Chemicals contained in products

EPSON
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Package-type

Epson Package name; **QFP13-64PIN**
JEITA Package name; **P-LQFP064-1010-0.50**
Lead frame plating; **Lead(Pb) Free**
Weight; **0.35** [g] *Note1

Part	Subpart	Subpart weight [mg]	Substance name	CAS No.	Content *Note2		Application
					[mg]	[ppm]	
IC Die	IC Die	12	Silicon	7440-21-3	12.1	999894	Base material
			Boron	7440-42-8	0.00002	2	Dopant
			Phosphorus	7723-14-0	0.00006	5	Dopant
			Aluminum	7429-90-5	0.0002	20	Metalization
			Arsenic *Note3	7440-38-2	0.00006	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	0.0004	30	Metalization
			Cobalt *Note3	7440-48-4	0.00002	2	Metalization
	Stress buffer coat	0.24	Polyimide	-	0.24	1000000	Stress buffer coat *Note4
Package	Die Bonding material	1.9	Silver	7440-22-4	1.2	640000	Base material
			Epoxy resin	-	0.37	205000	Adhesive
			Phenol resin	-	0.15	80000	Adhesive
			Inorganic powder	-	0.09	48000	Additive
			Bismuth compound	-	0.05	27000	Ion trap
	Lead Frame Plating	7.4	Tin	7440-31-5	7.4	980000	Solder
			Bismuth	7440-69-9	0.15	20000	Solder
	Lead Frame	76	Copper	7440-50-8	71.4	945000	Conductor
			Silver	7440-22-4	0.38	5000	Inner I ead plating
			Others *Note5	-	3.8	50000	Additive
	Bonding Wire	1.4	Gold	7440-57-5	1.4	1000000	Conductor
	Mold resin	251	Epoxy resin	-	27.6	110000	Base material
			Antimony trioxide	1309-64-4	2.1	8000	Flame retardant
			Halogenated compound(Brominations epoxy)	-	2.1	8000	Flame retardant
			Silica	60676-86-0/-	189	753500	Filler
			Carbon black	1333-86-4	2.5	10000	Coloring agent
			Hardening chemical(ex:Phenol resin)	-	27.6	110000	Base material
			Organic phosphorous compound	-	0.13	500	Hardening accelerator

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.