Product / Package Information

Package	BGA_ED
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

Heat Spreader Epoxy 1

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Other inorganic materials	Aluminum oxide	Proprietary	7.00 E-03	70.0	700000	1.03	10318
Other organic materials	Dimethyl siloxane	68083-19-2	3.00 E-03	30.0	300000	0.44	4422
Subtotal	Subtotal		1.00 E-02	100.0	1000000	1.47	14740

Heat Spreader Epoxy 2

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Precious metals	Silver	7440-22-4	2.74 E-03	85.6	855600	0.40	4036
Other organic materials	Methacrylate	7534-94-3	2.57 E-04	8.0	80200	0.04	378
Other organic materials	Bismaleimide	Proprietary	2.05 E-04	6.4	64200	0.03	303
Subtotal	Subtotal		3.20 E-03	100.0	1000000	0.47	4717

Heat Spreader

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Copper & its alloys	Copper	7440-50-8	3.30 E-01	99	990000	48.69	486909
Nickel & its alloys	Nickel	7440-02-0	3.34 E-03	1	10000	0.49	4918
Subtotal			3.34 E-01	100	1000000	49.18	491827

Laminate

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Copper & its alloys	Copper Foil	7440-50-8	2.45 E-02	11.10	111000	3.61	36131
Composite	Glass Cloth	65997-17-3	4.90 E-02	22.17	221700	7.22	72164
Other inorganic materials	Inorganic Filler	Proprietary	1.96 E-02	8.87	88700	2.89	28872
Thermoset	Epoxy	7328-97-4	9.78 E-03	4.43	44300	1.44	14420
Thermoset	Flame Resistant Epoxy Resin	Proprietary	9.78 E-03	4.43	44300	1.44	14420
Thermoset	Heat Resistant Resin	Proprietary	9.78 E-03	4.43	44300	1.44	14420
	Laminate Core Subtotal		1.22 E-01	55.43	554300	18.04	180426
Other organic materials	Acrylic Resin	Proprietary	2.69 E-03	1.22	12200	0.40	3971
Other inorganic materials	Barium Sulfate, Silica, Talc	7727-43-7/ 14807-96-6	1.41 E-03	0.64	6400	0.21	2083
Other organic materials	Epoxy Resin	Proprietary	1.24 E-03	0.56	5600	0.18	1823
Other organic materials	Acrylic Monomer	Proprietary	4.86 E-04	0.22	2200	0.07	716
Other organic materials	Aromatic Carbonyl Compound	Proprietary	2.43 E-04	0.11	1100	0.04	358
Other inorganic materials	Levelling Agents & Others	Proprietary	4.42 E-05	0.02	200	0.01	65
Other organic materials	Amine Compound	Proprietary	2.21 E-05	0.01	100	0.003	33
Other organic materials	Phthalcyanine Blue, Organic Pigment	Proprietary	2.21 E-05	0.01	100	0.003	33
	Soldermask Subtotal		6.16 E-03	2.79	27900	0.91	9081
Copper & its alloys	Copper Plating	7440-50-8	9.17 E-02	41.52	415190	13.51	135145
Tin & its alloys	Tin	7440-31-5	5.52 E-04	0.25	2500	0.08	814
Tin & its alloys	Silver	7440-22-4	2.21 E-05	0.01	100	0.003	33
Tin & its alloys	Copper	7440-50-8	2.21 E-06	0.001	10	0.0003	3
Subtotal			2.21 E-01	100.00	1000000	32.55	325502

Solder Ball

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Tin & its alloys	Tin	7440-31-5	6.69 E-02	96.50	965000	9.86	98613
Tin & its alloys	Silver	7440-22-4	2.08 E-03	3.00	30000	0.31	3066
Tin & its alloys	Copper	7440-50-8	3.47 E-04	0.50	5000	0.05	511
Subtotal			6.93 E-02	100	1000000	10.22	102190

Chip

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Other inorganic materials	Doped Silicon	7440-21-3	3.32 E-02	100	1000000	4.90	48991

Wafer Bumps

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Tin & its alloys	Tin	7440-31-5	4.09 E-03	98.20	982000	0.60	6027
Tin & its alloys	Silver	7440-22-4	7.50 E-05	1.80	18000	0.01	110
Subtotal			4.16 E-03	100.00	1000000	0.61	6138

Underfill

Description	Substance	CAS#	Weight (g)	Homogeneous Material Level		Component Level	
				Percentage (%)	PPM	Percentage (%)	PPM
Other inorganic materials	Silicon dioxide	60676-86-0	2.20 E-03	55.08	550840	0.32	3248
Other organic materials	p-(2,3-epoxypropoxy)-N,N-bis(2,3-epoxypropyl)aniline	5026-74-4	6.78 E-04	16.95	169490	0.10	999
Thermosets	Bisphenol F type liquid epoxy resin	9003-36-5	6.78 E-04	16.95	169490	0.10	999
Other organic materials	Amine type hardener	Proprietary	2.54 E-04	6.36	63560	0.04	375
Thermosets	Bisphenol A type liquid epoxy resin	25068-38-6	8.48 E-05	2.12	21190	0.01	125
Others	Additive	Proprietary	8.48 E-05	2.12	21190	0.01	125
Other inorganic materials	Carbon Black	1333-86-4	1.70 E-05	0.42	4240	0.002	25
Subtotal			4.00 E-03	100.00	1000000	0.59	5896

	Weight (g)	Percentage (%)	PPM
Package Totals	**6.78 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.

ANALOG DEVICES

ADI Proprietary