

# Chemicals contained in products

## Package-type

Epson Package name; **PFBGA10U-121**

JEITA Package name; **(P-TFBGA-121-1010-0.80)**

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

Weight; **0.23 [g]\*Note1**

Part	Subpart	Subpart weight [mg]	Substance name	CAS No.	Content ※2		Application		
					[mg]	[ppm]			
IC Die	IC Die	14	Silicon	7440-21-3	13.7	999894	Base material		
			Boron	7440-42-8	0.00003	2	Dopant		
			Phosphorus	7723-14-0	0.00007	5	Dopant		
			Aluminum	7429-90-5	0.0003	20	Metalization		
			Arsenic *Note3	7440-38-2	0.00007	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	0.0004	30	Metalization		
			Cobalt *Note3	7440-48-4	0.00003	2	Metalization		
	Stress buffer coat	0.27	ポリイミド	-	0.27	1000000	Stress buffer coat *Note4		
Package	Substrate	51	Glass-cloth	-	2.7	52140	Reinforcement		
			Silica	-	1.3	26180	Filler		
			Halogenated compound(Brominations epoxy)	-	4.2	81400	Flame retardant		
			Epoxy resin	-	4.4	86280	Base material		
			Acrylate resin	-	2.8	54600	Base material		
			Pigment	-	2.4	46800	Additive		
			Organic filler	-	0.13	2600	Filler		
			Arsenic	7440-38-2	0.001	26	Burning resistance		
			Chromium compound	-	0.001	20	Burning resistance		
			Copper	7440-50-8	32	629154	Copper foil		
			Nickel	7440-02-0	0.87	16900	Plating		
			Gold	7440-57-5	0.20	3900	Plating		
			Die Bonding material	3.6	Epoxy resin	-	2.4	670000	Adhesive
					Acrylic resin	-	1.2	330000	Adhesive
	Solder ball	30	Tin	7440-31-5	29	950000	Solder ball		
			Silver	7440-22-4	1.2	40000	Solder ball		
			Copper	7440-50-8	0.3	10000	Solder ball		
	Bonding Wire	3.9	Gold	-	3.9	1000000	Conductor		
	Mold resin	131	Epoxy resin	-	6.6	50000	Base material		
			Silica	60676-86-0/-	115	873000	Filler		
			Carbon black	1333-86-4	0.26	2000	Coloring agent		
			Hardening chemical(ex:Phenol resin)	-	6.6	50000	Base material		
			Organic phosphorous compound	-	0.66	5000	Hardening accelerator		
			others	-	2.6	20000	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.