



### Package Material Composition and Mass Calculation

Customer: MAXIM  
 Package: 23x23 HSBGA  
 Device Type: 87-45200+004 (PB Free)  
 Die Size: 7100 x 7300 um  
 Total Pck. Weight (mg): 2869.34754

Provided By: Barry M.  
 Date: 2008/10/21

	name	composition	CAS No.	%	mg.(ave)	mg.	%	PPM
Mold Compound	Sumitomo G770J					<u>717.2264</u>	<u>25.00</u>	<u>249.961</u>
		Silica (fused)	60676-86-0	75-95%	639.765949		22.30	222,966
		Epoxy resinA	Trade Secret	1% - 5%	21.516792		0.75	7,499
		Epoxy resinB	Trade Secret	1% - 5%	21.517		0.75	7,499
		Phenolic resin	Trade Secret	1% - 5%	21.516792		0.75	7,499
		Metal Hydroxide	Trade Secret	0.5% - 2.5%	10.758396		0.37	3,749
		Carbon Black	1333-86-4	0.1-0.5%	2.1516792		0.07	750
Substrate	BT-substrate					<u>754.323000</u>	<u>26.29</u>	<u>262.890</u>
		SiO2	60676-86-0	10-12	45.26		1.58	15,773
		Acrylic	Trade Secret	9-11	75.43		2.63	26,289
		Epoxy	29690-82-2, 68541-56-0, 25068-38-6	6-10	60.35		2.10	21,031
		Bisphenol	13676-54-5	10-20	123.67		4.31	43,101
		Triazol	25722-66-1	15-20	132.42		4.62	46,150
		Cu	7440-50-8	30-40	301.73		10.52	105,156
		Ni	7440-02-0	1-2	11.31		0.39	3,943
		Au	7429-90-5	0.2-0.9	4.15		0.14	1,446
		Die	Silicon	Silicon	7440-21-3		51.476	<u>51.476</u>
Die Attach	ABL-2100A					<u>8.780</u>	<u>0.31</u>	<u>3,060</u>
		Silver	7440-22-4	70-90	6.94		0.24	2,417
		Epoxy Resin	Trade Secret	1-10	0.48		0.02	168
		Functionalized Ester	Trade Secret	1-10	0.48		0.02	168
		Diester	Trade Secret	5-20	0.88		0.03	306
Wire	20_um (99.99% Au)					<u>6.179</u>	<u>0.22</u>	<u>2,153</u>
		Au	7429-90-5	99.99	6.178		0.22	2,153
		Ion Impurities	Trade Secret	0.01	0.0006		0.00	0
External Plating	Solder Ball (96.5Sn3.0Ag0.5Cu)_0.6mm					<u>532.37184</u>	<u>18.55</u>	<u>185.538</u>
		Tin (Sn)	7440-31-5	96.5	513.74		17.90	179,044

		Silver (Ag)	7440-22-4	3.0	15.97	0.56	5,566	
		Cu	7440-50-8	0.5	2.66	0.09	928	
Heatslug	(Copper/Nickel/Chrome)					<b>798.9913</b>		
		Copper	7440-50-8	99.4	794.20	<u>27.8457</u>	<u>278,457</u>	
		Nickel	7440-02-0	0.5-0.7	4.47	0.1559	1,559	
		Chrome	-	0.04-0.06	0.32	0.0111	111	
<b>Total</b>						<b>2869.34754</b>	<b>100</b>	<b>1000000</b>

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.

<b>Will products contain the following RoHS defined substances?</b>			
Mercury and its Compounds	Yes	No	<b>X</b>
Cadmium and its Compounds	Yes	No	<b>X</b>
Lead and its Compounds	Yes	No	<b>X</b>
Hexavalent Chromium and its Compounds	Yes	No	<b>X</b>
Polybrominated biphenyls (PBB)	Yes	No	<b>X</b>
Polybrominated diphenyl ethers (PBDE)	Yes	No	<b>X</b>
Is this Product meet ROHS Compliance?	Yes	<b>X</b>	No