



**Package Material Composition and Mass Calculation**

Customer: GSI  
 Package: : LPGA 13x15 165L  
 Device Type: : GS8182xxxBD  
 Die Size: : 8090X8989  
 Total Pck. Weight (g): 0.46083

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	34.30	343,012
		Epoxy resin	Trade Secret	1-10%	8.69		30.87	308,710
		Phenolic resin	Trade Secret	2-7%	7.11		1.89	18,866
							1.54	15,436
Substrate	BT-substrate	SiO2	60676-86-0	10-12	17.82	161.19	34.98	349,782
		Acrylic	Trade Secret	9-11	16.12		3.87	38,668
		Epoxy	29690-82-2, 68541-56-0, 25068-38-6	6-10	12.90		3.50	34,978
		Bisphenol	13676-54-5	10-20	24.18		2.80	27,983
		Triazol	25722-66-1	15-20	28.21		5.25	52,467
		Cu	7440-50-8	30-40	58.67		6.12	61,212
		Ni	7440-02-0	1-2	2.42		12.73	127,303
		Au	7440-57-5	0.2-0.9	0.89		0.52	5,247
							0.19	1,924
Die	Silicon	Silicon	7440-21-3		35.43	35.43	7.69	76,883
Die Attach	ATB-125	Cresol-epichlorohydrin-formaldehyde polymer	37382-79-9	35-50	10.10	23.77	5.16	51,581
		Rubber modified epoxy	Trade Secret	20-35	6.54		2.19	21,922
		Aromatic amine	Trade Secret	5-10	1.78		1.42	14,185
		Silica, hydrophobic amorphous-fumed	67762-90-7	1-5	0.71		0.39	3,869
		Silica-based glycidyl ether	2530-83-8	1-5	0.71		0.15	1,547
		4,4'-isopropylidenediphenol	80-05-7	<0.5	0.06		0.15	1,547
				0.01	129			
Golden Wire	23um	Au	7440-57-5	99.99	2.30	2.30	0.50	4,991
		Ion Impurities	Trade Secret	0.01	0.00		0.50	4,990
							0.00	0
External Plating	Solder Ball (63Sn / 37Pb)	Tin (Sn)	7440-31-5	63	50.44	80.07	17.38	173,752
		Lead (Pb)	7439-92-1	37	29.63		10.95	109,464
							6.43	64,288
<b>Total</b>						<b>460.83</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	X
Cadmium and its Compounds	Yes	No	X
Lead and its Compounds	Yes	No	X
Hexavalent Chromium and its Compounds	Yes	No	X
Polybrominated biphenyls (PBB)	Yes	No	X
Polybrominated diphenyl ethers (PBDE)	Yes	No	X
Is this Product meet ROHS Compliance?	Yes	X	No