Chemicals contained in products

Package-type

Epson Package name; **TQFP13-64PIN / Halogen free**
JEITA Package name; **P-TQFP064-1010-0.50**
Lead frame plating; **Lead(Pb) Free**
Weight; **0.26** [g] *Note1

Part	Subpart	Subpart weight [mg]	Substance name	CAS No.	Content *Note2 [mg]	[ppm]	Application
IC Die	IC Die	4.6	Silicon	7440-21-3	4.6	999894	Base material
			Boron	7440-42-8	0.00001	2	Dopant
			Phosphorus	7723-14-0	0.0000	5	Dopant
			Aluminum	7429-90-5	0.0001	20	Metalization
			Arsenic *Note3	7440-38-2	0.0000	5	Dopant
			Fluorine *Note3	7782-41-4	0.00001	2	Dopant
			Titanium *Note3	7440-32-6	0.0001	20	Metalization
			Molybdenum *Note3	7439-98-7	0.0001	20	Metalization
			Tungsten *Note3	7440-33-7	0.000	30	Metalization
			Cobalt *Note3	7440-48-4	0.00001	2	Metalization
	Stress buffer coat	0.09	Polyimide	-	0.09	1000000	Stress buffer coat *Note4
Package	Die Bonding material	2.06	Silver	7440-22-4	1.87	910000	Base material
			Acrylic resin	-	0.14	70000	Adhesive
			Epoxy resin	-	0.04	20000	Adhesive
	Lead Frame Plating	1.70	Tin	7440-31-5	1.70	1000000	Solder
	Lead Frame	103.07	Copper	7440-50-8	97.40	945000	Conductor
			Silver	7440-22-4	0.52	5000	Inner lead plating
			Others *Note5	-	5.2	50000	Additive
	Bonding Wire	0.27	Copper	7440-50-8	0.27	1000000	Conductor
	Mold resin	148.25	Epoxy resin	-	7.41	50000	Base material
			Phenol resin	-	7.41	50000	Base material
			Silica	60676-86-0/-	132.98	897000	Filler
			Carbon black	1333-86-4	0.44	3000	Coloring agent

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.