



**Product / Package Information**

Package	CSP BGA
Body Size (mm)	12 X 12
Ball Count	196
Terminal Finish	SnAgCu
Ball Size (mm)	0.45

**Environmental Information**

RoHS Compliant	Yes
High Temperature Compliant	Yes
Halogen Free Compliant	Yes
REACH SVHC Compliant	Yes

**Materials Declaration**

**Molding Compound**

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level		
				Percentage (%)	PPM	Percentage (%)	PPM	
Other inorganic materials	Silica	60676-86-0	1.44 E-01	85.60	856000	35.47		354730
Thermosets	Epoxy Resin	Proprietary	8.48 E-03	5.04	50400	2.09		20886
Thermosets	Phenol Resin	Proprietary	3.38 E-03	2.01	20100	0.83		8330
Other organic materials	Phenol Novolac	9003-35-4	3.38 E-03	2.01	20100	0.83		8330
Other inorganic materials	Metal Hydroxide	Proprietary	8.48 E-03	5.04	50400	2.09		20886
Other inorganic materials	Carbon Black	1333-86-4	5.05 E-04	0.3	3000	0.12		1243
Subtotal			1.68 E-01	100.0	1000000	41.44		414404

**Laminate**

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level		
				Percentage (%)	PPM	Percentage (%)	PPM	
Copper & its alloys	Copper Foil	7440-50-8	1.27 E-02	6.17	61700	3.12		31207
Other inorganic materials	Silica	Proprietary	1.89 E-02	9.21	92120	4.66		46593
Thermoset	Epoxy resin	Proprietary	1.94 E-02	9.45	94500	4.78		47797
Others	Proprietary	Proprietary	1.29 E-02	6.29	62900	3.18		31814
Other inorganic materials	Calcium oxide	Proprietary	4.50 E-03	2.19	21900	1.11		11077
Other inorganic materials	Magnesium oxide	Proprietary	4.50 E-03	2.19	21900	1.11		11077
Other inorganic materials	Aluminum oxide	Proprietary	4.44 E-03	2.16	21600	1.09		10925
Other inorganic materials	Boron oxide	Proprietary	2.24 E-03	1.09	10900	0.55		5513
Other organic materials	Dicyanamide		7.19 E-04	0.35	3500	0.18		1770
Other inorganic materials	Zinc	7440-66-6	4.11 E-05	0.02	200	0.01		101
Other inorganic materials	Chromium	7440-47-3	6.16 E-06	0.003	30	0.002		15
Other organic materials	N,N-dimethylformamide		4.11 E-06	0.002	20	0.001		10
	Laminate Core Subtotal		8.04 E-02	39.13	391270	19.79		197900
Other organic materials	Acrylate resin	Proprietary	5.40 E-03	2.63	26300	1.33		13302
Other inorganic materials	Barium Sulfate	7727-43-7	4.79 E-03	2.33	23300	1.18		11785
Thermoset	Epoxy resin	85954-11-6	2.75 E-03	1.34	13400	0.68		6778
Other organic materials	Dipropylene glycol monomethyl ether	34590-94-8	2.01 E-03	0.98	9800	0.50		4957
Other organic materials	Solvent naphtha (petroleum), Heavy arom	64742-94-5	1.93 E-03	0.94	9400	0.48		4754
Other organic materials	Diethylene glycol monoethyl ether acetat	112-15-2	1.58 E-03	0.77	7700	0.39		3895
Other organic materials	Acrylic ester monomer	Proprietary	8.01 E-04	0.39	3900	0.20		1973
Other inorganic materials	Talc	14807-96-6	5.55 E-04	0.27	2700	0.14		1366
Other organic materials	Morpholine derivative	Proprietary	5.34 E-04	0.26	2600	0.13		1315
Other organic materials	Urethane resin	Proprietary	2.67 E-04	0.13	1300	0.07		658
Other organic materials	Silane	Proprietary	1.85 E-04	0.09	900	0.05		455
Other organic materials	Triazine derivative	Proprietary	6.16 E-05	0.03	300	0.02		152
Other organic materials	Pigment green	Proprietary	6.16 E-05	0.03	300	0.02		152
Other inorganic materials	Silica	7440-50-8	6.16 E-05	0.03	300	0.02		152
Other organic materials	Pigment yellow	Proprietary	6.16 E-06	0.003	30	0.002		15
	Soldermask Subtotal		1.56 E-02	10.22	102230	5.17		51707
Copper & its alloys	Copper	7440-50-8	9.99 E-02	48.66	486600	24.61		246117
Nickel & its alloys	Nickel	7440-02-0	3.57 E-03	1.74	17400	0.88		8801
Precious metals	Gold	7440-57-5	5.14 E-04	0.25	2500	0.13		1284
Subtotal			2.05 E-01	100.0	1000000	51		505788

