



## Package Chemistry Substances Analysis Table

<b>Package Type:</b>	<b>VDF 048 (Pb-free Low Halogen)</b>
<b>Dimension:</b>	<b>6 x 4 mm</b>
<b>Weight of Unit Package:</b>	<b>37.6 mg</b>
<b>Temperature rating:</b>	<b>260 °C</b>
<b>MSL:</b>	<b>3</b>
<b>Assembly Location:</b>	<b>BKK</b>
<b>Product is RoHS Compliant</b>	

Description	Chemicals Present	CAS Number	unit weight(mg)	unit weight/package (%)	Amount (ppm)
<b>Silicon Die</b>	#1 Silicon	7440-21-3	4.3438	11.5436	115,436
	subtotal		4.3438	11.5436	115,436
<b>Bond wire</b>	#1 Gold	7440-57-5	0.2491	0.6618	6,618
	subtotal		0.2491	0.6618	6,618
<b>Die Attach</b>	#1 Epoxy resin	Trade Secret	0.2927	0.7778	7,778
	#2 Polytetrafluoroethylene	9002-84-0	0.2395	0.6364	6,364
subtotal			0.5322	1.4142	14,142
<b>Substrate</b>	#1 Aluminum Hydroxide	21645-51-2	1.4352	3.8140	38,140
	#2 Copper	7440-50-8	2.3117	6.1432	61,432
	#3 Gold	7440-57-5	0.0347	0.0923	923
	#4 Nickel	7440-02-0	0.3204	0.8515	8,515
	#5 Epoxy resin	Trade Secret	3.7334	9.9213	99,213
	#6 SiO2 Glass Cloth	65997-17-3	2.8152	7.4813	74,813
subtotal			10.6506	28.3036	283,036
<b>Mold compound</b>	#1 Silica (fused)	60676-86-0	14.3486	38.1310	381,310
	#2 Carbon Black	1333-86-4	0.0422	0.1121	1,121
	#3 Epoxy resin	Trade Secret	2.3380	6.2131	62,131
	#4 Phosphoric organic catalyst	Trade Secret	0.0506	0.1346	1,346
	#5 Metal Oxides	Trade Secret	0.1013	0.2692	2,692
subtotal			16.8807	44.8600	448,600
<b>Solder ball</b>	#1 Tin	7440-31-5	4.8988	13.0185	130,185
	#2 Silver	7440-22-4	0.0497	0.1322	1,322
	#3 Copper	7440-50-8	0.0249	0.0661	661
subtotal			4.9734	13.2167	132,167
<b>TOTAL PACKAGE</b>			<b>37.6298</b>	<b>100.0000</b>	<b>1,000,000</b>

**Disclaimer:**

In general, four decimal values are shown. However, some variance remains from package to package. The mass values presented are thought to be accurate to within 20 percent. The report does not include materials not intentionally added to our products (impurities), or material concentrations less than 1 ppm.

### Document History Page

Document Title: Material Declaration Datasheet (MDDS) - FBGA048 (VDF048) - BKK - Au Wire  
Document Number: 002-12880

Rev.	ECN No.	Orig. of Change	Description of Change
**	5261322	AAC	NEW RELEASE