



Package Material Composition and Mass Calculation

Customer : NVL
 Package : QFN 48L 6x6PKG
 Device Type : nRF52832-QFAB
 Die Size(mm) : 2.976x3.246
 Total Pkg. Wt (g): 0.11

Provided By : Ingrid
 Date : 2016/6/29
 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>42.366%</u>	<u>423.663</u>	
			Solid Epoxy Resin -2	Trade secret	≤ 2	0.37721		2.754%	27.538	
			Solid Epoxy Resin -3	Trade secret	≤ 8	1.41453		1.271%	12.710	
			Phenol Resin	Trade secret	≤ 8	1.88604		1.695%	16.947	
			Carbon black	1333-86-4	Approx. 0.2%	0.09430		0.085%	847	
			Amorphous silica	60676-86-0	78-92%	39.60684		35.588%	355.877	
			Crystal silica	14808-60-7	<5%	0.70727		0.635%	6.355	
Leadframe	C194_Ag	MITSUI-JP	Copper(Cu)	7440-50-8	97.22%	53.74810	<u>55.29</u>	<u>49.675%</u>	<u>496.750</u>	
			Iron(Fe)	7439-89-6	2.29%	1.26603		1.138%	11.376	
			Zinc(Zn)	7440-66-6	0.15%	0.08293		0.075%	745	
			Phosphorus(P)	7723-14-0	0.03%	0.01659		0.015%	149	
			Silver(Ag)	7440-22-4	0.31%	0.17138		0.154%	1,540	
			0	0	0	0.00000		0.000%	0	
Die_1	Silicon		Silicon	7440-21-3	100%		<u>5.89</u>	<u>5.291%</u>	<u>52.912</u>	
Die Attach_1	EN-4900G*	Hitachi	Silver	7440-22-4	72-82%	0.61734	<u>0.83</u>	<u>0.750%</u>	<u>7.496</u>	
			Acrylic resin	Trade secret	6-11%	0.07508		0.555%	5.547	
			Polybutadiene derivative	Trade secret	2-9%	0.04171		0.067%	675	
			Butadiene copolymer	Trade secret	< 2.0 %	0.01251		0.037%	375	
			Acrylate	Trade secret	3-8%	0.05005		0.011%	112	
			Epoxy resin	Trade secret	1-4%	0.02086		0.045%	450	
			Peroxide	Trade secret	< 1.0%	0.00417		0.019%	187	
			Additive	Trade secret	< 2.0%	0.01251		0.004%	37	
Wire_1	3N_Cu wire	NIPPON	Cu	7440-50-8	≥ 96.9	0.27741	<u>0.28</u>	<u>0.250%</u>	<u>2.496</u>	
			Pd	7440-05-3	≤ 3.1	0.00033		0.2493%	2,493	
External Plating	Sn plating	Shenmao	Sn	7440-31-5	100%	1.85674	<u>1.86</u>	<u>1.668%</u>	<u>16.683</u>	
Total							111.29	100%	100000	

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