

# Chemicals contained in products

## Package-type

Epson Package name; **PFBGA10U-180 / Mold : Halogen free**

JEITA Package name; **(P-TFBGA-180-1010-0.65)**

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	33	Silicon	7440-21-3	32.6	999894	Base material
			Boron	7440-42-8	0.00007	2	Dopant
			Phosphorus	7723-14-0	0.0002	5	Dopant
			Aluminum	7429-90-5	0.0007	20	Metalization
			Arsenic *Note3	7440-38-2	0.0002	5	Dopant
			Fluorine *Note3	7782-41-4	0.00007	2	Dopant
			Titanium *Note3	7440-32-6	0.0007	20	Metalization
			Molybdenum *Note3	7439-98-7	0.0007	20	Metalization
			Tungsten *Note3	7440-33-7	0.0010	30	Metalization
			Cobalt *Note3	7440-48-4	0.00007	2	Metalization
	Stress buffer coat	0.65	Polyimide	-	0.65	1000000	Stress buffer coat *Note4
Package	Substrate	39	Glass-cloth	-	2.0	52140	Reinforcement
			Silica	-	1.0	26180	Filler
			Halogenated compound(Brominations epoxy)	-	3.1	81400	Flame retardant
			Epoxy resin	-	3.3	86280	Base material
			Acrylate resin	-	2.1	54600	Base material
			Pigment	-	1.8	46800	Additive
			Organic filler	-	0.10	2600	Filler
			Arsenic	7440-38-2	0.001	26	Burning resistance
			Chromium compound	-	0.001	20	Burning resistance
			Copper	7440-50-8	24.2	629154	Copper foil
			Nickel	7440-02-0	0.65	16900	Plating
			Gold	7440-57-5	0.15	3900	Plating
			Die Bonding material	2.7	Epoxy resin	-	1.8
	Acrylic resin	-			0.90	330000	Adhesive
	Solder ball	14	Tin	7440-31-5	13.5	957500	Solder ball
			Silver	7440-22-4	0.49	35000	Solder ball
			Copper	7440-50-8	0.10	7500	Solder ball
	Bonding Wire	1.8	Gold	7440-57-5	1.8	1000000	Conductor
	Mold resin	100	Epoxy resin	-	4.9	50000	Base material
			Silica	60676-86-0/-	87.00	873000	Filler
			Carbon black	1333-86-4	0.20	2000	Coloring agent
			Hardening chemical(ex:Phenol resin)	-	4.9	50000	Base material
			Organic phosphorous compound	-	0.49	5000	Hardening accelerator
		others	-	2.0	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.