8	37.66	Metal	0.028134	
	Tin	7440-31-5	0.77	Metal	0.005915	
	Lead	7439-92-1	0.16	Metal	1.629831	
	Core	trade secret	44.50	Core	0.559372	
	ABF	trade secret	15.27	Build Up	0.054261	
	Solder Mask	trade secret	1.48	Solder Mask	0.005820	
					<b>0.005820</b>	

## Revision History

Date	Version	Description of Revisions
11/4/2021	1.0	Initial Xilinx Release.
4/16/2025	1.1	Per XCN21013.

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