**Solder Ball**

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level		
				Percentage (%)	PPM	Percentage (%)	PPM	
Tin & its alloys	Tin	7440-31-5	1.54 E-02	96.50	965000	3.80		38020
Tin & its alloys	Silver	7440-22-4	4.80 E-04	3.00	30000	0.12		1182
Tin & its alloys	Copper	7440-50-8	8.00 E-05	0.50	5000	0.02		197
Subtotal			1.60 E-02	100	1000000	3.94		39399

**Bond Wires**

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level		
				Percentage (%)	PPM	Percentage (%)	PPM	
Precious metals	Gold	7440-57-5	4.95 E-05	99	990000	0.01		122
Precious metals	Palladium	7440-05-3	5.00 E-07	1	10000	0.0001		1
Subtotal			5.00 E-05	100	1000000	0.01		123

**Chip**

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level		
				Percentage (%)	PPM	Percentage (%)	PPM	
Other inorganic materials	Doped Silicon	7440-21-3	1.53 E-02	100	1000000	3.76		37577

**Die Attach**

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level		
				Percentage (%)	PPM	Percentage (%)	PPM	
Other inorganic materials	Silicon dioxide	Proprietary	4.60 E-04	41.86	418600	0.11		1134
Other organic materials	Diester resin	Proprietary	2.81 E-04	25.58	255800	0.07		693
Other organic materials	Functionalized ester	Proprietary	2.05 E-04	18.60	186000	0.05		504
Thermoset	Epoxy resin	Proprietary	7.68 E-05	6.98	69800	0.02		189
Other organic materials	Polymeric materia	Proprietary	7.68 E-05	6.98	69800	0.02		189
Subtotal			1.10 E-03	100.00	1000000	0.27		2709

<b>Package Totals</b>			<b>Weight (g)</b>	<b>4.06 E-01</b>		<b>Percentage (%)</b>	<b>100.00</b>	<b>PPM</b>	<b>1000000</b>
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Note: The information provided in this declaration are true to the best of ADI's knowledge  
 ADI derived most of the information listed in this declaration from documents provided by third parties, and assumes no liability to any inaccuracy of such information.



ADI Proprietary



**Product / Package Information**

Package	CSP BGA - Flip Chip
Body Size (mm)	12 X 12
Ball Count	196
Terminal Finish	SnAgCu with RoHS exemption
Ball Size (mm)	0.45

**Environmental Information**

RoHS Compliant	Yes - with exemption
High Temperature Compliant	Yes
Halogen Free Compliant	Yes
REACH SVHC Compliant	Yes

**Materials Declaration**

**Molding Compound**

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Other inorganic material:	Silica	60676-86-0	3.88 E-02	86.20	862000	17.63	176272
Thermosets	Epoxy resin	Proprietary	2.56 E-03	6.00	60000	1.23	12270
Thermosets	Phenol Resin	Proprietary	2.56 E-03	6.00	60000	1.23	12270
Other inorganic material:	Metal Hydroxide	Proprietary	6.41 E-04	1.50	15000	0.31	3067
Other inorganic material:	Carbon Black	1333-86-4	1.28 E-04	0.30	3000	0.06	613
Subtotal	Subtotal		4.27 E-02	100.0	1000000	20.45	204492

