Product / Package Information

Package	CSP BGA
Body Size	12 X 12 mm
Ball Count	164
Terminal Finish	SnAgCu
Ball Size	0.45 mm
MS Number	MS011251A + MS011200A

Environmental Information

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

Materials Declaration

Underfill

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Other inorganic materials	Silicon dioxide	60676-86-0	3.32 E-03	66.34	663400	0.97	9654
Other organic materials	p-(2,3-epoxypropoxy)-N,N-bis(2,3-epoxypropyl)aniline	5026-74-4	5.10 E-04	10.20	102000	0.15	1484
Thermosets	Bisphenol F type liquid epoxy resin	9003-36-5	5.10 E-04	10.20	102000	0.15	1484
Other organic materials	Amine type hardener	Proprietary	3.83 E-04	7.65	76530	0.11	1114
Thermosets	Bisphenol A type liquid epoxy resin	25068-38-6	1.28 E-04	2.55	25500	0.04	371
Others	Additive	Proprietary	1.28 E-04	2.55	25500	0.04	371
Other inorganic materials	Carbon Black	1333-86-4	2.55 E-05	0.51	5100	0.01	74
Subtotal	Subtotal		5.00 E-03	100.00	1000030	1.46	14553

Mold Compound

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Other inorganic materials	Silica	60676-86-0	1.40 E-01	86.20	862000	40.84	408353
Thermosets	Epoxy resin	Proprietary	9.77 E-03	6.00	60000	2.84	28424
Thermosets	Phenol Resin	Proprietary	9.77 E-03	6.00	60000	2.84	28424
Other inorganic materials	Metal Hydroxide	Proprietary	2.44 E-03	1.50	15000	0.71	7106
Other inorganic materials	Carbon Black	1333-86-4	4.88 E-04	0.30	3000	0.142	1421
Subtotal	Subtotal		1.63 E-01	100.00	1000000	47.37	473728

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Copper & its alloys	Copper Foil	7440-50-8	4.84 E-03	5.85	58497	1.41	14101
Composite	Glass Cloth	65997-17-3	2.16 E-02	26.08	260809	6.29	62868
Others	Inorganic Filler	Proprietary	8.64 E-03	10.43	104324	2.51	25147
Thermoset	Epoxy Resin	7328-97-4	4.32 E-03	5.22	52162	1.26	12574
Thermoset	Flame Resistant Epoxy Resin	Proprietary	4.32 E-03	5.22	52162	1.26	12574
Thermoset	Heat Resistant Resin	Proprietary	4.32 E-03	5.22	52162	1.26	12574
	Laminate Core Subtotal		**4.32 E-02**	**52.16**	521618	12.57	125737
Other organic materials	Acrylic resin	Proprietary	2.91 E-03	3.51	35133	0.85	8469
Other inorganic materials	Barium sulfate, Silica, Talc	7727-43-7 / 14807-96-6	1.52 E-03	1.84	18369	0.44	4428
Thermoset	Epoxy Resin	Proprietary	1.34 E-03	1.61	16123	0.39	3886
Other organic materials	Acrylic Monomer	Proprietary	5.18 E-04	0.63	6257	0.15	1508
Other organic materials	Aromatic Carbonyl Compound	Proprietary	2.59 E-04	0.31	3128	0.08	754
Other organic materials	Leveling Agents & others	Proprietary	3.99 E-05	0.05	481	0.01	116
Other organic materials	Amine Compound	Proprietary	3.32 E-05	0.04	401	0.01	97
Other organic materials	Phthalocyanine Blue, Organic Pigment	Proprietary	2.66 E-05	0.03	321	0.01	77
	Soldermask Subtotal		6.64 E-03	8.02	80213	1.93	19336
Copper & its alloys	Copper plating	7440-50-8	2.79 E-02	33.64	336357	8.11	81079
Tin & its alloys	Tin	7440-31-5	2.65 E-04	96.50	965000	0.08	771
Tin & its alloys	Silver	7440-22-4	8.23 E-06	3.00	30000	0.002	24
Tin & its alloys	Copper	7440-50-8	1.37 E-06	0.50	5000	0.0004	4
	SOP Subtotal		2.74 E-04	100.00	1000000	0.08	799
	SOP Subtotal		**2.74 E-04**	**0.33**	3314	0.08	799
Subtotal			8.28 E-02	100.00	1000000	24	241051

Solder Ball

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Tin & its alloys	Tin	7440-31-5	5.60 E-02	96.50	965000	16.29	162856
Tin & its alloys	Silver	7440-22-4	1.74 E-03	3.00	30000	0.51	5063
Tin & its alloys	Copper	7440-50-8	2.90 E-04	0.50	5000	0.08	844
Subtotal			5.80 E-02	100	1000000	16.88	168763

Chip

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Other inorganic materials	Doped Silicon	7440-21-3	2.16 E-02	100	1000000	6.29	62923

Solder Bump

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Tin & its alloys	Tin	7440-31-5	1.25 E-02	98.20	982000	3.63	36293
Tin & its alloys	Silver	7440-22-4	2.29 E-04	1.80	18000	0.07	665
Subtotal			1.27 E-02	100.00	1000000	3.70	36958

Polyimide

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Other organic materials	Resin	Proprietary	1.08 E-04	67.95	679500	0.03	314
Other organic materials	Tetraethylene Glycol Dimethacrylate	109-17-1	2.31 E-05	14.56	145600	0.01	67
Other organic materials	Trifluoroacetic Anhydride	407-25-0	9.25 E-06	5.83	58300	0.003	27
Other organic materials	4,4'-Oxydiphthalic Anhydride	1823-59-2	9.25 E-06	5.83	58300	0.003	27
Other organic materials	2-Hydroxyethyl Methacrylate	868-77-9	9.25 E-06	5.83	58300	0.003	27
Subtotal			1.59 E-04	100.00	1000000	0.05	462

UBM

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Nickel and its alloys	Nickel	7440-02-0	4.88 E-04	90.85	908532	0.142	1419
Copper & its alloys	Copper	7440-50-8	3.68 E-05	6.86	68554	0.011	107
Other non-ferrous metals and alloys	Titanium	7440-32-6	1.23 E-05	2.29	22914	0.004	36
			5.37 E-04	100.00	1000000	0.16	1562

	Weight (g)	Percentage (%)	PPM
Package Totals	**3.44 E-01**	100.00	1000000

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.