



Package Material Composition and Mass Calculation

Customer : NVL
 Package : VFQFN 40L 5x5x0.9PKG
 Device Type : nRF52833-QDAA#1X
 Die Size(mm) : 3.192x3.192
 Total Pkg. Wt (mg): **78.12407**

Provided By : Anna Chang
 Date : 9/25/2019
 Rev. :

	name	vendor	material composition	CAS No.	%	mg.(ave)	mg.	%	PPM		
Mold Compound	EME-G700LA TypeL-A	SUMITOMO	Epoxy Resin	Trade secret	5-10%	2.92500	32.50	41.600%	416,005		
			Phenol Resin	Trade secret	1-5%	0.97500				3,744%	37,440
			Silica(Amorphous) A	60676-86-0	70-80%	25.57750				32.740%	327,396
			Silica(Amorphous) B	7631-86-9	5-10%	2.92500				3.744%	37,440
			Carbon black	1333-86-4	0.1 - 1%	0.09750				0.125%	1,248
Leadframe	C194_Ag	SHINKO	Copper(Cu)	7440-50-8	96.52%	37.09796	38.44	49.198%	491,980		
			Iron(Fe)	7439-89-6	2.30%	0.88402				47.486%	474,860
			Phosphorus(P)	7723-14-0	0.03%	0.01153				1.132%	11,316
			Zinc(Zn)	7440-66-6	0.15%	0.05765				0.015%	148
			Silver(Ag)	7440-22-4	1.00%	0.38436				0.074%	738
Die_1	Silicon		Silicon	7440-21-3	100%		4.97	6.360%	63,603		
Die Attach_1	EN-4900G*	HITACHI	Silver(Ag)	7440-22-4	72-82%	0.65113	0.88	1.126%	11,263		
			Acrylic resin	Trade secret	6-11%	0.07919				0.833%	8,335
			Polybutadiene derivative	Trade secret	2-9%	0.04400				0.101%	1,014
			Butadiene copolymer	Trade secret	< 2.0 %	0.01320				0.056%	563
			Acrylate	Trade secret	3-8%	0.05279				0.017%	169
			Epoxy resin	Trade secret	1-4%	0.02200				0.068%	676
			Peroxide	Trade secret	< 1.0%	0.00440				0.028%	282
			Additive	Trade secret	< 2.0%	0.01320				0.006%	56
Wire_1	Cu wire	NIPPON	Copper(Cu)	7440-50-8	≥96.55%	0.16854	0.17	0.217%	2,166		
			Palladium(Pd)	7440-05-3	≤3.1%	0.00020				0.2157%	2,157
			Gold(Au)	7440-57-5	≤0.35%	0.00051				0.0003%	3
							0.0006%	6			
External Plating	Sn plating	SHENMAO	Tin(Sn)	7440-31-5	>99.97%	1.17049	1.17	1.498%	14,982		
Total							78.12	100%	1000000		

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