**Laminate**

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Copper & its alloys	Copper Foil	7440-50-8	1.06 E-02	11.27	112700	5.07	50707
Glass	Fiber Glass	65997-17-3	3.01 E-03	3.20	32000	1.44	14398
Thermoset	Bismaleimide Triazine	Proprietary	1.88 E-03	2.00	20000	0.90	8999
Thermoset	Epoxy Resin	7328-97-4	1.88 E-03	2.00	20000	0.90	8999
	Laminate Core Subtotal		3.49 E-02	13.47	134700	6.31	63102
Other inorganic material:	Barium sulfate	7727-43-7	1.13 E-02	12.00	120000	5.40	53992
Other organic material:	Dipropylene glyco monomethyl ethe	Proprietary	3.29 E-03	3.50	35000	1.57	15748
Other inorganic material:	Talc containing no asbestiform fiber	14807-96-6	1.88 E-03	2.00	20000	0.90	8999
Other organic material:	Morpholine derivatvte	Proprietary	1.88 E-03	2.00	20000	0.90	8999
Other organic material:	Solvent naphtha(petroleum), heavy aror	Proprietary	6.58 E-03	7.00	70000	3.15	31495
	Soldermask Subtotal		2.49 E-02	26.50	265000	11.92	119236
Copper & its alloys	Copper	7440-50-8	4.88 E-02	51.90	519000	23.35	233514
Nickel & its alloys	Nickel	7440-02-0	2.53 E-03	2.69	26900	1.21	12103
Precious Metals	Gold	7440-57-5	4.13 E-04	0.44	4400	0.20	1980
Subtotal			9.40 E-02	100.0	1000000	45	449931

**Solder Ball**

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Tin & its alloys	Tin	7440-31-5	2.99 E-02	96.50	965000	14.31	143079
Tin & its alloys	Silver	7440-22-4	9.29 E-04	3.00	30000	0.44	4448
Tin & its alloys	Copper	7440-50-8	1.55 E-04	0.50	5000	0.07	741
Subtotal			3.10 E-02	100	1000000	14.83	148269

**Chip**

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Other inorganic material:	Doped Silicon	7440-21-3	2.54 E-02	100	1000000	12.16	121642

**Wafer Bumps**

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Other inorganic material:	Tin	7440-31-5	5.54 E-03	63.00	179070	2.66	26550
Other organic material:	Lead	7439-92-1	3.26 E-03	37.00	105168	1.56	15593
Subtotal			8.80 E-03	100.00	284238	4.21	42144

**Underfill**

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Other inorganic material:	Silicon dioxide	60676-86-0	3.71 E-03	53.0	530000	1.78	17767
Other organic material:	Bisphenol F epoxy resin	9003-96-5	1.40 E-03	20.0	200000	0.67	6705
Thermoset	Phenolic resin	Proprietary	1.05 E-03	15.0	150000	0.50	5029
Others	Additive	Proprietary	3.50 E-04	5.0	50000	0.17	1676
Other organic material:	Bisphenol A epoxy resin	25068-38-6	2.10 E-04	3.0	30000	0.10	1006
Other organic material:	Amine accelerator	Proprietary	2.10 E-04	3.0	30000	0.10	1006
Other inorganic material:	Carbon Black	1333-86-4	7.00 E-05	1.0	10000	0.03	335
Subtotal			7.00 E-03	100.0	1000000	3.35	33523

<b>Package Totals</b>			<b>Weight (g)</b>	<b>2.09 E-01</b>		<b>Percentage (%)</b>	<b>100.00</b>	<b>PPM</b>	<b>1000000</b>
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