MICROCHIP

Semiconductor Device Type: HQB-TFBGA-144-10x10x1.2mm-SAC305

Sub-Component	Basic Substance	CAS Number	% Total Weight	mg/part	ppm
Mold Compound	Silica(Fused)	60676-86-0,7631-86-9	45.45	80.80	454451
Mold Compound	Epoxy resin	Trade Secret	3.97	7.06	39699
Mold Compound	Phenol resin	Trade Secret	2.61	4.64	26118
Mold Compound	Carbon Black	1333-86-4	0.21	0.37	2089
Substrate	Morpholine derivative	Trade Secret	0.07	0.12	695
Substrate	Barium Sulfate	7727-43-7	0.80	1.42	7994
Substrate	Silica	7631-86-9	0.02	0.03	174
Substrate	Talc	14807-96-6	0.07	0.12	695
Substrate	Dipropylene Glycol Monomethyl Ether	34590-94-8	0.42	0.74	4171
Substrate	4,4'-Bis(2,3-epoxypropoxy)-3,3',5,5'-tetramethylbiphenyl	85954-11-6	0.36	0.65	3649
Substrate	Continuous Filament Fiber Glass	65997-17-3	1.65	2.94	16522
Substrate	Bismaleimide Triazine, Epoxy Resin,Other Resin	105391-33-1 25722-66-1 9003-36-5	2.70	4.81	27035
Substrate	Aluminum hydroxide	21645-51-2	0.65	1.16	6509
Substrate	Continuous Filament Fiber Glass	65997-17-3	1.65	2.94	16522
Substrate	Bismaleimide Triazine, Epoxy Resin,Other Resin	105391-33-1 25722-66-1 9003-36-5	2.70	4.81	27035
Substrate	Aluminum hydroxide	21645-51-2	0.65	1.16	6509
Substrate	Copper	7440-50-8	16.59	29.49	165881
Substrate	Nickel	7440-02-0	0.60	1.07	6005
Substrate	Gold	7440-57-5	0.12	0.21	1172
Die	Silicon	7440-21-3	4.89	8.70	48920
Die Attach Film	Butadiene, acrylonitrile polymer, carboxy-terminated, polymer with bisphenol A and epichlorohydrin	68610-41-3	1.53	2.71	15269
Die Attach Film	Formaldehyde, polymer with (chloromethyl)oxirane	37382-79-9	0.57	1.01	5661
Die Attach Film	Dapsone	80-08-0	0.06	0.10	564
Die Attach Film	Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7	0.06	0.10	587
Die Attach Film	[3-(2,3-Epoxypropoxy)propyl]trimethoxysilane	2530-83-8	0.05	0.08	470
Die Attach Film	1,3-Butadiene, acrylonitrile copolymer, 3-carboxy-1-cyano-1-methylpropyl-terminated	68891-46-3	0.05	0.08	470
Die Attach Film	Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700)	25068-38-6	0.05	0.08	470
Bonding Wire	Copper	7440-50-8	0.88	1.56	8768
Bonding Wire	Palladium	7440-05-3	0.02	0.03	194
Bonding Wire	Gold	7440-57-5	0.00	0.01	31
Solder Ball	Tin	7440-31-5	10.39	18.48	103929
Solder Ball	Silver	7440-22-4	0.12	0.21	1162
Solder Ball	Copper	7440-50-8	0.06	0.10	581
		TOTALS:	**100.00**	**177.79**	**1,000,000**

177.79 mg Total Mass

Package Homogeneous Materials

92.87	(mg) Total	Mold Compound	% of Total Weight	52.24
	Silica(Fused)	60676-86-0,7631-86-9	87.00	
	Epoxy resin	Trade Secret	7.60	
	Phenol resin	Trade Secret	5.00	
	Carbon Black	1333-86-4	0.40	
		Total	**100.00**	

51.66	(mg) Total	Substrate	% of Total Weight	29.06
	Morpholine derivative	Trade Secret	0.24	
	Barium Sulfate	7727-43-7	2.75	
	Silica	7631-86-9	0.06	
	Talc	14807-96-6	0.24	
	Dipropylene Glycol Monomethyl Ether	34590-94-8	1.44	
	4,4'-Bis(2,3-epoxypropoxy)-3,3',5,5'-tetramethylbiphenyl	85954-11-6	1.26	
	Continuous Filament Fiber Glass	65997-17-3	5.69	
	Bismaleimide Triazine, Epoxy Resin,Other Resin	105391-33-1 25722-66-1 9003-36-5	9.30	
	Aluminum hydroxide	21645-51-2	2.24	
	Continuous Filament Fiber Glass	65997-17-3	5.69	
	Bismaleimide Triazine, Epoxy Resin,Other Resin	105391-33-1 25722-66-1 9003-36-5	9.30	
	Aluminum hydroxide	21645-51-2	2.24	
	Copper	7440-50-8	57.09	
	Nickel	7440-02-0	2.07	
	Gold	7440-57-5	0.40	
		Total	**100.00**	

8.70	(mg) Total	Die	% of Total Weight	4.89
	Silicon	7440-21-3	100.00	
		Total	**100.00**	

4.18	(mg) Total	Die Attach Film	% of Total Weight	2.35
	Butadiene, acrylonitrile polymer, carboxy-terminated, polymer with bisphenol A and epichlorohydrin	68610-41-3	65.00	
	Formaldehyde, polymer with (chloromethyl)oxirane	37382-79-9	24.10	
	Dapsone	80-08-0	2.40	
	Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7	2.50	
	[3-(2,3-Epoxypropoxy)propyl]trimethoxysilane	2530-83-8	2.00	
	1,3-Butadiene, acrylonitrile copolymer, 3-carboxy-1-cyano-1-methylpropyl-terminated	68891-46-3	2.00	
	Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700)	25068-38-6	2.00	
		Total	**100.00**	

1.60	(mg) Total	Bonding Wire	% of Total Weight	0.90
	Copper	7440-50-8	97.50	
	Palladium	7440-05-3	2.16	
	Gold	7440-57-5	0.34	
		Total	**100.00**	

18.79	(mg) Total	Solder Ball	% of Total Weight	10.57
	Tin	7440-31-5	98.35	
	Silver	7440-22-4	1.10	
	Copper	7440-50-8	0.55	
177.79		**Total**	**100.00**	100.00

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