

Chemicals contained in products

Package-type

Epson Package name; **PFBGA10U-144**

JEITA Package name; **(P-TFBGA-144-1010-0.80)**

Solder ball Type; **Lead(Pb) Free**

Weight; **0.19 [g]** *Note1

Part	Subpart	Subpart weight [mg]	Substance name	CAS No.	Content ※2		Application		
					[mg]	[ppm]			
IC Die	IC Die	16	Silicon	7440-21-3	16.0	999894	Base material		
			Boron	7440-42-8	0.00003	2	Dopant		
			Phosphorus	7723-14-0	0.00008	5	Dopant		
			Aluminum	7429-90-5	0.0003	20	Metalization		
			Arsenic *Note3	7440-38-2	0.00008	5	Dopant		
			Fluorine *Note3	7782-41-4	0.00003	2	Dopant		
			Titanium *Note3	7440-32-6	0.0003	20	Metalization		
			Molybdenum *Note3	7439-98-7	0.0003	20	Metalization		
			Tungsten *Note3	7440-33-7	0.0005	30	Metalization		
			Cobalt *Note3	7440-48-4	0.00003	2	Metalization		
	Stress buffer coat	0.32	Polyimide	-	0.32	1000000	Stress buffer coat *Note4		
Package	Substrate	40	Glass-cloth	-	2.09	52140	Reinforcement		
			Silica	-	1.05	26180	Filler		
			Halogenated compound(Brominations epoxy)	-	3.26	81400	Flame retardant		
			Epoxy resin	-	3.46	86280	Base material		
			Acrylate resin	-	2.19	54600	Base material		
			Pigment	-	1.88	46800	Additive		
			Organic filler	-	0.10	2600	Filler		
			Arsenic	7440-38-2	0.001	26	Burning resistance		
			Chromium compound	-	0.0008	20	Burning resistance		
			Copper	7440-50-8	25.2	629154	Copper foil		
			Nickel	7440-02-0	0.68	16900	Plating		
			Gold	7440-57-5	0.16	3900	Plating		
			Die Bonding material	2.8	Epoxy resin	-	1.9	670000	Adhesive
					Acrylic resin	-	0.92	330000	Adhesive
	Solder ball	28	Tin	7440-31-5	26.7	957500	Solder ball		
			Silver	7440-22-4	0.98	35000	Solder ball		
			Copper	7440-50-8	0.21	7500	Solder ball		
	Bonding Wire	1.8	Gold	-	1.8	1000000	Conductor		
	Mold resin	101	Epoxy resin	-	5.1	50000	Base material		
			Antimony trioxide	1309-64-4	0.30	3000	Flame retardant		
			Halogenated compound(Brominations epoxy)	-	0.51	5000	Flame retardant		
			Silica	60676-86-0/-	89.4	885000	Filler		
			Carbon black	1333-86-4	0.20	2000	Coloring agent		
			Hardening chemical(ex:Phenol resin)	-	4.0	40000	Base material		
			Organic phosphorous compound	-	0.51	5000	Hardening accelerator		
			others	-	1.0	10000	Additive		

Regarding the information of chemical substances

*Note1 The weight might be somewhat different depending on an individual built-in IC-chip specification like the size etc.

*Note2 Content data are estimated values based on supplier information and intended levels of content in product.

Actual measurements may vary from these values somewhat.

*Note3 Use or not-use of these substances depends on individual built-in IC-chip specification.

*Note4 The stress buffer coat may not be used depending on the individual model.