



**Package Material Composition and Mass Calculation**

Customer: GSI  
 Package: : LBGA 13x15 165L  
 Device Type: : GS816xxxxDD  
 Die Size: : 5523X4927  
 Total Pck. Weight (g): 0.43904

Provided By: TW Sun  
 Date: 2015/08/12

	name	composition	CAS No.	%	mg.(ave)	mg.	%	PPM
Mold Compound	KE-G2250LKDS Kyocera	Silica	60676-86-0	75-95%	142.26	158.07	36.00	360,036
		Epoxy resin	Trade Secret	1-10%	8.69		1.98	19,802
		Phenolic resin	Trade Secret	2-7%	7.11		1.62	16,202
Substrate	BT-substrate	SiO2	60676-86-0	10-12	17.82	161.19	36.71	367,142
		Acrylic	Trade Secret	9-11	16.12		4.06	40,588
		Epoxy	29690-82-2, 68541-56-0, 25068-38-6	6-10	12.90		3.67	36,714
		Bisphenol	13676-54-5	10-20	24.18		2.94	29,371
		Triazol	25722-66-1	15-20	28.21		5.51	55,071
		Cu	7440-50-8	30-40	58.67		6.42	64,250
		Ni	7440-02-0	1-2	2.42		13.36	133,621
		Au	7440-57-5	0.2-0.9	0.89		0.55	5,507
							0.20	2,019
Die	Silicon	Silicon	7440-21-3		13.88	13.88	3.16	31,614
Die Attach	ATB-125	Cresol-epichlorohydrin-formaldehyde polymer	37382-79-9	35-50	10.10	23.77	5.41	54,141
		Rubber modified epoxy	Trade Secret	20-35	6.54		2.30	23,010
		Aromatic amine	Trade Secret	5-10	1.78		1.49	14,889
		Silica, hydrophobic amorphous-fumed	67762-90-7	1-5	0.71		0.41	4,061
		Silica-based glycidyl ether	2530-83-8	1-5	0.71		0.16	1,624
		4,4'-isopropylidenediphenol	80-05-7	<0.5	0.06		0.16	1,624
							0.01	135
Golden Wire	25um	Au	7440-57-5	99.99	2.06	2.06	0.47	4,692
		Ion Impurities	Trade Secret	0.01	0.00	0.47	4,692	
External Plating	Solder Ball (63Sn / 37Pb)	Tin (Sn)	7440-31-5	63	50.44	80.07	18.24	182,375
		Lead (Pb)	7439-92-1	37	29.63		11.49	114,896
							6.75	67,479
<b>Total</b>						<b>439.04</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.

Will products contain the following RoHS defined substances?		
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