

## MATERIAL COMPOSITION DECLARATION

**Date (YYYY/MM/DD)** 1/19/2018  
**MD Revision** Rev. A  
**Customer:** Nordic  
**Package Type:** SMLF 6X6 48lds  
**Target Device:** NRF52832-QFAA  
**Total Package Weight:** 132.81 mg

Material Name	Material Type	Manufacturer	Material Weight (mg)	Material Percentage (%)	Substances	CAS No.	Composition Percentage (%)	Composition Weight in Product (mg)	PPM
Die	Silicon	TSMC	5.889	4.43%	Silicon	7440-21-3	100.00%	5.8890	44,342
Leadframe	C194	HDS	60.292	45.40%	Copper	7440-50-8	97.44%	58.7485	442,352
					Iron	7439-89-6	2.35%	1.4169	10,668
					Metallic Phosphorus	7723-14-0	0.08%	0.0482	363
					Zinc	7440-66-6	0.13%	0.0784	590
Frame Plating	Ag	HDS	1.136	0.86%	Silver	7440-22-4	100.00%	1.1361	8,555
Molding Compound □	G700	Sumitomo	39.681	29.88%	Silica amorphous A	60676-86-0	75.00%	29.7606	224,085
					Silica amorphous B	7631-86-9	14.50%	5.7537	43,323
					Epoxy resin	Proprietary	5.00%	1.9840	14,939
					Phenol resin	Proprietary	5.00%	1.9840	14,939
					Carbon Black	1333-86-4	0.50%	0.1984	1,494
Die Attach	AMK06	Henkel	1.229	0.93%	Silver	7440-22-4	85.00%	1.0446	7,865
					Carbocyclic acrylate	Proprietary	10.00%	0.1229	925
					2-Propenoic acid,2-methyl-,2-[[[2,3,3a,4,7,7a(or 3a,4,5,6,7,7a)-hexahydro-4,7-methano-1H-indenyl]oxy]ethyl ester	68586-19-6	4.50%	0.0553	416
					Z-(3,4-Epoxy)cyclohexyl)ethyl(trimethoxysilane)	3388-04-3	0.50%	0.0061	46
Copper wire	PCC	MKE	22.211	16.72%	Copper	7440-50-8	97.897%	21.7436	163,720
					Palladium	7440-05-3	2.100%	0.4664	3,512
					Silver	7440-22-4	0.001%	0.0002	2
					Others	-	0.002%	0.0004	3
Finished plating	Sn	Sytron	2.372	1.79%	Sn	7440-50-8	100.000%	2.3718	17,859

**Total Mass (mg) 132.81**

**DISCLAIMER on 'Package Weight and Material Composition calculator':** The calculators identified in this report are used solely for determining package and weight composition and not for any other purpose, including but not limited to RoHS compliance. These calculators are used at the request of Customer in accordance with Amkor's current Terms and Conditions. Customer acknowledges that certain data used to generate the package and weight composition are provided by third parties and may not be validated and as such, the associated calculations performed herein are unproven and may produce inconclusive results. All information generated by the use of these calculators is provided "As Is." Amkor makes no warranty or representation, whatsoever, as to the sufficiency or accuracy of any such information it has disclosed hereunder or as to the results to be obtained therefrom and assumes no responsibility arising from any use or misuse thereof.