Chemicals contained in products

EPSON
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Package-type

Epson Package name; **TQFP24-144PIN**
JEITA Package name; **P-TQFP144-1616-0.40**
Lead frame plating; **Lead(Pb) Free**
Weight; **0.67** [g] *Note1

Part	Subpart	Subpart weight [mg]	Substance name	CAS No.	Content *Note2 [mg]	Content *Note2 [ppm]	Application
IC Die	IC Die	15	Silicon	7440-21-3	15.4	999894	Base material
			Boron	7440-42-8	0.00003	2	Dopant
			Phosphorus	7723-14-0	0.0001	5	Dopant
			Aluminum	7429-90-5	0.0003	20	Metalization
			Arsenic *Note3	7440-38-2	0.0001	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	0.3	Polyimide	-	0.31	1000000	Stress buffer coat *Note4
Package	Die Bonding material	2.5	Silver	7440-22-4	1.7	680000	Base material
			Epoxy resin	-	0.51	205000	Adhesive
			Phenol resin	-	0.19	75000	Adhesive
			Inorganic powder	-	0.10	40000	Additive
	Lead Frame Plating	14	Tin	7440-31-5	13.2	980000	Solder
			Bismuth	7440-69-9	0.27	20000	Solder
	Lead Frame	194	Copper	7440-50-8	184	945000	Conductor
			Silver	7440-22-4	0.97	5000	Inner lead plating
			Others *Note5	-	9.7	50000	Additive
	Bonding Wire	3.3	Gold	7440-57-5	3.3	1000000	Conductor
	Mold resin	441	Epoxy resin	-	22.0	50000	Base material
			Antimony trioxide	1309-64-4	1.8	4000	Flame retardant
			Halogenated compound(Brominations epoxy)	-	4.0	9000	Flame retardant
			Silica	60676-86-0/-	355	807000	Filler
			Carbon black	1333-86-4	6.6	15000	Coloring agent
			Hardening chemical(ex:Phenol resin)	-	26.4	60000	Base material
			Organic phosphorous compound	-	2.20	5000	Hardening accelerator
			others	-	22.0	50000	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.
*Note5 The nickel, zinc, tin, silicon, iron, and the zinc oxide are included for the Cu type. And the carbon, silicon, and manganese are included for 42alloy type.