



## Package Chemistry Substances Analysis Table

<b>Package Type:</b>	<b>TNA063 (Pb-free solder balls)</b>
<b>Dimension:</b>	<b>11x9x1.2 mm</b>
<b>Weight of Unit Package:</b>	<b>205 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	44.3453	21.6318	216,318
	<b>subtotal</b>		<b>44.3453</b>	<b>21.6318</b>	<b>216,318</b>
<b>Bond wire</b>	#1 Gold	7440-57-5	0.5976	0.2915	2,915
	<b>subtotal</b>		<b>0.5976</b>	<b>0.2915</b>	<b>2,915</b>
<b>Die Attach</b>	#1 Epoxy resin	Trade secret	3.7219	1.8155	18,155
	#2 Silica (fused)	60676-86-0	0.9305	0.4539	4,539
<b>subtotal</b>			<b>4.6523</b>	<b>2.2694</b>	<b>22,694</b>
<b>Substrate</b>	#1 Aluminum Hydroxide	21645-51-2	13.0244	6.3534	63,534
	#2 Copper	7440-50-8	19.1729	9.3526	93,526
	#3 Gold	7440-57-5	26.7615	13.0543	130,543
	#4 Nickel	7440-02-0	0.6526	0.3183	3,183
	#5 Epoxy resin	Trade secret	9.8489	4.8043	48,043
	#6 SiO2 Glass Cloth	65997-17-3	25.5479	12.4624	124,624
<b>subtotal</b>			<b>95.0083</b>	<b>46.3454</b>	<b>463,454</b>
<b>Mold compound</b>	#1 Silica (fused)	60676-86-0	36.0186	17.5700	175,700
	#2 Carbon Black	1333-86-4	0.1059	0.0517	517
	#3 Epoxy resin	Trade secret	5.8689	2.8629	28,629
	#4 Phosphoric organic catalyst	Trade secret	0.1271	0.0620	620
	#5 Metal Oxides	Trade secret	0.2542	0.1240	1,240
<b>subtotal</b>			<b>42.3748</b>	<b>20.6706</b>	<b>206,706</b>
<b>Solder ball</b>	#1 Tin	7440-31-5	17.3913	8.4836	84,836
	#2 Silver	7440-22-4	0.5407	0.2637	2,637
	#3 Copper	7440-50-8	0.0901	0.0440	440
<b>subtotal</b>			<b>18.0221</b>	<b>8.7912</b>	<b>87,912</b>
<b>TOTAL PACKAGE</b>			<b>205.0004</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**

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<b>Rev.</b>	<b>ECN No.</b>	<b>Orig. of Change</b>	<b>Description of Change</b>
**	5266717	AAC	Initial Release.