



Package Material Composition and Mass Calculation

Customer : Nordic
 Package : VFQFN 48L 6x6PKG
 Device Type : nRF51802-QFAA
 Die Size(mm) : 3.31x3.29
 Total Pkg. Wt (g): **0.11212**

Provided By : Doris
 Date : 2017/1/13
 Rev. :

	name	vendor	material composition	CAS No.	%	mg.(ave)	mg.	%	PPM		
Mold Compound	CEL-9240HF	HITACHI	Solid Epoxy Resin-1	Trade secret	≤10%	3.06482	<u>47.15</u>	<u>42.052%</u>	<u>420,524</u>		
			Solid Epoxy Resin-2	Trade secret	≤2%	0.37721		2.733%	27,334		
			Solid Epoxy Resin-3	Trade secret	≤8%	1.41453		1.262%	12,616		
			Phenol Resin	Trade secret	≤8%	1.88604		1.682%	16,821		
			Carbon black	1333-86-4	Approx. 0.2%	0.09430		0.084%	841		
			Amorphous silica	60676-86-0	78-92%	39.60684		35.324%	353,240		
			Crystal silica	14808-60-7	<5%	0.70727		0.631%	6,308		
Leadframe	C194_Ag	MITSUI(MJA)	Copper(Cu)	7440-50-8	97.22%	53.74810	<u>55.29</u>	<u>49.307%</u>	<u>493,069</u>		
			Iron(Fe)	7439-89-6	2.29%	1.26603		1.129%	11,291		
			Zinc(Zn)	7440-66-6	0.15%	0.08293		0.074%	740		
			Phosphorus(P)	7723-14-0	0.03%	0.01659		0.015%	148		
			Silver(Ag)	7440-22-4	0.31%	0.17138		0.153%	1,529		
Die_1	Silicon		Silicon	7440-21-3	100%		<u>6.64</u>	<u>5.921%</u>	<u>59,206</u>		
Die Attach_1	EN-4900G*	HITACHI	Silver(Ag)	7440-22-4	72-82%	0.69593	<u>0.94</u>	<u>0.839%</u>	<u>8,388</u>		
			Acrylic resin	Trade secret	6-11%	0.08464		0.075%	755		
			Polybutadiene derivative	Trade secret	2-9%	0.04702		0.042%	419		
			Butadiene copolymer	Trade secret	< 2.0 %	0.01411		0.013%	126		
			Acrylate	Trade secret	3-8%	0.05643		0.050%	503		
			Epoxy resin	Trade secret	1-4%	0.02351		0.021%	210		
			Peroxide	Trade secret	< 1.0%	0.00470		0.004%	42		
			Additive	Trade secret	< 2.0%	0.01411		0.013%	126		
Wire_1	2N_Cu wire	NIPPON	Copper(Cu)	7440-50-8	≥96.55%	0.25165	<u>0.25</u>	<u>0.225%</u>	<u>2,254</u>		
			Palladium(Pd)	7440-05-3	≤3.1%	0.00030		0.0003%	3		
			Gold(Au)	7440-57-5	≤0.35%	0.00076		0.0007%	7		
External Plating	Sn plating	SHENMAO	Tin(Sn)	7440-31-5	>99.97%	1.85674	<u>1.86</u>	<u>1.656%</u>	<u>16,560</u>		
Total							<u>112.12</u>	<u>100%</u>	<u>1000000</u>		

DISCLAIMER

- The above material declaration can be used only as reference in identifying the Hazardous material content of the product.
- ASE does not guarantee the Material composition accuracy as it is based on the data provided by outside sources and has not been validated.
- This material declaration does not include data from any active and passive component assembled in the package.
- Due to Leadframe and substrate is belong "re-make product" by other homogeneous material , so it's composition will be different with SDS