ASE ADVANCED SEMICONDUCTOR ENGINEERING,INC.

Package Material Composition and Mass Calculation

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Customer : NVL
Package : VFQFN 48L 6x6x0.9PKG
Device Type : nRF7001-QFAA#1
Die Size(mm) : 3.7660x3.4010
Estimate Pkg. Wt (mg) **111.77**

Provided By : Doris Chao
Date : 03/03/2023
Code : 95-21-0000-0001/07/02

	name	vendor	material composition	CAS No.	%	mg.(ave)	mg.	%	PPM
Mold Compound	EME-G700LA TypeL-A	SUMITOMO					46.80	41.873%	418,734
			Epoxy Resin	Trade secret	5-10%	4.21200		3.769%	37,686
			Phenol Resin	Trade secret	1-5%	1.40400		1.256%	12,562
			Silica(Amorphous) A	60676-86-0	70-80%	36.83160		32.954%	329,544
			Silica(Amorphous) B	7631-86-9	5-10%	4.21200		3.769%	37,686
			Carbon black	1333-86-4	0.1 - 1%	0.14040		0.126%	1,256
LEADFRAME	C194_Ag	MITSUI(MJA)					55.29	49.465%	494,652
			Copper(Cu)	7440-50-8	97.22%	53.74810		48.090%	480,901
			Iron(Fe)	7439-89-6	2.29%	1.26603		1.133%	11,328
			Zinc(Zn)	7440-66-6	0.15%	0.08293		0.074%	742
			Phosphorus(P)	7723-14-0	0.03%	0.01659		0.015%	148
			Silver(Ag)	7440-22-4	0.31%	0.17138		0.153%	1,533
Die_1	Silicon		Silicon	7440-21-3	100%		6.25	5.589%	55,887
Die Attach_1	EN-4900G*	Resonac					1.11	0.990%	9,897
			Silver(Ag)	7440-22-4	72-82%	0.81852		0.732%	7,324
			Cresol Novolac Epoxy Resins	Trade secret	1-4%	0.02765		0.025%	247
			Bisphenol A Diacrylate	Trade secret	6-11%	0.09955		0.089%	891
			Dicyclopentenyl group containir	Trade secret	3-8%	0.06637		0.059%	594
			Butadiene copolymer	Trade secret	<2.0%	0.01659		0.015%	148
			Polybutadiene epoxidized deriv	Trade secret	2-9%	0.05531		0.049%	495
			Peroxy Ketals	Trade secret	< 1.0%	0.00553		0.005%	49
			Substitutedalkoxyalkyl trimetho:	Trade secret	< 1.0%	0.00830		0.007%	74
			Methacrylate multialkoxysubstit	Trade secret	< 1.0%	0.00830		0.007%	74
Wire 2	Cu wire	NIPPON					0.47	0.422%	4,217
			Copper(Cu)	7440-50-8	≥96.55%	0.46936		0.4200%	4,200
			Palladium(Pd)	7440-05-3	≤3.1%	0.00057		0.0005%	5
			Gold(Au)	7440-57-5	≤0.35%	0.00141		0.0013%	13
External Plating	Sn plating	SHENMAO					1.86	1.661%	16,613
			Tin(Sn)	7440-31-5	>99.97%	1.85674		1.661%	16,613
Total							**111.77**	**100%**	**1000000**

DISCLAIMER
- The above material declaration be able to use only as reference in identifying the Hazardous material content of the product and the estimated weight of IC package.
- ASECL verify the content substances based on the SDS report provided by each raw material vendor, not the material composition of the final product.
- ASECL's suppliers consider certain information proprietary, thus, CAS numbers and other limited information may not be available for release.
- Lead frame and substrate are belong to "re-make product" by other homogeneous material. As a result, the composition will be different with SDS report.