



100% Material Declaration Data Sheet for FFG668

PK090 (v1.4) May 13, 2016

Average Weight : 4.9150 g

Component	Substance Description	CAS # or Description	% of Component	Use in product	Component Weight	Component % of total
Silicon Die					0.430700	8.747%
	Silicon	7440-21-3	100.000		0.430700	
Solder Bump					0.021443	0.436%
	Tin	7440-31-5	63.000		0.013509	
	Lead	7439-92-1	37.000		0.007934	
Underfill					0.044000	0.894%
	Silica	60676-86-0	70.000		0.030800	
	Epoxy Resin A	9003-36-5	20.000		0.008800	
	Epoxy Resin B	25068-38-6	3.000		0.001320	
Heat Spreader					0.003080	60.929%
	Hardener	19900-65-3	7.000		0.003080	
					3.000000	
Heat Spreader Adhesive	Copper	7440-50-8	99.900		2.997000	1.076%
	Nickel	7440-02-0	0.100		0.003000	
Heat Spreader Adhesive					0.032500	1.076%
	Zinc oxide	1314-13-2	35.000		0.017500	
Solder Balls	Other	NA	65.000		0.032500	11.333%
					0.558020	
	Tin	7440-31-5	95.500		0.532909	
	Silver	7440-22-4	4.000		0.022321	
Substrate	Copper	7440-50-8	0.500		0.002790	16.645%
					0.819560	
	Copper	7440-50-8	44.28	metal layer	0.362901	
	Tin	7440-31-5	1.01	metal layer	0.008278	
	Lead	7439-92-1	0.14	metal layer	0.001147	
	Silver	7440-22-4	0.02		0.000164	
	Core	NA	39.72		0.325529	
	ABF	NA	10.67		0.087447	
Solder Mask	NA	4.16		0.034094		

Revision History

Date	Version	Description of Revisions
03/04/2016	1.0	Initial Initial release.
05/01/2006	1.1	100% Material Declaration.
09/22/2006	1.2	Updated component descriptions.
07/20/2010	1.3	Updated Heat Spreader substance description
05/13/2016	1.4	Updated Substrate

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