Chemicals contained in products

EPSON
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Package-type

Epson Package name; **QFP12-48PIN / Halogen free**
JEITA Package name; **P-LQFP048-0707-0.50**
Lead frame plating; **Lead(Pb) Free**
Weight; **0.18** [g] *Note1

Part	Subpart	Subpart weight [mg]	Substance name	CAS No.	Content *Note2 [mg]	Content *Note2 [ppm]	Application
IC Die	IC Die	7.5	Silicon	7440-21-3	7.5	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	0.14	Polyimide	-	0.14	1000000	Stress buffer coat *Note4
Package	Die Bonding material	0.46	Silver	7440-22-4	0.42	910000	Base material
			Acrylic resin	-	0.03	70000	Adhesive
			Epoxy resin	-	0.01	20000	Adhesive
	Lead Frame Plating	1.33	Tin	7440-31-5	1.33	1000000	Solder
	Lead Frame	59.47	Copper	7440-50-8	56.20	945000	Conductor
			Silver	7440-22-4	0.30	5000	Inner l ead plating
			Others *Note5	-	2.97	50000	Additive
	Bonding Wire	0.50	Gold	7440-57-5	0.50	1000000	Conductor
	Mold resin	110.89	Epoxy resin	-	5.54	50000	Base material
			Phenol resin	-	5.54	50000	Base material
			Silica	60676-86-0/-	99.47	897000	Filler
			Carbon black	1333-86-4	0.33	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.