

Chemicals contained in products

Package-type

Epson Package name; **PFBGA12U-208 / Mold : Halogen free**

JEITA Package name; **(P-TFBGA-208-1212-0.65)**

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

Weight; **0.28 [g] *Note1**

Part	Subpart	Subpart weight [mg]	Substance name	CAS No.	Content ※2		Application
					[mg]	[ppm]	
IC Die	IC Die	23	Silicon	7440-21-3	23.0	999894	Base material
			Boron	7440-42-8	0.00005	2	Dopant
			Phosphorus	7723-14-0	0.0001	5	Dopant
			Aluminum	7429-90-5	0.0005	20	Metalization
			Arsenic *Note3	7440-38-2	0.0001	5	Dopant
			Fluorine *Note3	7782-41-4	0.00005	2	Dopant
			Titanium *Note3	7440-32-6	0.0005	20	Metalization
			Molybdenum *Note3	7439-98-7	0.0005	20	Metalization
			Tungsten *Note3	7440-33-7	0.0007	30	Metalization
			Cobalt *Note3	7440-48-4	0.00005	2	Metalization
	Stress buffer coat	0.46	Polyimide	-	0.46	1000000	Stress buffer coat *Note4
Package	Substrate	60	Glass-cloth	-	3.1	52140	Reinforcement
			Silica	-	1.5	26180	Filler
			Halogenated compound(Brominations epoxy)	-	4.8	81400	Flame retardant
			Epoxy resin	-	5.2	86280	Base material
			Acrylate resin	-	3.2	54600	Base material
			Pigment	-	2.8	46800	Additive
			Organic filler	-	0.15	2600	Filler
			Arsenic	7440-38-2	0.002	26	Burning resistance
			Chromium compound	-	0.001	20	Burning resistance
			Copper	7440-50-8	37.5	629154	Copper foil
			Nickel	7440-02-0	1.0	16900	Plating
			Gold	7440-57-5	0.23	3900	Plating
			Die Bonding material	4.2	Epoxy resin	-	2.8
	Acrylic resin	-			1.4	330000	Adhesive
	Solder ball	18	Tin	7440-31-5	16.8	957500	Solder ball
			Silver	7440-22-4	0.61	35000	Solder ball
			Copper	7440-50-8	0.13	7500	Solder ball
	Bonding Wire	4.2	Gold	7440-57-5	4.2	1000000	Conductor
	Mold resin	171	Epoxy resin	-	8.5	50000	Base material
			Silica	60676-86-0/-	149.40	873000	Filler
			Carbon black	1333-86-4	0.34	2000	Coloring agent
			Hardening chemical(ex:Phenol resin)	-	9	50000	Base material
			Organic phosphorous compound	-	0.89	5000	Hardening accelerator
others			-	3.4	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.