Chemicals contained in products

EPSON
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Package-type

Epson Package name; **PFBGA5U-60 / Mold : Halogen free**
JEITA Package name; **(P-TFBGA-060-0505-0.50)**
Solder ball Type; **Lead(Pb) Free**
Weight; **0.050** [g] *Note1

Part	Subpart	Subpart weight [mg]	Substance name	CAS No.	Content ※2 [mg]	Content ※2 [ppm]	Application
IC Die	IC Die	7.7	Silicon	7440-21-3	7.7	999894	Base material
			Boron	7440-42-8	0.00002	2	Dopant
			Phosphorus	7723-14-0	0.00004	5	Dopant
			Aluminum	7429-90-5	0.0002	20	Metalization
			Arsenic *Note3	7440-38-2	0.00004	5	Dopant
			Fluorine *Note3	7782-41-4	0.00002	2	Dopant
			Titanium *Note3	7440-32-6	0.0002	20	Metalization
			Molybdenum *Note3	7439-98-7	0.0002	20	Metalization
			Tungsten *Note3	7440-33-7	0.0002	30	Metalization
			Cobalt *Note3	7440-48-4	0.00002	2	Metalization
	Stress buffer coat	0.15	Polyimide	-	0.15	1000000	Stress buffer coat *Note4
Package	Substrate	9.9	Glass-cloth	-	0.52	52140	Reinforcement
			Silica	-	0.26	26180	Filler
			Halogenated compound(Brominations epoxy)	-	0.78	81400	Flame retardant
			Epoxy resin	-	0.85	86280	Base material
			Acrylate resin	-	0.54	54600	Base material
			Pigment	-	0.47	46800	Additive
			Organic filler	-	0.026	2600	Filler
			Arsenic	7440-38-2	0.0003	26	Burning resistance
			Chromium compound	-	0.0002	20	Burning resistance
			Copper	7440-50-8	6.3	629154	Copper foil
			Nickel	7440-02-0	0.17	16900	Plating
			Gold	7440-57-5	0.039	3900	Plating
	Die Bonding material	0.70	Epoxy resin	-	0.47	670000	Adhesive
			Acrylic resin	-	0.23	330000	Adhesive
	Solder ball	4.9	Tin	7440-31-5	4.7	957500	Solder ball
			Silver	7440-22-4	0.17	35000	Solder ball
			Copper	7440-50-8	0.037	7500	Solder ball
	Bonding Wire	0.48	Gold	7440-57-5	0.48	1000000	Conductor
	Mold resin	26	Epoxy resin	-	1.3	50000	Base material
			Silica	60676-86-0/-	22.800	873000	Filler
			Carbon black	1333-86-4	0.05	2000	Coloring agent
			Hardening chemical(ex:Phenol resin)	-	1.3	50000	Base material
			Organic phosphorous compound	-	0.130	5000	Hardening accelerator
			others	-	0.5	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.